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Contents

1. Introduction	1
2. Treatment issues	3
2.1 Definition of treatment	3
2.2 Objectives of treatment	4
2.3 Intervention strategies for conditions related to the use of psychoactive substances	5
2.3.1 Acute intoxication	5
2.3.2 Harmful use	6
2.3.3 Dependence syndrome	7
2.3.4 Withdrawal state	7
2.3.5 Related psychiatric disorders	8
2.3.6 Other somatic disorders	8
2.3.7 Chronic disabilities	9
2.3.8 General principles	9
2.4 Assessing treatment effectiveness and cost-effectiveness	9
2.4.1 Effectiveness	9
2.4.2 Economic evaluation of treatment	13
2.4.3 Cost-effectiveness of different treatment approaches	15
2.5 Treatment evaluation research	16
2.5.1 Brief interventions	17
2.5.2 Detoxification	17
2.5.3 Strategies for assisting withdrawal	18
2.5.4 Opioid maintenance treatments	21
2.5.5 Pharmacotherapies other than maintenance treatments	24
2.5.6 Psychosocial interventions	25
2.5.7 Specialized residential facilities	28
2.5.8 Therapeutic communities	29
2.5.9 Enforced abstinence	30
3. Developing a treatment system	30
3.1 The structure of services	31
3.2 Treatment needs	32
3.3 Natural recovery	33
3.4 Balancing approaches to the provision of services	33
3.5 Evaluation and quality assurance	34
3.6 Access and barriers to treatment and rehabilitation	35
3.7 Treatment and rehabilitation in prisons	37
3.8 Voluntary, coerced and compulsory treatment	38
4. Resolution of the United Nations Commission on Narcotic Drugs (CND)	38
5. Recommendations	40
5.1 Policy issues	40
5.2 Treatment services	40
5.3 Training	41
5.4 Dissemination of information	42
5.5 Research	42

6. Pre-review of psychoactive substances	43
6.1 Benzodiazepines	43
6.2 Dihydroetorphine	44
6.3 Ephedrine	44
6.4 Nicotine	44
6.5 Remifentanil (INN)	45
6.6 Sumatriptan (INN)	45
Acknowledgements	45
References	45
Annex	
Working documents for the meeting	50

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Geneva, 14–18 October 1996

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1. Introduction

The WHO Expert Committee on Drug Dependence met in Geneva from 14 to 18 October 1996. The meeting was opened on behalf of the Director-General by Dr N.P. Napalkov, Assistant Director-General, who noted that since its establishment the Committee had been responsible for evaluating dependence-producing substances and recommending appropriate international control measures, as well as proposing ways of preventing or reducing harm due to or associated with the use of psychoactive substances. At its eighteenth meeting in 1970, the Committee had discussed the treatment of such harm, and it was now requested again to advise WHO on current approaches to treatment and their application in a changing world situation. The Committee was also asked to carry out a pre-review of seven substances. In addition, the Director-General wished to obtain the Committee's advice on WHO's response to resolution 1 (XXXVIII), on "Prohibition of the use of heroin", adopted by the United Nations Commission on Narcotic Drugs at its thirty-eighth session (14–23 March 1995).¹

Dr A.D. Lopez, Acting Programme Manager, Programme on Substance Abuse, recalled that the Committee's recommendations would be used to guide the Programme's activities and thus contribute to global efforts to improve the management of public health problems related to substance use.

The scale of dependence and other problems related to the use of psychoactive substances² has grown dramatically in the more than 25

¹ *Report of the Commission on Narcotics Drugs on its thirty-eighth session.* Official Records of the Economic and Social Council, Supplement No. 9 and corrigendum and addendum (E/1995/29 and Corr. 1 and Add. 1). New York, United Nations, 1995.

² As used in block F10–F19 of the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), the term "psychoactive substance" encompasses alcohol, opioids, cannabinoids, sedatives or hypnotics, cocaine, other stimulants including caffeine, hallucinogens, tobacco, volatile solvents, and other psychoactive substances. For the sake of concision the term "substance" is sometimes used in this report as a synonym.

Related terms, as defined in the WHO *Lexicon of alcohol and drug terms* (2), include the following:

psychoactive drug or substance — A substance that, when ingested, affects mental processes, e.g. cognition or affect. This term and its equivalent, **psychotropic drug**, are the most neutral and descriptive terms for the whole class of substances, licit and illicit, of interest to **drug policy**.

illicit drug — A **psychoactive substance**, the production, sale or use of which is prohibited. In this report the term "drug" is used in its medicinal meaning, as distinct from other meanings defined in the *Lexicon of alcohol and drug terms*.

(footnote continues on p. 2)

years since the Committee discussed the principles for managing drug dependence at its eighteenth meeting, in 1970 (1). Although the principles enunciated in that report remain relevant to the contemporary treatment of dependence on tobacco, alcohol and other drugs, there have been significant developments in the treatment and rehabilitation of dependent persons since 1970. There has been a considerable growth in research evaluating the effectiveness of a wide range of treatments, and some forms of treatment have been demonstrated to have a substantial positive impact on individual and public health.

A number of major reviews of treatment have also been conducted in the past decade. These include the US Institute of Medicine's comprehensive reports on the effectiveness of the treatment of alcoholism and drug treatment (3, 4), the report of the United Kingdom's Task Force to Review Services for Drug Misusers (5), and the US Department of Health and Human Services report on methods for ceasing tobacco use (6). In the present report, the Committee has sought to place these reviews in a broader international context and, in particular, to examine the applicability of their conclusions to diverse cultural settings. It has also attempted to identify common themes in the treatment of disorders due to nicotine, alcohol and other substances.

Since its inception WHO has been committed to promoting scientific research and the development of policy on the treatment of dependence on alcohol and other drugs. Over the past two decades the reports published in the WHO Technical Report Series have offered a range of opinions on treatment. These have included five core elements:

1. The consequences of psychoactive substance use are regarded as health events, which can be studied with scientific methods, and dealt with by humane and sympathetic approaches.
2. When problems related to substance use increase in severity and frequency within a given society, they represent epidemics that can be understood by epidemiological methods and controlled by public health measures.

drug — A term of varied usages. In medicine, it refers to any substance with the potential to prevent or cure disease or enhance physical or mental welfare, and in pharmacology to any chemical agent that alters the biochemical or physiological processes of tissues or organisms. Hence, a drug is a substance that is, or could be, listed in a pharmacopoeia. In common usage, the term often refers specifically to **psychoactive drugs**, and often, even more specifically, to **illicit drugs**, of which there is **non-medical use** in addition to any medical use.

3. The use of all psychoactive substances, regardless of their legal status, is potentially harmful to health. Policies that aim to reduce such harm must be comprehensive.
4. Social responses, including policies, legislation, community involvement and tradition, are crucial to the evolution and outcome of problems related to substance use.
5. Knowledge of the factors that influence initiation and continued substance use, experience of problems and patterns of cessation is incomplete. So too is knowledge of the effectiveness of interventions, which need to be rigorously evaluated.

In discussing alcohol, tobacco and other substances together, the Committee recognizes that legal and regulatory controls on these substances differ. Where appropriate, the report points to the similarities between the interventions considered appropriate to manage the various disorders due to the different substances.

2. Treatment issues

2.1 Definition of treatment

The term “treatment” is used to define the process that begins when psychoactive substance users come into contact with a health provider or other community service, and may continue through a succession of specific interventions until the highest attainable level of health and well-being is reached. Treatment and rehabilitation are defined as a comprehensive approach to identification, assistance, health care, and social integration with regard to persons presenting problems caused by the use of any psychoactive substance. These definitions include the notion that substance users are entitled to be treated with humanity and respect.

The definition of treatment uses the broad concept of rehabilitation adopted by United Nations agencies such as the International Labour Organisation (ILO), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and WHO (7). It includes the equalization of opportunities and community involvement. The definition is also compatible with WHO’s constitutional objective, which is “the attainment by all peoples of the highest possible level of health”. The aim of treatment, within this broader context, is to improve the health and quality of life of persons with problems caused by their use of psychoactive substances.

It is clear that treatment programmes, whether ambulatory or residential, must involve a wide range of governmental and other sectors,

including health, education, law enforcement, social welfare, and vocational training. All these sectors accordingly share the responsibility for providing support for treatment, rehabilitation and care services. WHO encourages the development of treatment programmes that are responsive to the complete range of needs of individual users and their families (8).

2.2 Objectives of treatment

There are three main objectives in treating and rehabilitating persons with problems caused by their use of psychoactive substances:

- To reduce dependence on psychoactive substances.
- To reduce the morbidity and mortality caused by, or associated with, the use of psychoactive substances.
- To ensure that users are able to maximize their physical, mental and social abilities, have access to services and opportunities, and achieve full social integration.

In some countries, formal treatment programmes that receive public support are expected to achieve additional objectives, including a reduction in criminal and antisocial behaviour, a decrease in users' dependence on public (welfare) support, and an increase in productive legitimate activities.

Different countries and localities within countries may give different priorities to these various objectives. Moreover, treatment agencies may differ in the priority they attach to these objectives, some focusing exclusively on reducing the consumption of psychoactive substances, and others giving greater weight to lowering morbidity and improving the quality of life.

In that connection, the Committee noted at its twenty-eighth meeting, in 1992, that the concept of harm minimization or harm reduction had recently become popular in some countries (8). This approach is aimed at achieving intermediate goals as a half-way stage to achievement of the ultimate goal of freedom from drug dependence by using a variety of strategies to decrease the health and social risks and consequences of substance use. These include providing oral opioids such as methadone as maintenance therapy for injecting opioid users, and setting up syringe exchange facilities or making syringes legally available for drug injectors who are unwilling to abstain from injecting drugs. Such harm reduction efforts, aimed at reducing morbidity and mortality among injecting drug users, have the added advantage for society of reducing the spread of infectious diseases such as hepatitis and human immunodeficiency virus (HIV) infection.

Although the ultimate goal of most programmes is to prevent any such harm, the elimination of all the negative consequences of psychoactive substance use for all users is unlikely to be achieved. The Committee therefore recommended that the goals of national demand reduction programmes should include the reduction of the harm associated with the use of alcohol, tobacco and other psychoactive substances.

2.3 Intervention strategies for conditions related to the use of psychoactive substances

The consumption of psychoactive substances can lead to a range of pathological states and conditions that affect the health or social status of the user. Intervention strategies directed towards improving these states fall into three main groups: professional treatment (requiring specific training); nonprofessional support structures; and informal self-help and mutual help activities. While some conditions are most frequently dealt with in a non-professional or informal way, others require professional treatment. In many cases strategies are combined, either simultaneously or consecutively.

The treatment approach employed should be determined by individual diagnosis of pathological states and conditions. Accurate and comprehensive assessment is therefore essential in order to plan treatment tailored to individual needs, taking into account any factors that support consumption. The clinical states concerned, drawn broadly from the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), are dealt with in the following sections (9).

2.3.1 Acute intoxication

Acute intoxication by psychoactive substances can be followed by various health risks and complications related to the properties of the substance used, contaminating substances, dosage, specific vulnerabilities in individuals, route and rate of administration, context of use, and behaviour associated with use.

These risks and complications may be dealt with in the community (including the substance use setting) or in outpatient and inpatient settings according to the gravity of symptoms and the need for medical infrastructure. Informal and non-medical monitoring and care of acutely intoxicated persons can be helpful, but in cases of overdose or pathological reactions, including disturbed behaviour, professional assessment and treatment are indispensable.

Pharmacological methods are sometimes used to minimize health risks and complications; they include the use of antagonists or medication to reduce the pathological symptoms. They are specific to the substance used or the symptoms displayed. Psychosocial support is essential in order to motivate the recovering individual to improve on dangerous consumption patterns and to identify the next steps that might appropriately be taken. Nevertheless, treatment for acute intoxication must be provided without making prolonged care a requirement.

Careful supervision of intoxication states, guarding against accidents due to disturbed behaviour and preventing death or permanent damage from overdose are the most important and effective elements of intervention. Such interventions are often undertaken within the community by peers, family members and others, without the formal involvement of health care professionals or treatment services. Interventions aimed at avoiding recurrences may be considered for persons who have experienced drug overdoses.

2.3.2 **Harmful use**

In accordance with the definition used in the report of the Committee's twenty-eighth meeting, harmful use is defined here as "a pattern of psychoactive substance use that causes damage to health, either mental or physical".¹ By hazardous use the Committee understands consumption patterns with considerable risks for negative health and/or social consequences.

An assessment of consumption patterns, and especially high-risk patterns, is essential whenever hazardous/harmful substance use by an individual is suspected. Assessment must include a diagnosis of adverse health effects and conditions that require treatment. It should also include an identification of risky conduct such as aggressive behaviour or disinhibited sexual behaviour under the influence of substances.

Early detection of harmful use is essential whenever an individual using dependence-producing substances initiates contact with medical or social services for reasons that may be connected to substance use. Some countries provide injecting drug users, especially those who persist in injecting, with sterile injecting equipment in order to reduce the risk of harmful consequences.

¹ At its twenty-eighth meeting (8), the Committee decided to replace the term "drug abuse", which was felt to be ambiguous, with the ICD-10 term "harmful use", except when individual psychoactive substances were discussed in the context of their international control.

Whenever harmful use is diagnosed, brief interventions should be considered. They are helpful in cases of use of alcohol or tobacco but have not been properly evaluated for other substances, although there are some indications that they can be useful.

In many instances information and counselling on how to replace high-risk consumption patterns with less risky patterns must be considered. For example, drug injectors may be advised to use other routes of administration, and tobacco users to replace cigarettes with nicotine patches. The effectiveness of such strategies has been demonstrated.

2.3.3 *Dependence syndrome*

The dependence syndrome is a cluster of physiological, behavioural and cognitive phenomena of variable intensity in which the use of a psychoactive substance (or substances) takes on a higher priority for the individual than other activities. The necessary descriptive characteristics are preoccupation with a desire to obtain and take the drug, and persistent substance-seeking behaviour. The determinants and problematic consequences of substance dependence may be biological, psychological or social; they usually interact.

Wherever a dependence syndrome is diagnosed, the main means to overcome it are psychosocial and behavioural interventions aimed at a substance-free lifestyle. These approaches may be supported by pharmacological methods. Such methods may include substitution of a less harmful form of a substance for shorter (e.g. tobacco) or longer (e.g. opioids) periods.

In many cases, such forms of treatment are not feasible for various reasons. Intermediate goals aiming at harm minimization may then be considered according to the individual's priority needs, the major harms involved, and the particular circumstances that may affect compliance and a positive treatment outcome.

2.3.4 *Withdrawal state*

A withdrawal state occurs when the intake of a psychoactive substance is discontinued, spontaneously or in detoxification procedures. Withdrawal of a substance has specific risks according to the substance involved. Withdrawal of barbiturates, alcohol and benzodiazepines in particular may produce serious or even life-threatening complications, which may also occur with opioid withdrawal in debilitated persons.

Management of withdrawal state and all detoxification programmes should take such risks into consideration. Appropriate supervision is

needed and medical services should be available, especially in the presence of confusional states, cerebral seizure or hazards as a consequence of poor nutritional condition. Adequate monitoring has an essential part in the management of withdrawal state. Pharmacological treatment and other methods such as physiotherapy, herbal teas or acupuncture can be used to relieve pain, unrest, sleeplessness or other symptoms. Decreasing dosages of a substitute substance may be administered for a few days, especially in cases of barbiturate, alcohol, benzodiazepine and opioid dependence.

Successful treatment of withdrawal state does not prevent the continuation of substance use. Relapse prevention methods must be considered, according to their availability and acceptability for the individual concerned. Informal self-help structures and nonprofessional support may be helpful; in other cases professional intervention is indicated to prevent relapse.

2.3.5 *Related psychiatric disorders*

A range of psychiatric disorders occurs as a consequence of harmful/dependent substance use or as a pre-existing condition. These include paranoid psychosis, depression and other mood disorders, amnesic syndrome, confusional states (including flashbacks), personality disorders, anxiety disorders and somatization disorders.

Such psychiatric conditions need professional diagnostic assessment and therapeutic intervention, either in the primary health care setting or by specialists. They should be given state-of-the-art treatment regardless of their status as a primary condition, a concomitant disorder, or a consequence of substance use. Abstinence from substance use is indicated when use is a causative factor in the diagnosed disorder. Treatment of pre-existing disorders that have prompted the use of a psychoactive substance as a form of self-medication often leads to cessation or reduction of use.

2.3.6 *Other somatic disorders*

Somatic disorders in substance users may be a consequence of harmful use or independent of it. Different substances have different risks for producing somatic disorders, which include cirrhosis of the liver in chronic alcohol dependence and emphysema in chronic tobacco smoking. When such disorders are a consequence of use, abstinence from the substance used is again therapeutically indicated. Other somatic disorders should be treated according to current best practice. Whether or not abstinence is achieved, somatic conditions must be treated. This applies particularly to infectious diseases,

including sexually transmitted and HIV-related diseases, hepatitis and tuberculosis.

Somatic disorders call for professional treatment, in primary health care settings or by specialists. Motivation to undertake and comply with that treatment can be enhanced through nonprofessional support, including involvement of the patient's family and other supportive measures.

2.3.7 *Chronic disabilities*

Substance use may result in chronic conditions that impair psychosocial functioning, physical health and quality of life. Such conditions require long-term management and rehabilitation. While some are reversible, others are not. Proper assessment is necessary in order to plan individual treatment and provide, to the extent possible, a supportive and non-stigmatizing environment (e.g. through community involvement, guidance to and by the family, and sheltered living conditions). Such interventions should be equally available if substance use continues.

Informal self-help initiatives, nonprofessional support and professional rehabilitation methods can all be useful, whenever they are appropriate to meet the individual needs of the person involved.

2.3.8 *General principles*

The Committee concluded that the following general principles are applicable to interventions and the management of drug-related conditions:

- Interventions are useful to the extent that they respond to individual needs and situations.
- Adequate assessment of needs and of the particular situation, of available interventions and of their acceptability is essential for interventions to be effective.
- Professional treatment and nonprofessional interventions and support can effectively complement each other. Joint and comprehensive planning and monitoring of interventions increase their effectiveness.

2.4 *Assessing treatment effectiveness and cost-effectiveness*

2.4.1 *Effectiveness*

There has been a growth in the receptivity to and understanding of the importance of evidence-based medicine. The Committee particularly commended the rigorous application of evidence-based

medicine to the area of psychoactive substance use in order to provide a scientific basis for recommendations on approaches to treatment.

The Committee noted the international expansion of systematic approaches to literature reviews, including the work of the Cochrane Collaboration centres (10). A review group on treatment for tobacco use had been established, and the Committee encouraged the development of similar studies in the treatment of dependence on opioids, cannabinoids and cocaine (categories referred to as narcotics under the Single Convention on Narcotic Drugs, 1961), as well as alcohol, benzodiazepines, volatile solvents and other psychoactive substances. Such reviews require a transparent method of selecting evidence, a standardized approach to analysing treatment effect, defined criteria for outcome data, and a consistent statistical methodology for meta-analysis.

The randomized clinical trial can be regarded as the most robust method of treatment evaluation. The strength of evidence from different sources can be ranked as follows:

1. Multiple well designed randomized clinical trials.
2. Evidence from well designed studies with some element of control present.
3. Evidence from well designed non-experimental studies, e.g. observational or follow-up studies.
4. Evidence based on the opinion of respected authorities and expert committees or on individual anecdotes derived from acknowledged experience.

The evaluation of well defined interventions by randomized controlled trials provides the strongest evidence of benefits. If appropriate costing data are included in the study, comparative cost-effectiveness can also be assessed. The execution of randomized trials is not always feasible and much of the existing information on drug dependence is derived from controlled observational studies and longitudinal cohort studies. Such studies provide valuable outcome data but sometimes lack the capacity for in-depth comparative analysis. There are now many other examples of large-scale evaluation studies, particularly in the United Kingdom and the United States (5, 11). These projects inform programme and policy development from a research perspective rather than a programme management perspective.

However, while such structured and quantified forms of evaluation provide weighty evidence of the benefits of treatment, the Committee

also recognized the value of other research methodologies such as controlled observational studies, longitudinal studies and qualitative research, which provide invaluable information on complex treatment approaches that cannot be studied in experimentally designed trials.

In the past two decades there have been a number of randomized controlled trials of treatment in the field of nicotine, alcohol and other substance use. Such experimentally designed trials in the tobacco field have helped to clarify issues of treatment efficacy in tobacco cessation and have resulted in the elaboration of detailed guidelines for the treatment of smoking (6), especially in combination with available pharmacological supports such as nicotine substitution. The guidelines provide a model for similar activities in all areas of treatment for alcohol and other drug dependence. There have also been a considerable number of carefully controlled randomized double-blind studies of pharmacological treatment for alcohol, opioid and stimulant dependence. Such studies have had important implications, for example:

- Following studies on alcohol dependence, the general acceptance of benzodiazepines as the drugs of choice for treating the alcohol withdrawal syndrome.
- The approval in the United States and several other countries of naltrexone (an opioid antagonist) as a useful agent in preventing relapse of alcohol dependence.
- The evaluation of acamprosate for the same purpose in Europe.
- A fuller understanding of the utility of drugs such as disulfiram and the role compliance in their clinical use plays in treatment outcome.
- The conclusion that lithium has little or no specific therapeutic benefits for alcohol-dependent people who do not also suffer from manic-depressive disorder.

Numerous double-blind randomized studies have substantially advanced scientific knowledge about effective treatments for opioid withdrawal and opioid dependence. For example, there is now consensus that non-opioid α_2 -adrenoreceptor agonists such as clonidine and lofexidine can alleviate aspects of the opioid withdrawal syndrome, facilitating withdrawal in both inpatient and ambulatory settings. Additional work has shown that the duration of symptoms can be shortened by increasing the intensity of the withdrawal syndrome using opioid antagonists such as naloxone and naltrexone. The past two decades have witnessed additional studies of orally administered opioids such as methadone, *l*- α -acetylmethadol (LAAM), and

buprenorphine. The effectiveness and safety of these agents in reducing illicit opioid use, decreasing crime and lowering morbidity has been established in randomized double-blind placebo-controlled or dose-response studies. There have been fewer controlled clinical studies of long-acting opioid antagonists; those that have been done suggest that while the medications succeed in blocking the effects of opioids after consumption, compliance with the regimen for taking such antagonists is low under most circumstances.

Over the past 10 years considerable effort has been expended to explore the utility of a wide variety of pharmacological agents in reducing stimulant use and stimulant craving (especially cocaine) and in alleviating symptoms during stimulant withdrawal. Generally, the promising results obtained in open, uncontrolled studies have not been replicated in more carefully designed double-blind controlled studies. At present there are no agents available with clearly established robust effects useful in treating stimulant withdrawal or dependence.

There has been a significant growth in the number of multicentre trials, longitudinal cohort studies and other outcome-type studies, which have done much to provide information about existing treatment methods. For example, between 1980 and 1990 more than 250 new studies were published that reported outcome data on various aspects of alcohol treatment. A wide range of effective treatments is available for alcohol and drug problems, including psychosocial, medical and educational interventions, and a large body of research has demonstrated that treatment for alcohol and drug problems can be effective (3, 12, 13). This research on the effectiveness of treatment addresses psychosocial interventions as well as interventions using pharmacotherapy, the research on which the Committee has discussed in more detail in the past. The need remains, however, for significant continuing investment in the design and execution of experimental trials in the field of substance dependence if more definitive statements about the value of specific treatment approaches are to be made with confidence.

There is often a substantial lag in putting into practice what is learned even from well designed studies. The recent emphasis on health services research in many countries offers important possibilities for improving the links between research and practice. The focus here is on applying clinical research findings to real world settings in order to assess their effectiveness. In addition, much has been learned about how the financing system, health service organization, and treatment process affect access and outcome (14, 15).

In most countries there is a significant gap between what is known about effective treatments and what is delivered. Much of what is done has not been evaluated, and in many areas where the generally scarce resources for treatment are available there may be major expenditure on expensive but less effective treatments rather than briefer and more cost-effective approaches. The Committee pointed to the need for such gaps between knowledge, policy and practice to be narrowed over time.

2.4.2 ***Economic evaluation of treatment***

In addition to the efficacy of particular interventions, questions may also arise regarding the economic evaluation of substance use treatments. These can be summarized in the following form:

- Is treatment worthwhile (i.e. is the money well spent)?
- Is treatment A more cost-effective than treatment B?

In practice the choice of policy is more complex, usually relating to the share of resources to be devoted to prevention compared to the funding of treatment, and sometimes misleading results may be gathered from simple comparisons. For example, “unsuccessful” treatments in one period may have carry-over effects that determine the success of another treatment episode.

Very few fields of health care are subjected to an explicit analysis of whether the benefits to the individual and society are of higher value than the costs, e.g. whether expenditure on heart surgery for the elderly is likely to yield benefits to society. However, in many countries treatment for substance use disorders does not enjoy such unqualified and uncritical support. This hesitation has led to investigations aimed at determining whether treatments for substance use disorders and dependence, particularly those for internationally controlled substances and alcohol, yield benefits that equal or exceed their cost. The procedure for such *cost–benefit studies* is to measure all the costs and benefits that arise from treatment compared to the costs and benefits that would occur if there were no treatment.

The study framework should therefore include all costs and benefits, tangible and intangible, to the substance users, their families and the rest of society. The “costs” are those directly and indirectly associated with the treatment programme, while the benefits encompass both the positive effects for the individual and the consequent reduction in substance use problems for the rest of society. Measurement is usually based on the difference between treatment and no treatment, but similar analyses can be used to compare different types of treatment.

The results of such studies should be relatively clear-cut. If a treatment programme results in more benefits than costs, then “treatment” can be considered worthwhile, since society would be worse off if no treatment were available. To go further, and to suggest that additional expenditure on treatment is desirable, would need further analysis to evaluate the costs and benefits of providing the additional resources. These incremental or marginal costs and benefits may differ from the average values.

The advantage of the technique is that it employs a common value system to assess a number of different outcomes or benefits from interventions, for example, when comparing interventions with very different main outcomes or where alternative interventions have a number of different outcomes. In order to judge the benefit to the individual, however, the value and quality of life need to be measured.

Health economists have only recently applied such methods to the treatment of psychoactive substance use. Measures that attempt to assess changes in the duration and quality of life directly have been proposed, such as quality-adjusted life years (QALYs), disability-adjusted life years (DALYs) and health life year equivalents (HLYEs) (16, 17). These measures are assumed to represent the utility of health and hence studies using these measures are called *cost-utility studies*. The main feature of such measures is that by the use of these scales it is possible to compare interventions that primarily lengthen life with those that primarily affect quality of life. This can be particularly important in comparing prevention or health promotion interventions with treatment programmes.

The third main type of economic evaluation is *cost-effectiveness analysis*. In this technique a single outcome is the focus of the study, for example, the number of smokers ceasing to smoke, the reduction in substance consumption, or the proportion of non-users. The advantage of the technique is that the chosen outcome measure is quantifiable and will frequently be meaningful for those delivering the interventions. One disadvantage is that the outcome measure may be too narrow to reflect the full effects of the intervention. A further disadvantage is that the results may only be helpful for a narrow and specific policy question. The results of studies indicating the cost per unit of reduction in alcohol consumption cannot be used to determine, for example, the division of resources between treatments for alcohol and for internationally controlled drug use.

There are a number of other variants of the three main types of economic evaluation. In some studies the outcomes of alternative

treatments have been found to be equivalent, and therefore the question of cost-effectiveness is reduced to identifying the alternative that minimizes costs (18). Another simpler version of a cost-benefit study is what has been termed the *cost offset study* (19, 20), in which the cost of treatment is compared to the saving in health care costs. This may be seen as taking a narrow perspective, i.e. that of the health care organization alone. The problem with a narrow perspective is that the treatment that yields the highest saving in future health care costs may not necessarily be the treatment that produces the greatest total benefits. Hence basing decisions on such studies alone may lead to a misallocation of resources between treatment types.

Finally, some studies have been concerned with a more detailed examination of the costs of providing interventions (21, 22). Such studies are obviously of importance to both care providers and funding services, as they permit some understanding of the resources required to deliver different levels and mixes of interventions. The information gained can form an input to an economic evaluation.

For each of these methods, it is often also important to consider how the results may vary with incremental changes. For example, it is of value to know how costs and benefits may change as a given treatment is expanded, contracted or applied to different groups within the population of substance users.

In evaluating the benefit of treatment to society, it is important to look at the savings derived from treatment that occur in all the institutional systems affected. A common tendency in many countries is for the analysis of cost savings to be fragmented. However, the costs that are saved for the criminal justice and welfare systems, as well as in the workplace, should be considered as part of the overall equation.

The Committee noted the considerable number of studies that had been undertaken to examine the costs and benefits of treatments for alcohol and other substance use (22, 23, 24). It therefore expressed its concern that, at a time when the effectiveness, and indeed the cost-effectiveness, of treatment has been established, the availability of many of the treatments has been decreasing. For example, reductions in the number of services provided, length of stay, and intensity of treatment have been found in both public and private programmes in some countries during the past 10 years (25).

2.4.3 Cost-effectiveness of different treatment approaches

Cost-effectiveness studies of substance use treatments have the same advantages and disadvantages as cost-effectiveness analysis as a technique for evaluating other aspects of health care. For smoking

cessation there is substantial agreement on single outcomes such as “quit rates” and the epidemiological evidence to link these rates to health outcomes. For substance use programmes, however, the choice of any one single outcome is disputed. Instead, there is a growing consensus that outcome must be measured in several dimensions, including reductions in the types and amounts of substances used, improvements in general health and psychiatric status, reductions in utilization of health care services, reductions in criminal activity and contacts with the criminal justice system, increases in productive legitimate work, reductions in dependence on welfare, and reductions in behaviour associated with transmission of infectious diseases (e.g. hepatitis and HIV infection). Different treatments have different philosophies, especially regarding the importance for the patient of being substance-free. This can be seen as a “value” question. The weight and value given to different outcomes may vary across countries and time. The importance of different individual outcomes and the effect they have on cost–effectiveness findings requires further study, as does the question of including a wider range of social costs.

2.5 Treatment evaluation research

Treatment approaches are complex and diverse, and may differ in modality, philosophy, stage specificity, setting, target, provider, time-frame, efficacy, cost, availability, utilization, organizational characteristics and financing, all of which dimensions require consideration (26).

A treatment setting is a location in which treatment for alcohol or other substance use problems occurs. Such treatment traditionally takes place in specialized treatment settings, which may conveniently be categorized as inpatient, residential, intermediate and outpatient settings. The settings of treatment have generated much controversy and there is a need to distinguish between the setting in which a treatment occurs and the modality of treatment that is actually delivered.

There is no evidence that any particular setting (inpatient, outpatient, community setting, hospital), or even modality (group or individual counselling), produces better outcomes in all patient groups. Types of setting (e.g. inpatient or outpatient, medical or non-medical) do not seem to be as important as the services received (26).

The appropriateness of locating particular stages of treatment, such as detoxification, in particular settings has generated conflicting views. The differential costs of the different settings make the issue complex. There is some evidence that those who reimburse treatment providers

tend to favour less expensive settings and those who provide care, especially for profit, tend to favour more expensive settings. While the residential setting is costly, so that access to such treatment is limited, cost–effectiveness studies appear to indicate that it offers cost–benefit advantages to society. However, the comparative cost–effectiveness of different settings, e.g. residential as against community-based settings, is difficult to ascertain.

The major proportion of treatment is delivered within a community setting and a smaller amount of more intensive treatment in a residential setting. The role of residential settings appears to be to provide a form of back-up to community-based interventions, particularly where a range of settings is organized in a manner that supports and maintains individuals in their community setting, backed as appropriate by time-limited residential services.

The diversity of treatment approaches raises the possibility of major variation among units providing care, localities and sociocultural settings. Thus these dimensions must be clearly defined when attempting to evaluate treatments under controlled conditions. While the Committee did not cover all aspects of these descriptors, key issues are briefly referred to in the following sections.

2.5.1 *Brief interventions*

As part of screening and assessment it is possible to provide advice about the risks inherent in a range of patterns of substance use and to advise reducing or stopping use. One of the most consistent findings in treatment intervention studies has been the efficacy of brief interventions in both alcohol (27) and tobacco (28) consumption. The evidence for the benefits of brief interventions for harmful alcohol consumption has been well demonstrated; however, there is minimal evidence for its role in the management of alcohol dependence.

2.5.2 *Detoxification*

Detoxification needs to be seen in the context of broader social and treatment interventions, which will include initial social stabilization and extended social support after completion of detoxification. Overall, community-based (i.e. not residential or inpatient) detoxification is the most efficient and cost-effective approach. Moreover, community-based withdrawal, with or without medication, can be most cheaply and widely delivered. However, that does not mean that inpatient facilities should be closed down. Inpatient detoxification is essential for a small minority likely to experience severe withdrawal and associated medical complications if the risk of death is to be avoided. Purpose-built facilities are preferable to treatment in acute

medical or psychiatric wards because they are associated with higher rates of admission, completion and continuing abstinence than the general medical or psychiatric setting (29).

Notwithstanding the possible medical complications of withdrawal of alcohol, benzodiazepines and other depressant drugs, the process of drug withdrawal is generally uncomplicated and associated with high completion rates when community-based. The exception is opioid dependence, where completion rates for detoxification in the community remain low compared to inpatient detoxification. However, inpatient facilities are expensive and in very limited supply, so that they can reach only a tiny proportion of the total substance-dependent population.

Overall, an effective and efficient detoxification service requires a range of facilities, providing outpatient or home care, with or without medication, that can meet the needs of patients with differing home circumstances and levels of withdrawal. However, most studies show that detoxification without any further intervention or support is likely to have very little or no enduring effect.

Most individuals make multiple attempts at self-withdrawal before seeking help. Most smokers who manage to stop do so unassisted. Though no equivalent figures are available, it is reasonable to assume that a significant number of alcohol and other drug consumers stop without professional help. It is desirable for health promotional and educational material on “do-it-yourself” detoxification to be available to guide such individuals and to make them aware of the possible complications of some forms of withdrawal.

Clearly many, if not all, individuals who contact and use substance treatment services will have failed in their attempts at self-modification and will therefore be seeking assistance to change their behaviour. Consequently, this population is more difficult and more intractable by definition than those who do not use such services (30).

2.5.3 *Strategies for assisting withdrawal*

Comprehensive data are available both on the use of nicotine replacement therapy for tobacco withdrawal and on medications for alcohol and opioid withdrawal.

The advent of therapeutic preparations of nicotine has prompted considerable progress in the design and scientific rigour of randomized smoking cessation trials. There have been advances in the size of trials, the definitions of outcome, the thoroughness of follow-up, and biochemical validation of claims to abstinence. This has resulted in a

body of work that enables firm conclusions to be drawn on basic issues of efficacy. A number of meta-analyses of these trials have been undertaken, reaching what amounts to a consensus judgement: nicotine replacement is an effective adjunct to cessation, approximately doubling the success rate over placebo controls (31–35). This effect is found both in the context of intensive clinic-based interventions, where overall success rates are higher, and in brief interventions delivered to less highly selected smokers where success rates are lower. Examples of the former are the Maudsley Smokers Clinic trial of nicotine chewing-gum, which found sustained one-year abstinence on active gum of 32% as against 14% on placebo (36), and a trial of nicotine nasal spray conducted in the same clinic with similar results (26% vs 9%) (37). Outcomes of brief interventions are typified by a trial of nicotine chewing-gum as an adjunct to advice in general practice settings (9% one-year success rate with active gum as against 5% in advice-only controls) (38), and a recent general practice trial of nicotine skin patches where the one-year success rate with advice plus active patches was 10% compared with 5% in those receiving advice and placebo patches (39, 40).

The data now available provide no clear evidence that any one nicotine replacement product has substantially greater efficacy than any other. For chewing-gum and skin patches, the treatment effect in both intensive and brief interventions is of equivalent magnitude. Nicotine nasal sprays and inhalers have so far only been tested in specialist settings, where their efficacy appears to be similar to that of chewing-gum and skin patches.

The choice between nicotine products is at present determined largely by issues of compliance. Given that many patients are unlikely to receive extensive counselling on what to expect from a product and how to use it to best advantage, it is reasonable to choose the product that is simplest to use and least likely to be rejected by the patient. On present evidence the skin patch is the treatment of choice in the community for the average smoker. Its advantage lies in the fact that the smoker needs only to remember to apply a fresh patch once daily and continue not to smoke. This simplicity offsets the lack of control over dosage and the absence of a behavioural response linked to nicotine delivery, both of which chewing-gum and nasal spray offer. In the case of gum and spray, patients need to learn an effective self-administration technique to optimize nicotine delivery, and also to pass through a period of adaptation when irritation to the mouth and throat (gum) and nose and eyes (spray) may be experienced.

Therapeutic nicotine preparations can be readily incorporated into most treatment programmes, including both intensive group-based

clinic support and, more importantly from a public health perspective, brief interventions in primary care. Results from trials of nicotine skin patches and chewing-gum indicate that smokers with low and high levels of dependence are aided to a similar degree. Both patch and gum are now available as over-the-counter aids in many countries without prescription, making it increasingly unlikely that the typical consumer will use them in the context of a formal treatment programme.

In the field of benzodiazepine dependence and withdrawal, controlled trials have demonstrated the benefits of replacement of short-acting agents with longer-acting agents, resulting in increased cessation rates and fewer symptoms.

There have been a number of experimental trials of the use of methadone for detoxification in community settings. In descriptive outcome studies, completion rates range from 10 to 30% (4). However, opioid withdrawal using methadone in inpatient settings has been extensively evaluated, studies with non-experimental designs reporting completion rates of up to 80%. Such high completion rates were associated with increased use of medication to ameliorate withdrawal symptoms and to shorten the withdrawal period. However, the completion of inpatient withdrawal does not typically prevent relatively rapid relapse among opioid-dependent individuals. There has also been considerable interest in the use of non-opioid agents such as clonidine or lofexidine for detoxification; preliminary data indicate that in terms of subsequent relapse these agents may be of similar efficacy to methadone (42).

A withdrawal syndrome consisting primarily of fatigue, dysphoria and some sleep disturbance has been described following the abrupt cessation of use of stimulants such as cocaine and amphetamine taken for a period of a week or more. There has been considerable research on agents such as dopaminergic agonists that might alleviate stimulant withdrawal and/or any associated craving. However, no agents have been identified which reliably and demonstrably improve the clinical syndrome following stimulant cessation. Further, in at least two careful inpatient studies of cocaine withdrawal the distress associated with the syndrome was mild and no specific intervention seemed indicated (43).

Less fully evaluated for their capacity to alleviate opioid and stimulant withdrawal syndromes are a number of other physical procedures and medications that have gained popularity in several countries. These include acupuncture, transcranial electrical stimulation of the brain, hyperbaric oxygen, a variety of herbal preparations, and a few

hallucinogens. While some of these, such as acupuncture, seem benign and pose no additional risk to the drug user, the safety of other procedures is still open to question. There is little or no evidence to suggest that relapse rates are lower when withdrawal associated with any of the various substance use disorders is treated with these procedures than with better established procedures. Despite the absence of data from well controlled studies, a number of practitioners and patients have offered testimonials to the efficacy of these methods. Their popularity to alleviate withdrawal may be based on their low cost and a tendency of users and some providers to seek to be free of the regulatory requirements associated with the use of standard medicines requiring professional supervision. The Committee encouraged the efforts now under way to subject these procedures to more rigorous scientific evaluation.

While cannabis withdrawal has been observed following high daily oral doses in a laboratory, the slow rate of excretion of the active principle is such that specific treatment of withdrawal is virtually unnecessary.

The Committee took note of the commercialization in several countries of a procedure involving naltrexone-precipitated opioid withdrawal following anesthetization of the patient. Its sponsors state that upon recovery from the effects of anaesthesia for 6–8 hours (usually within 24 hours), the patients feel no further craving for opioids, and that those who comply with the use of naltrexone as part of post-detoxification care experience low relapse rates. The Committee was not aware of any properly controlled studies showing that the relapse rates following such ultra-rapid one-day detoxification are lower than those associated with more conventional withdrawal or with rapid opioid withdrawal assisted with clonidine or naltrexone.

2.5.4 Opioid maintenance treatments

At its eighteenth meeting, in 1970, the Committee devoted considerable time to consideration of the role of maintenance substitution pharmacotherapy, such as the use of methadone for opioid dependence, in order to determine if some of the pathological effects of the dependence syndrome could be alleviated without necessarily achieving full recovery. At that time the Committee felt that it was “not possible to make valid comparisons between the ‘British approach’ to heroin maintenance and the methadone maintenance system used in North America, because of the many differences in the populations treated and in, for example, the sociocultural factors, the practice of medicine, and the legal framework” (1). It also noted that, while there had been no development of a maintenance programme for patients

dependent on substances of other types, some individual physicians maintained selected patients on stable doses of barbiturates or on small oral doses of amphetamine provided that they were otherwise functioning adequately. It considered that there was no evidence to support the general use of that technique with those groups of substances at that time. It further noted that in a very few countries opium was provided through governmental channels to selected long-term opium users, the goals of that approach being problem containment and the minimization of illicit drug traffic.

In 1995, a WHO consultation examined the framework for consideration of substance substitution in the context of treatment (44). Substitution therapy was defined as:

For people dependent on a psychoactive substance, the administration of a prescribed psychoactive substance, pharmacologically related to the one producing dependence, to achieve defined treatment aims, usually improved health and well-being.

The Expert Committee endorsed the consultation's view that the following essential criteria should be met for a substance to be considered appropriate for prescription in substitution therapy:

- It should show cross-tolerance and cross-dependence with the psychoactive substance causing dependence.
- It should reduce craving and suppress withdrawal symptoms.
- Clients should be able to be stabilized on it (or other substitute substances within a particular therapeutic range).
- It should facilitate psychosocial functioning and improve health.
- It should be acceptable to patients.
- It should have no long-term toxic (i.e. organ-destroying) effect.
- It should be affordable and available.

It is also desirable for substances prescribed as substitutes:

- not to grossly impair psychomotor functioning
- to be less attractive for diversion and sale than the psychoactive substance causing dependence
- not to have gross short-term toxic effects.

The preferred route of administration for substances prescribed for substitution is oral, because this is the safest route with the fewest complications. However, opioid substitution by the oral route will probably not attract some hard-core intravenous opioid-dependent populations. Careful research on other routes, including cost-benefit analyses, might therefore be considered in countries that already have ample treatment capacity and ready access for all those seeking treatment to more thoroughly proven non-pharmacological and pharma-

colological treatments such as oral maintenance with methadone, LAAM or buprenorphine.

The context of delivery of substitution therapy has important implications for the quality of the intervention, both to maintain adequate control and to ensure responsible prescribing. Within methadone prescribing it is clear that there is wide variation in the form of delivery, and structured evaluation of the size of the effect of this variation on expected treatment outcomes is needed.

The Committee recognized that, as with any health or social care intervention, substitution therapy requires balancing of benefits and costs. There needs to be a balance between maximizing effects and minimizing harm, and between satisfying preference and minimizing costs.

Since 1970 methadone maintenance treatment has grown substantially to become the dominant form of opioid substitution treatment globally, with over a quarter of a million opioid-dependent persons maintained on methadone. Because the treatment was initially controversial, it has been more rigorously evaluated than any other treatment for opioid dependence. The weight of evidence for its benefits is substantial; a number of randomized controlled trials and numerous observational studies have demonstrated reductions in illicit drug use, injecting and criminal behaviour, and improvements in physical, psychological and social well-being (45, 46). By contrast there has been only one randomized trial of treatment for heroin use with oral methadone maintenance (47). This study found that those seeking heroin prescriptions were more likely to drop out of treatment if assigned to oral methadone. Comparable reductions in criminal behaviour were observed, if adjustment was made for baseline behaviour. Given the overall benefits of oral opioid substitution treatment for intravenous heroin dependence, a number of trials have been conducted to compare other agents to methadone. These include buprenorphine and LAAM, both of which have been extensively assessed in the United States. LAAM has been approved by the US Food and Drug Administration (FDA) for opioid dependence treatment, while buprenorphine will be submitted to the FDA for approval for the same use in the near future (48). Buprenorphine at high dosage has been approved in France and is now in widespread use there for the management of opioid dependence.

In several countries, there is now considerable interest in the role of heroin maintenance and other forms of injectable opioid maintenance. This has been a subject of extensive controversy. There have been claims, without good evidence, that heroin maintenance

treatment confers highly significant additional benefits compared to oral methadone (49). A large clinical study now in progress in Switzerland will provide further information on this issue (50). However, because this study is neither randomized nor double-blind, but a controlled observational study, it will not provide robust data on comparative effectiveness or cost-effectiveness. Further trials and studies are reported to be planned in the Netherlands. There is a need for rigorous experimental design in the execution of these projects if the controversial issues they raise are to be empirically addressed.

In the United Kingdom, the evolution of practices such as that of injectable methadone and amphetamine prescribing has not been supported by rigorous evaluation and is indicative of a lack of adequate controls on prescribing by physicians. Current knowledge suggests that such practices contribute substantially to the illicit market in prescribed drugs and may contribute to the increase in the incidence of substance dependence and substance-related harm. They also risk bringing the whole domain of substitute prescribing into disrepute, resulting in a loss of political and social support and public funding for such activities. For these reasons there is a need for continued evaluation, detailed clinical guidelines, and mechanisms for ensuring compliance with the guidelines.

2.5.5 *Pharmacotherapies other than maintenance treatments*

The development of new pharmacotherapies for the treatment of dependence has received support from both governments and the pharmaceutical industry. The importance of such steps cannot be overstated, and the rigorous evaluation of new approaches using randomized trials that adhere to the WHO Guidelines for Good Clinical Practice (GCP) for Trials on Pharmaceutical Products is essential (51). New pharmacotherapies provide new tools to be implemented along with the remaining range of interventions. Evaluations can simultaneously provide new data on the relative contribution of other adjunctive interventions and help in assessing the relative contribution of different settings and degrees of compliance. The entire context for delivering pharmacotherapies needs to be considered, especially where the use of internationally controlled drugs is involved. The development of substitution drugs, drugs to modify the route of consumption, unrelated withdrawal drugs, anti-craving drugs, and other drugs to assist in the maintenance of abstinence has significantly added to the efficacy of nicotine, alcohol and other substance use treatment in the past decade. Further work in this area should be strongly encouraged at all levels.

The problem of preventing relapse following initial detoxification remains a central focus of research for the entire field of substance dependence, irrespective of the particular substance involved. In some areas there have been significant advances. There is now evidence from several well controlled double-blind studies that naltrexone (an opioid antagonist) given orally can significantly reduce the rate of relapse to dependent drinking among detoxified alcohol-dependent patients, although it does not significantly affect the percentage of such patients who take at least one drink of alcohol a day. Naltrexone is approved and/or licensed for use in the United States and several European countries. The drug acamprosate, which also appears to lower relapse rates among alcohol-dependent persons, is still under study. An older drug, disulfiram, has been re-evaluated and found to produce some useful effects in preventing relapse, although the major impact appears to be in assisting compliance.

There has been general recognition that additional psychiatric disorders are common among substance-dependent individuals, particularly affective and anxiety disorders. Careful studies appear to show that substance-dependent users with depression, especially if that depression persists during periods of abstinence, respond well to available antidepressants when dosage is adjusted in response to the altered metabolism commonly present among alcohol- and other substance-dependent individuals. Some studies have suggested that antidepressants can help prevent relapse in smokers who experience depression when they attempt to discontinue smoking.

The use of clonidine and lofexidine to facilitate opioid withdrawal has been mentioned above (see section 2.5.3), as have the various nicotine preparations (chewing-gum, skin patches, nasal sprays) that have been shown in well controlled studies to facilitate smoking cessation and reduce the rate of relapse.

2.5.6 *Psychosocial interventions*

Psychosocial interventions are a part of virtually all aspects of treatment for psychoactive substance use. Because of the skills and human resources they demand, they represent a dominant share of the cost of treatment. There is a wide perception of their value and importance, but so far there has been little empirical evaluation to determine their relative strengths and values.

The recent Task Force to review the effectiveness of services for drug misusers in England reported that it was able to cite only six articles since 1975 on counselling in the illicit drugs field that included any kind of experimental structuring, formal comparison or control conditions

(although there is a richer literature on the effects of counselling and psychotherapy on other psychiatric diagnoses). It concluded that a formal review of such sparse literature was hardly possible (5).

Counselling is generally embedded in broader aspects of intervention. The main conclusions to be drawn are that there are marked and consistent differences among counsellors in the likelihood of successful outcomes for their patients. The counsellors showing the best results have high levels of organization and adhere closely to their chosen counselling programme rules.

A controlled study of methadone treatment in which intensive psychosocial intervention plus methadone was compared to methadone plus minimal other treatment found a significant difference in a range of outcome measures, indicating that the broader, more intensive intervention conferred additional benefit. However, a more recent controlled study found that adding group therapy to standard counselling conferred no additional improvement in outcome (13).

In the alcohol field there has been substantially more evaluation, but results remain inconclusive for many of the interventions delivered at present. There is clear evidence of benefit from the provision of brief interventions which, together with empathic and reflective listening, have been positively evaluated by controlled research. Motivational interviewing is frequently an inherent part of brief interventions. Self-control training and behavioural marital (couples) therapy have been demonstrated to confer benefit. By contrast, neither confrontational, educational, counter-conditioning and anti-craving approaches nor group therapy have been demonstrated to confer any specific benefit (52).

Several studies on tobacco cessation have shown brief advice to be efficacious, resulting in increased likelihood of long-term cessation in patients receiving a physician's advice relative to controls not receiving advice.

In the broader context, individuals with severe and chronic dependence and associated impairments and disabilities, whether social, psychological or medical, are generally considered suitable for more intensive interventions, which are sometimes referred to generically as rehabilitation.

Social and vocational rehabilitation can vary according to the organization or agency concerned. The focus of such rehabilitation is to re-establish persons in their own community and minimize the limitations in activity that result from impairment. Examples include the provision of housing, education, training and work opportunities.

Support and maintenance generally involve arranging for and providing resources which enable individuals to maintain their maximum level of independence. Support can also involve providing families with the resources they need to help sustain a maximum level of independence. Thus support and maintenance vary depending on need.

Voluntary mutual help organizations such as Alcoholics Anonymous and Narcotics Anonymous play a large role in supporting recovery from substance dependence in many countries. Perhaps the largest is Alcoholics Anonymous, which functions in more than 30 countries. These programmes promote abstinence among their members.

Other mutual help organizations, such as Rational Recovering, focus on controlled drinking. Mutual aid groups enjoy broad support and belief in their effectiveness is widespread; however, no controlled studies of their effectiveness have been conducted.

Community services and activities in rehabilitation refer to the resources available in the community that assist people to maximize their quality of life. The focus is on the integration or reintegration of individuals and families in their community. There are numerous definitions of rehabilitation that reflect different authors' points of view, a particular organization's mission statement, or the direction of a government's policy. However, there are consistent themes that run through nearly all of them. Key words that appear in many of the definitions are: restoration, restart, change, development, education, participation, optimal level of functioning, empowerment, compensation, potential, and independence. Consumer involvement in the rehabilitative process has prompted a greater focus on a social construct of disability and rehabilitation (53). This requires a shift away from individual impairment to the identification of barriers in the environment that may impede a person's integration back into the community and society as a whole, with the aim of returning power and responsibility to the individual.

There has been little overall assessment of the levels of impairment and disablement of individuals with chronic and severe dependence conditions. Alcohol-related brain damage and memory impairment is well recognized but other forms of social and psychological impairment and disability merit further attention and elucidation. The International Classification of Impairments, Disabilities and Handicaps (ICIDH) (54) is a tool for the classification of the consequences of disease (as well as injuries and other disorders) and of their implications for the lives of individuals. The ICIDH is intended to offer a conceptual framework for information. The framework is relevant to

the long-term consequences of disease, injuries or disorders, and is applicable both to personal health care, including early identification and prevention, and to the mitigation of environmental and societal barriers. It is also relevant to the study of health care systems in terms of both evaluation and policy formulation. The concepts of the ICIDH have elicited much philosophical interest and its applications have included activities in social security, the design of population surveys at local, national and international level, and other areas such as the assessment of work capacity, demography, community needs assessment, town planning and architecture. Although the ICIDH is essentially a health-related classification, future developments will need to reflect a broader spectrum of applications and users. The majority of psychoactive substance users do not suffer impairment and disablement. However, severe and chronic substance dependence may be associated with major disruption in the economic functioning and social activity of the individuals concerned, resulting in significant impairment and disability. Further research in this area, using the ICIDH framework, would assist in determining the levels of support and intervention required for this population.

2.5.7 *Specialized residential facilities*

Special residential facilities that do not use the methods described below (see section 2.5.8) are available in many countries, though they have not received much formal or rigorous evaluation. They vary in the ways in which they use professional staff. Some use a combination of medically trained staff and staff who have recovered from drug dependence. Some are private, provide comfortable accommodation, and usually serve more socially stable individuals. Others play an important role in the social stabilization of individuals who have become marginalized in society and aid the process of social integration and rehabilitation. These facilities may also be halfway houses or “dry” houses which provide support for individuals on their release from other institutions. They are generally funded through the social welfare and other social support services and, while not always formally a part of a treatment system, offer critical support for vulnerable individuals at an important moment of change in their lives. Other types of supported accommodation include “wet” houses for homeless alcohol-dependent persons who cannot stop drinking. The efficacy of supporting individuals in this manner has not been formally evaluated; the approach attempts some degree of palliative support in the face of enduring and chronically disabling problems.

Individuals completing treatment at private residential facilities, which in the United States is typically based on the principles (12

steps) followed by Alcoholics Anonymous, are commonly found to be doing reasonably well at follow-up some months later. Individuals who enjoy good social support systems are believed to have the best prognosis. Controlled randomized studies of residential 12-step programmes are scarce.

2.5.8 *Therapeutic communities*

Therapeutic communities for the treatment of psychoactive substance disorders have featured prominently in the health care armamentarium since the early 1960s. Providing hope and inspiration for many recovering addicts, they have been an important element in the growth of the recovery movement over the past two decades. They can be roughly divided into two groups: the so-called “concept” or highly structured therapeutic communities, and religious therapeutic communities.

Of the two types of facilities, the “concept” communities have undergone more formal evaluation (4). These programmes have a number of features in common, including relatively long periods of residential treatment (6–18 months) and the important functional and administrative roles played by former substance user participants who have accepted the values of the community. The emphasis of the community is on instilling a sense of responsibility in the individual for his or her actions and on the therapeutic value of the group living situation, reinforced by a variety of group meetings, concrete rewards, and increasing social status for those exhibiting responsible behaviour.

Concept-type therapeutic communities have been evaluated repeatedly over the past 25 years. The findings are relatively consistent. There is a high attrition (drop-out) rate, fewer than 40% of patients remaining for more than three months. However, there is also a consistent time-in-treatment effect, so that those who participate for more than six months are very likely to remain substance-free and to exhibit sharply reduced criminal behaviour for many months or years after leaving the facility.

Cost-effectiveness studies in the United States, where many community residents have histories of criminal activity as well as substance dependence, indicate that the reduction in illicit drug use and in social and criminal justice costs during the period of residence is sufficient to render such facilities cost-effective. Equally important, for those participating for six months or more, the improvement in substance use and reduction in criminal activity persist for at least several years beyond the period of participation. There have been few randomized studies aimed at separating the effects of compliance and selection to show that behaviour change is caused by the treatment.

Many countries with virtually no treatment facilities have established a residential therapeutic community as a first step in developing services. However, therapeutic communities are expensive compared to community-based facilities and, because of the residential requirement, provide treatment to only a small number of individuals. Overall, it seems more desirable for such services to complement and follow after the establishment of less costly services based in the broader community.

Religious programmes are diverse, ranging from small Christian-based communities to Buddhist communities, and must be viewed in the context of religious and community support interventions as a whole. There are far fewer studies of effectiveness and cost-effectiveness than for concept-type therapeutic communities.

2.5.9 *Enforced abstinence*

Many countries have “boot camps” or other types of discipline-focused institutional facilities, particularly for illicit drug users. In developed countries, such facilities are expensive and studies have shown extremely high relapse rates following discharge, at levels comparable to those expected when similar substance users are incarcerated for equivalent periods. In the absence of a broader treatment philosophy, such facilities may result in the waste of valuable resources on ineffective interventions.

However, coerced abstinence can be more effective under some circumstances. For example, studies of some occupational groups, e.g. doctors and pilots, indicate that urine testing linked to mandatory abstinence with serious negative sanctions for breaches can result in high levels of long-term abstinence. Those who fail to attain this level of abstinence suffer serious negative occupational and social consequences. These contingency arrangements are typically linked with referrals to mutual help groups such as Alcoholics Anonymous.

3. Developing a treatment system

When a treatment system is developed in any country, it should be planned as an integral part of the community's overall resources to deal with health and social problems. Responses to substance use problems need to be disseminated throughout the whole community and to be population-based, with an orientation towards “Health for All”. For this purpose, countries need to develop a core of expertise that can serve as an advocate for treatment services and provide advice and support as they become established. The political and

social priority given to responding to drug problems is not necessarily proportional to the scale of the problem in a given society, but may be affected by other economic, social and political factors. The measures taken should include the strengthening of comprehensive programmes to prevent over-the-counter sale of prescription drugs.

3.1 The structure of services

Treatment systems, especially when viewed from a population-based perspective, can be seen as part of the prevention continuum. *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; and *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 (8, 55).

While the term “secondary prevention” usually refers to treatment and rehabilitation interventions at a stage when psychoactive substance use has not yet caused serious problems, “tertiary prevention” refers to strategies for reducing harm to and improving the quality of life of users who may experience physical and mental disabilities as well as social disadvantages. The Committee considered that such an approach requires both immediate interventions in acute cases and longer-term interventions when chronic rehabilitation is appropriate for persons with severe dependence and related social disabilities.

In the context of prevention and treatment there is a need to consider the broad aspects of information provision and access to information. New technologies, such as the Internet, offer the potential for providing more accessible and accurate information on a range of substances.

Treatment responses range from generic community responses provided by, for example, traditional healers and community development workers to specialized services for the chronically ill. Secondary prevention involves integration with primary health care, emergency services, employers, schools and other welfare and criminal justice agencies. The process of identifying problems and general screening provides opportunities for proactive interventions. The response to acute problems requires appropriate emergency services and sources of information on poisoning and toxicity, together with the necessary knowledge and sensitivity to detect and respond to overdose and toxicity problems.

The strategies adopted should permit access to the whole population and the means to meet its needs, in accordance with WHO’s goal of

“Health For All”. Research is needed to examine the context and design of programmes and to find models that are affordable for the developing countries.

3.2 Treatment needs

There are many approaches to examining the need for services in a community. Estimating need is important for planning health services, and also for reviewing the accessibility of services to different population groups which may have different patterns of problems. Large-scale epidemiological surveys are the most accurate way of assessing need. Most of those undertaken so far have been in Europe and North America. They show prevalences of dependence syndromes ranging from 2% to 6% of the general population, while in some developed countries as many as a third of adults are daily tobacco users (56, 57). Further such studies are needed in other parts of the world.

Other methods of estimating treatment need are based on systems of treatment monitoring, especially the measurement of demand for first-time treatment. While such systems provide useful time trend data, population-based data on substance consumption and indicators of harm are most useful to estimate the size of the problem and the dependent population. Many countries have difficulty in determining their existing levels of service provision because of the diversity of delivery systems. The level of provision of primary care and involvement in the screening, detection and management of dependence and harmful substance use has been estimated in some settings by national surveys but generally remains poorly described. There has been considerable progress in the development of national treatment monitoring systems in several countries. These monitoring systems are of variable intensity and quality. For example, at the city level the Pompidou Group multi-city study has made advances in the monitoring of first treatment demand and other indicators of problems related to psychoactive substance use (58).

It is important to recognize that “demand” and “need” for treatment are different. A population-based approach to assessing need would seek to identify people who could benefit from substance use treatment services but are not actively seeking them, either because of problems of access or because they have not identified the problem. Need can be defined as the ability to benefit from a service, whether or not an individual seeks to use such a service. Demand, on the other hand, can be defined as services consumed or desired, irrespective of potential or conferred benefit. Population groups that have particular difficulty in gaining access to existing services are women, the young,

street children, refugees, the poor, and minority ethnic and religious groups.

Needs assessment is a formal systematic attempt to determine important gaps between what services are provided and what should be provided. It involves documenting important gaps between current and desired outcomes and then placing these gaps in order of priority for closure. Thus needs assessment involves both the identification and the prioritization of need. The first stage also involves comparison of the existing state of affairs with some standard. This standard may be established by experts on the basis of previous research and evaluation or it may be based more on the perceived needs or wants as advocated by members of the general public, professional carers, policy-makers or politicians.

The definition of treatment need requires further elaboration. If need is defined as “the ability to benefit from a service”, it may be most appropriate to identify the conditions on which defined interventions can have a significant impact and to target available resources in their direction. Such an approach would entail significant developments in screening and detection strategies, facilities for widespread application of brief interventions, and better matching of clients to longer-term interventions. The evolution and spread of HIV and hepatitis B and C infections has resulted in a significant expansion of strategies to contact substance users and engage them in the utilization of outreach, needle exchange and other treatment facilities.

Particularly because of the cost of new epidemiological surveys, there is a need to ensure maximum use of existing sources of data and local data collection systems as part of overall needs assessment.

3.3 Natural recovery

Further research on the process of natural recovery is required, in order to understand it better and find ways in which such changes can be generated and promoted in the general population. Promoting activities that help people to stop using psychoactive substances provides important opportunities to make an impact on segments of the population that do not have access to or engage with treatment agencies. Treatment systems should act as an adjunct to self-cessation strategies and are a crucial option for the many dependent users who fail to stop using or stay off substances of their own accord.

3.4 Balancing approaches to the provision of services

Countries develop their services in different ways. Some have 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, supported by 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 services, or even at subsequent stages, the aim should be to employ a variety of treatment methods appropriate to the different needs of users and the different stages of treatment, rather than any single approach applied in isolation (26).

3.5 Evaluation and quality assurance

Major changes in health and welfare policy are under way in many developed and developing countries. The general growth of health care costs and the constraints in the resources available to support services have occasioned widespread concern and the introduction of further control mechanisms to strengthen accountability and cost-efficiency. The reform of services is occurring at two levels: those of the individual service provider, and of the broader network or system of service providers. Individual providers may be strongly encouraged (or mandated) to revise the content of their programmes to make them consistent with research evidence on cost-effectiveness (e.g. to switch from inpatient and residential treatment to outpatient and community-based treatment, or to shorten length of stay). Providers may also be encouraged to develop internal mechanisms to assess and monitor the quality of their services as part of a process for continuous quality improvement.

Monitoring of services will routinely assess selected aspects of the treatment process and selected treatment outcomes. In some locations such monitoring systems now take the form of computerized information systems. Second-generation systems that monitor outcomes by documenting changes in the functioning of a sample of clients before and after treatment are less common; however, in many countries there is strong pressure to employ them. Third-level monitoring involves gathering information to determine the cost-efficiency of service provision. While such information is of considerable importance, little has been published on this topic in relation to treatment for psychoactive substance use.

In the context of monitoring, attention needs to be paid to consumers' views, preferences and satisfaction with treatment services. An often neglected, but very important, element in evaluation and quality assurance is obtaining feedback on patients' preferences and satisfac-

tion. The measurement of these aspects should be regularly included in evaluations. The emphasis should be on satisfaction with programme performance and outcome.

As an overall approach, it is important first to identify treatments that are efficacious in well defined and controlled settings. It is then important to examine how such treatments can be delivered in particular national, local or sociocultural settings and to determine whether the treatment achieves the desired outcome as actually delivered in the specific setting.

3.6 Access and barriers to treatment and rehabilitation

A condition for assessing ease of access is that sufficient appropriate services should be available. However, even when treatment services are available, some persons with problems due to the use of psychoactive substances may experience difficulty in having access to them because of discrimination, stigma, or lack of incentives and adequate information. It has also been emphasized recently that current ideas on competition and individual responsibility might exacerbate inequity, if the principles of collective responsibility are not upheld. Such concerns are particularly relevant to the situation of impoverished and derelict substance users. The practical issues of demand and need for treatment necessarily inform the assessment of access. Most current research argues for multiple levels of explanation: individual, organizational, and sociocultural factors all come together to affect access. Organized guarantees of confidentiality in treatment services also facilitate treatment-seeking.

The Committee emphasized the desirability of providing appropriate environmental conditions for treatment. Every effort should be made to enlist all community agencies to assist users in community adjustment. It is in the community that substance use disorders start and it is there that problems should be identified and the later stages of rehabilitation, adjustment and adaptation should be carried out. There should be provision, legal and otherwise, for treatment in the home, health centre, or outpatient clinic (59), as well as for contacts with the social and other community services (3, 4).

In 1992, at its twenty-eighth meeting, the Expert Committee noted that in recent years a number of countries had placed strong emphasis on action at the community level to prevent and reduce psychoactive substance use and related problems (8). Basing preventive and treatment intervention in the community brings public health action to the level of people's everyday lives and activities. It therefore conforms to WHO's emphasis on strengthening primary health care as the first

level of contact of individuals, the family and community with the health system, bringing health care as close as possible to where people live and work and constituting the first element of a continuing health care process.

Action at the community level is also important because communities often bear the main burden of dealing with problems associated with the harmful use of psychoactive substances. An important location for substance use interventions is the primary health care centre, particularly in developing countries, where both resource constraints and the likelihood of increased stigma militate against developing vertical specialized programmes.

The interests of groups such as treatment service providers or substance manufacturers may sometimes conflict with the best interests of substance users and the public in general. For instance, specific recommendations for certain types of “treatment” or other interventions may be influenced much more by the interests and perceptions of service providers than by those of substance users.

Similarly, the tobacco, alcohol and other drug industries often have interests contrary to those of users. For example, giving a high profile to the beneficial effect of light drinking on cardiac mortality may persuade the heavy drinker to postpone seeking treatment. The net public health result of the message that light drinking is associated with reduced cardiac mortality must take into account the consequences of any such delay in treatment seeking. The promotion of “modified” low-alcohol beverages in soft drink form and/or mixed with caffeine may be targeted at a younger population and encourage inappropriate consumption.

The many subtle and not-so-subtle instances where the activities of such vested interests impede treatment-seeking behaviour need careful attention and study. This is important in order to set in motion the broad-based measures required globally to counteract these pervasive influences.

The situation of individuals who do not use alcohol in a predominantly drinking culture highlights a major problem in recovery from dependence. The non-drinker may not always be obliged to drink or be overtly derided, but sometimes is. Even if not, the non-drinker often feels a need to offer an explanation with an excuse for not drinking.

In most health conditions, treatment and recovery lead to the sufferer feeling more “normal” or unimpaired, while treatment for substance dependence may result in the recovered person feeling socially im-

paired or different from the rest of society. This fact has major implications for people entering treatment and for their subsequent progress. The broad social forces that militate against, or could facilitate, recovery need to be further examined.

To sum up, access to services is dependent upon their availability. Priority needs to be given to a wide population-based approach to treatment provision when arriving at the balance between primary care and specialist services. Guarantees of confidentiality are important to ensure that fear of disclosure is not a barrier to seeking treatment.

3.7 Treatment and rehabilitation in prisons

The Committee recognized WHO's longstanding concern that substance use may be treated as a legal instead of a health problem. For example, a WHO Study Group noted in 1956 that in certain societies and countries the dependent user could by law be classed as a criminal. In such instances, it recommended that he or she should, if possible, have all the benefits of adequate medical care (59). Similarly, the Expert Committee on Dependence Producing Drugs recommended in 1966 that when a person dependent on alcohol or other substances was sentenced to prison for crime, therapeutic action should proceed during his or her detention (60).

On a related topic, the Expert Committee observed at its twenty-eighth meeting that in many countries prisons had become overcrowded and numerous studies had reported very high levels of dependence on nicotine, alcohol and other psychoactive substances among prison populations. The Committee went on to encourage WHO to promote research directed at exploring the feasibility and consequences of programmes that divert those arrested for psychoactive substance use from the penal system to the health care system, and recommended that further evaluation of interventions within the prison systems be conducted. It also recommended that, whenever imprisonment is employed, mechanisms to safeguard the human rights of psychoactive substance users should be in place, as should mechanisms to reintegrate users into the community (8).

In the light of that history, the present Expert Committee expressed concern that, although the lack of therapeutic attention to substance users in the criminal justice system had been raised as a serious problem since 1957, the situation had not improved. While drug-dependent persons may be imprisoned because of unlawful activity, it remains urgent that dependent and harmful use of substances be considered as a health problem and treated accordingly. In addition

to human rights concerns, appropriate treatment is also important because of the spread of HIV infection, AIDS and hepatitis C among inmates. In most countries, despite the high prevalence of dependence syndromes within the prison system, the provision of treatment within the prison setting is minimal.

3.8 **Voluntary, coerced and compulsory treatment**

With respect to the role of compulsion in the treatment of persons dependent on alcohol and other drugs, the Committee concluded that the clinical evidence available is not sufficient either to support or to refute the case for various forms of compulsory treatment. It noted that, in spite of considerable experience, compulsory detention alone has not been shown to be beneficial (1).

In any case, the Committee took the view that assuring the conditions to promote health and reduce harm must take precedence over every other consideration. Policy-makers should therefore proceed with caution before curtailing human rights that may influence people's health and well-being. However, the Committee noted that many types and levels of coercion are associated with substance abuse treatment, and that most individuals enter the specialized treatment system through some form of coercion. These include social pressure from family and friends, pressure from the workplace, diversion from the criminal justice system, in-prison programmes, and commitment to treatment under civil law. Countries differ with regard to confidentiality for patients receiving treatment through the various referral mechanisms. This is an important area of medical ethics that merits continuing consideration.

The Committee considered that it is of utmost importance to guarantee confidentiality and to provide ethical and effective treatment to these populations. It also emphasized the importance of placing treatment under the jurisdiction of the health services.

4. **Resolution of the United Nations Commission on Narcotic Drugs (CND)**

The Committee considered a request from the United Nations International Drug Control Programme (UNDCP) to the Director-General of WHO, pursuant to resolution 1 (XXXVIII) of the United Nations Commission on Narcotic Drugs (CND), for WHO's opinion on "the growing advocacy of the non-medical use of heroin and its controlled supply to drug addicts" and on "whether the controlled supply of heroin to addicts could be construed as medical use of the

substance”. The Committee was assisted in its deliberations by a number of background papers, including a report on a site visit relating to the Swiss scientific studies on medically prescribed narcotics to heroin addicts.¹

The Committee readily reached a consensus that advocacy of the non-medical use of heroin, and its controlled supply to dependent users without medical supervision, was not backed by any scientific or practical evidence and was likely to be deleterious to any country in which such practices were initiated.

The second question posed greater problems for the Committee, in part because of its particular phraseology. The Committee found the term “controlled supply” unclear. However, it assumed that UNDCP’s question was aimed at seeking advice on the role of carefully controlled prescription of heroin to selected heroin-dependent persons under carefully supervised treatment conditions. The Committee was of the view that, given the present state of scientific knowledge on the subject, it was not possible to give a fully informed opinion. It noted that a number of trials were under way or in prospect that would provide some additional information, but considered that they were unlikely to give a definitive answer to this complex question.

The Committee suggested that any future studies should be designed to answer questions that could not be explored within the design of the Swiss studies now in progress. Such questions could include the degree to which alternative short-acting opioids other than heroin might bring the alienated, resistant injecting substance users who were the target of the Swiss studies into contact with treatment services. Such additional studies could also provide for a comparison of intravenous opioid substitution and oral maintenance using random assignment to treatment, as well as frequent drug testing that ideally could distinguish between prescribed and non-prescribed opioid use. The Committee did not, however, take a position on whether additional studies should be conducted.

On the basis of the available scientific evidence, the Committee concluded that any treatment involving the prescription of heroin for defined therapeutic purposes would be likely to have very limited applicability. The opinion was expressed that one condition for such applicability would be a well-developed and comprehensive treatment system in which there were ample and accessible alternative

¹ The Committee also heard a presentation by Professor A. Uchtenhagen, Director, Institute on Addiction Research, Zurich, Switzerland, who served as a resource person during its discussions on this subject (67).

treatments not involving intravenous opioids. The latter should include ready access to oral methadone and similar long-acting opioids in the context of a highly developed drug control system. The Committee expressed the view that most countries would find it difficult, if not impossible, to meet those conditions.

5. Recommendations

5.1 Policy issues

1. WHO should encourage countries to give equal attention to measures to reduce demand for psychoactive substances and to efforts to reduce their supply. Greater emphasis should be placed on the treatment of persons dependent on psychoactive substances as a means of reducing demand, and health authorities should play a leading role in the formulation of policies concerning such treatment.
2. WHO should work with countries to develop explicit policies regarding the provision of treatment for disorders due to the use of psychoactive substances.
3. In the light of the rapid advances in the development and evaluation of treatment, WHO should ensure that the Expert Committee on Drug Dependence regularly reviews related developments.
4. WHO should support Member States in strengthening their regulatory compliance programmes to prevent the over-the-counter sale of prescription psychoactive drugs.
5. WHO's response to the questions posed by UNDCP pursuant to CND resolution 1(XXXVIII) should reflect the discussion outlined in section 4 of this report.

5.2 Treatment services

1. WHO should give priority to developing a strategic plan for treatment services on the basis of a global assessment of the treatment needs of those experiencing health problems related to the use of psychoactive substances.
2. Noting that treatment under coercion is in widespread use and that there is significant advocacy of its even wider use, the Committee recommended that WHO should encourage analysis of the ethical issues raised by such treatment, and of the advantages and disadvantages of its different forms, including comparisons of the cost-effectiveness of enforced institutional treatment and less coercive community-based treatment.

3. The Committee noted the widespread adoption in many countries of the use of methadone and other similar substances for the management of opioid dependence. Such treatment is supported by ample scientific evidence of its benefits when delivered in well-controlled settings conforming to high standards. WHO should support the development of international guidelines to promote high standards of practice in well controlled settings.
4. WHO should support efforts to improve the diagnosis and treatment of health problems due to the use of psychoactive substances, especially for persons with coexisting mental disorders.
5. In view of the rising prevalence in many countries of multiple substance use, WHO should support efforts to improve the treatment of persons with health problems due to the use of more than one psychoactive substance.
6. WHO should continue to seek ways of improving the access to treatment of population groups that are at high risk of developing health problems due to the use of psychoactive substances and have poor access to services. These include indigenous peoples, prisoners, young people, and refugees.
7. Greater efforts should be devoted to developing and implementing treatment measures to reduce the recidivism of persons convicted of driving while intoxicated with alcohol or other substances.
8. The Committee reiterated the recommendation made at its twenty-eighth meeting that 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” (8). The Committee further noted that not only the transmission of HIV but also the spread of other infectious diseases such as hepatitis B and C are facilitated through sexual activity and the sharing of injection equipment and drug preparations. The Committee again referred to the “appalling nature of the potential dangers for drug users, their partners and, in the case of pregnant women, their unborn children” and reiterated the previous recommendation for treatment with oral methadone in appropriate cases in spite of the recognized cultural sensitivities implicated by such a course of action.

5.3 Training

1. In conformity with the Organization’s mandate under World Health Assembly resolutions WHA33.27, WHA42.20 and WHA43.11 to integrate the treatment of health problems due to

the use of psychoactive substances into primary health care and other social services, the Committee recommended that WHO should support the training of primary health care and other community workers in the treatment of persons who are dependent on or have problems due to psychoactive substances.

5.4 Dissemination of information

1. The Committee recommended that the WHO World Wide Web site should be utilized to facilitate the dissemination of information, e.g. by making technical reports and papers available on the Web site for downloading by those who wish to read them.
2. WHO should support ways of increasing access to computer technology in developing countries so that treatment providers and community-based services can have better access to academic sources of information on the use of psychoactive substance and related health problems that are available on the Internet.
3. Interventions to prevent or stop the negative health consequences of the use of psychoactive substances that are cost-effective and can reach large numbers of affected individuals should be described more fully and information about them be disseminated in training manuals.

5.5 Research

1. Given the desirability of reaching the greatest possible number of persons with health problems due to the use of psychoactive substances, the Committee expressed concern that some of the most commonly used interventions have not been evaluated for either efficacy or cost-effectiveness. The Committee accordingly recommended that further evaluation efforts should be focused on programmes located in primary health care settings and other community service agencies, as well as others that can reach large numbers of affected persons at low cost.
2. Treatment strategies that have been shown to be efficacious in clinical trials are not commonly found in developing countries. The Committee recommended that health services research should be undertaken to examine such treatment strategies in a range of countries. WHO should encourage appropriate national research institutes to support collaborative research on these strategies, as well as on untested community-based methods.
3. WHO should encourage and support cross-sectional, longitudinal, and other studies of persons with health problems due to the use of psychoactive substances, in order to identify those personal and

social factors that facilitate the cessation of use and recovery from dependence. Such studies should also examine how messages promoted by the alcohol, tobacco and other legitimate industries may influence the natural recovery, treatment-seeking behaviour and recovery in treatment of those experiencing health problems due to the use of psychoactive substances, with a view to improving cessation rates around the world.

4. WHO should continue to support efforts to develop standard methods of cost and cost-effectiveness analysis of treatment for disorders due to the use of psychoactive substances. WHO should also continue to support the dissemination of these methods and case studies of their application.
5. WHO and national research centres should support international efforts to undertake systematic quantitative reviews of scientific studies on the effectiveness of treatment for disorders due to the harmful use of alcohol, tobacco, opioids, and other psychoactive substances, and should develop treatment guidelines in the light of the findings.

6. Pre-review of psychoactive substances

Pre-review is performed by the Committee in order to determine whether a psychoactive substance should be subjected to critical review in the context of its international control.

6.1 Benzodiazepines

Although pre-review of alprazolam and diazepam was recommended at its twenty-ninth meeting, in 1994, the Committee was now of the opinion that, in the light of the way opioids are calibrated and ranked against morphine in terms of abuse potential, it would be preferable to consider the benzodiazepines as a class. The Committee recommended that at its next meeting a pre-review should be conducted of alprazolam, bromazepam, chlordiazepoxide, diazepam and temazepam, and other benzodiazepines identified as being in accordance with the criteria listed below.

Essential criteria

1. Changes in the abuse and/or dependence characteristics of the benzodiazepine have occurred in two or more countries.
2. Drug-control or law-enforcement agencies have reported increased illicit trafficking in or criminal activity related to the benzodiazepine.

3. Peer-reviewed scientific reports on the high abuse liability of the benzodiazepine have appeared.

Additional criterion

4. Increased abuse of the benzodiazepine among drug-dependent persons has been confirmed.

6.2 **Dihydroetorphine**¹

Dihydroetorphine is a hydrogenated derivative of etorphine and a potent μ -opioid-receptor agonist used as a short-acting analgesic in China. Animal tests conducted in both China and the United States have demonstrated its high dependence potential, which has been further confirmed by a number of cases of illicit diversion and abuse of sublingual preparations of dihydroetorphine in China. The Committee recommended dihydroetorphine for critical review.

6.3 **Ephedrine**

Ephedrine was not controlled under the Convention on Psychotropic Substances, 1971, although its limited abuse liability was known at the time the Convention was adopted. Information now available to the Committee indicates that illicit trafficking in ephedrine has increased significantly in recent years. Though the substance is illicitly used primarily in the manufacture of stimulants, there is evidence of the increasing abuse of ephedrine preparations in some countries. The Committee recommended ephedrine for critical review.

6.4 **Nicotine**

Although nicotine is a dependence-producing substance, nicotine patches and chewing-gum do not lead to a level of nicotine in the blood high enough to produce the psychotropic effect the Convention on Psychotropic Substances, 1971, is concerned with, namely, “hallucinations or disturbances in motor function or thinking or behaviour or perception or mood”.

In the future, new therapeutic nicotine-replacement preparations may enable the user’s blood concentration of nicotine to reach a level high enough to produce such psychotropic effects. However, there is no evidence of significant abuse of such preparations at present. The Committee did not recommend nicotine for critical review, unless new information became available suggesting the significant abuse liability of new therapeutic nicotine products.

¹ In composite drug names containing both a chemical prefix and an INN, the INN is distinguished by being italicized.

However, the Committee recommended tobacco for pre-review because of the potential for a higher blood concentration of nicotine when tobacco is smoked, resulting in a greater liability for abuse and associated public health problems.

6.5 **Remifentanil (INN)**

Remifentanil is a selective μ -opioid-receptor agonist of the fentanyl group recently introduced to the market for mainly analgesic use. Preclinical and human abuse liability tests have indicated that remifentanil has an abuse potential in its peak effects comparable to fentanyl. However, because it is an ultra-short-acting drug, very frequent administration of the drug would be required to sustain its effects. As little is known about the preventive effect of the need for frequent dosing on abuse potential, the Committee recommended remifentanil for critical review.

6.6. **Sumatriptan (INN)**

Sumatriptan is a 5-HT₁-receptor agonist used for the treatment of migraine. Though several cases of abuse, dependence, euphoria, or stupor have been reported as adverse reactions, there is no evidence of significant abuse. The Committee did not recommend sumatriptan for critical review.

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Annex

Working documents for the meeting¹

Godfrey C. Health economics and substance use treatment.

Jarvis M. Smoking cessation: the need for treatment and its efficacy.

Manuka-Sullivan M. Drug dependence, supportive environments and community involvement in health for sustainable rehabilitation and social integration of indigenous psychoactive substance users.

Marsden J, Farrell M. The influence of social factors on substance use behaviour change.

Mattick RP. Critical review of effectiveness of treatment for substance use disorders: maintenance approaches to illicit drug dependence.

Rush B, Cranes M. Evaluation and continuous quality improvement of substance abuse services and systems.

Rydberg U. Legal prescription of opiates in Sweden: different modalities and programmes.

Sell L, Farrell M. Heroin substitute prescribing in the UK.

Smart RG. The epidemiology of substance use problems and its relationship to access to treatment.

Uchtenhagen A. Process evaluation of the Swiss scientific studies of medically prescribed narcotics to drug addicts.

Weisner C, Schmidt L. Access and need for alcohol treatment services.

¹ Available on request, in English only, from the Programme on Substance Abuse, World Health Organization, 1211 Geneva 27, Switzerland.