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**WHO EXPERT COMMITTEE
ON DRUG DEPENDENCE**

Twentieth Report

WORLD HEALTH ORGANIZATION

GENEVA

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Geneva, 8-13 October 1973

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WHO EXPERT COMMITTEE ON DRUG DEPENDENCE

Twentieth Report

INTRODUCTION

The WHO Expert Committee on Drug Dependence met in Geneva from 8 to 13 October 1973.

The meeting was opened on behalf of the Director-General by Dr T. Lambo, Assistant Director-General, who welcomed the participants and the representatives of the United Nations, the United Nations Educational, Scientific and Cultural Organization, the International Narcotics Control Board, and the International Council on Alcohol and Addictions. Dr Lambo noted that WHO Expert Committees, Scientific Groups, and Study Groups over more than two decades had given attention to (a) the identification of dependence-producing drugs that can produce individual, public health, and social problems;¹ (b) the similarities and differences between dependence on socially unacceptable dependence-producing drugs and dependence on those whose use was acceptable or tolerated;² (c) the provision of services for the prevention and treatment of dependence on alcohol and other drugs;³ (d) principles for the management of drug dependence problems;⁴ (e) the use of cannabis;⁵ (f) youth and drugs;⁶ and (g) the epidemiological study of drug dependence.⁷ Only a few of these expert groups, beyond making recommendations relative to the imposition of controls on the availability of particular drugs, had taken up the question

¹ *Off. Rec. Wld Hlth Org.*, 1949, No. 19, pp. 29-34; *Wld Hlth Org. techn. Rep. Ser.*, 1950, No. 21; 1952, No. 57; 1954, No. 76; 1955, No. 95; 1956, No. 102; 1957, No. 116; 1958, No. 142; 1960, No. 160; 1960, No. 188; 1961, No. 211; 1962, No. 229; 1964, No. 273; 1964, No. 287; 1965, No. 312; 1966, No. 343; 1969, No. 407; 1970, No. 437; 1971, No. 478; 1972, No. 495.

² *Wld Hlth Org. techn. Rep. Ser.*, 1949, No. 9; 1951, No. 42; 1952, No. 48; 1954, No. 84; 1955, No. 94; 1967, No. 363; 1973, No. 516.

³ *Wld Hlth Org. techn. Rep. Ser.*, 1950, No. 42; 1952, No. 48; 1957, No. 131; 1967, No. 363.

⁴ *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460; 1973, No. 516.

⁵ *Wld Hlth Org. techn. Rep. Ser.*, 1971, No. 478.

⁶ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516.

⁷ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526.

of other approaches to prevention.¹ Many governmental and other organizations have initiated a wide variety of activities designed to reduce the present and future problems associated with the nonmedical use of various dependence-producing drugs, and other organizations plan to do so. Current preventive approaches include efforts to (a) prohibit completely the nonmedical use of certain drugs, (b) discourage but not prohibit such use of other drugs, (c) inform community leaders and potential and existing users about the possible consequences of drug use, (d) provide ready access to attractive activities not associated with drug use, and (e) carry out early case-finding activities designed to help limit the spread of drug use. Objective evaluation of the policies, approaches, and methods used is difficult, but insufficient efforts have been made to determine not only their effectiveness but their financial and other costs. Some approaches, when inappropriately applied, could well exacerbate drug-related problems instead of reducing them. It was therefore fitting that the Committee be invited to assess current and possible future approaches to the prevention of problems associated with the nonmedical use of dependence-producing drugs and to consider means of increasing the effectiveness of activities intended to help achieve prevention.

PART I

WORK OF INTERNATIONAL BODIES CONCERNED WITH DRUG DEPENDENCE

The widespread interest in and concern about the individual, public health, and social problems associated with the use of certain dependence-producing drugs outside of acceptable medical practice continue to be reflected by the activities of various international organizations. The Committee was pleased to note and comment on some of these endeavours.

1. WORLD HEALTH ORGANIZATION

The Committee, having been informed that the Twenty-sixth World Health Assembly had (a) stressed anew the need for the World Health Organization "to encourage and assist the development of improved preventive treatment and rehabilitation and training programmes and the

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1967, No. 363, p. 35 (section 3); 1970, No. 460, p. 30 (section 3.4); WHO Regional Office for Europe (1971) *Measures for the prevention and control of drug abuse and dependence*, Copenhagen (EURO 5412 IV, report of a Working Group); WHO Regional Office for Europe (1972) *Health education programmes concerning drug abuse in young people*, Copenhagen (EURO 5418 IV, report of a Working Group).

pursuit of needed knowledge in the field of drug dependence",¹ (b) emphasized the importance it attached "to developing means for the international collection and exchange of data on the prevalence and incidence of drug dependence, and on the complex psychological, sociocultural, internal and external factors associated therewith", and (c) requested that efforts be intensified to implement the expanded programme in the field of drug dependence approved by previous World Health Assemblies,² learned of the activities undertaken by the Organization to these ends. It took particular note of the work of two WHO expert groups;³ the activities of the WHO Regional Office for the Americas in helping to establish a centre in Central America for the study of dependence on alcohol, in providing training courses, and in undertaking planning for epidemiological studies in that Region; the assistance given to countries by the WHO Regional Offices for the Eastern Mediterranean, South-East Asia, the Western Pacific, and Europe; and the conference conducted by the latter Regional Office on evaluation of treatment methods.⁴ Note was also taken of the continuing work on three WHO projects⁵ begun in the previous year with the assistance of the United Nations Fund for Drug Abuse Control (UNFDAC), the initiation of an UNFDAC-assisted study in Iran on the effectiveness of various methods utilized in treating narcotic-dependent persons, and progress made on the UNFDAC-supported Treatment and Rehabilitation Project in Thailand.

2. UNITED NATIONS

The United Nations Fund for Drug Abuse Control (UNFDAC)⁶ now has resources of approximately US \$10 million and has made funds available to a number of international bodies for a wide variety of programmes in the field of drug dependence. Noting that in the past it had not been pos-

¹ *Off. Rec. Wld Hlth Org.*, 1973, No. 209, p. 27 (Resolution WHA26.52).

² World Health Organization (1973) *Handbook of resolutions and decisions of the World Health Assembly and the Executive Board, Vol. I, 1948-1972*, p. 123 (Resolution WHA24.57); p. 124 (Resolution WHA25.62).

³ Working Group on Guidelines for Collaborative Reporting on the Non-medical Use of Dependence-producing Drugs, Geneva, 13-18 August 1973; Working Group on WHO Drug Dependence Research and Training Centres, Geneva, 20-24 August 1973.

⁴ WHO Regional Office for Europe (1974) *Comparison and evaluation of methods of treatment and rehabilitation for drug dependence and abuse*, Copenhagen (EURO 5423 IV, report on a Conference).

⁵ Study on the chronic effects of long-term cannabis use; study on the therapeutic effectiveness of maintenance in the management of narcotic-dependent persons; preparation of a brochure for medical and related professions on the nonmedical use of dependence-producing drugs.

⁶ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, p. 7 (section 2).

sible to achieve effective suppression of the supply of dependence-producing drugs where a very substantial demand existed for their use (e.g., the attempted prohibition of the use of alcohol in Norway and the USA and of opium and opiates in Iran and Thailand), the Committee was pleased to learn that UNFDAC and the international bodies concerned were endeavouring to develop a truly balanced approach to the problems of supply and demand. Only through such an approach in a given geographic region did there appear to be any realistic hope of reducing the extent and seriousness of present and future problems associated with the nonmedical use of drugs.

It was noted that the programme of the United Nations Division of Narcotic Drugs had been substantially expanded in the last two years as a result of, among other things, support made available by UNFDAC. Particular efforts were being made to assist in the development of programmes in given geographic areas that would simultaneously seek to decrease the illicit production of narcotics, suppress illicit traffic, and reduce the demand for such drugs through treatment and rehabilitation and educational activities. The Division was now implementing or had completed some 30 projects supported by UNFDAC, including such activities as country projects of the type just noted, training seminars for enforcement officials, and biochemical research.

In addition to the long-standing (and recently expanded) activities of the United Nations Division of Narcotic Drugs, the Committee noted that within the last two years the United Nations Social Defence Research Institute had undertaken to foster epidemiological and evaluative research by study teams in a number of countries, and the United Nations Division of Social Affairs had become concerned with community reactions to the non-medical use of drugs¹ and the broad, social implications of the problems associated with such use.

Acting on a resolution adopted by the United Nations Commission on Narcotic Drugs,² the Economic and Social Council had invited WHO to assist the Commission "by preparing timely reports on the epidemiological patterns of drug abuse",³ an invitation that was accepted, subject to the availability of funds, by the Twenty-sixth World Health Assembly.⁴

¹ United Nations Division of Social Affairs (1972) *Expert Group on drugs in modern society: community reactions to drug use by young people*, Geneva (Document SOA/ESDP/1972/7).

² United Nations, Commission on Narcotic Drugs (1973) Document E/5248, p. 143, Resolution 10 (XXV) (*Economic and Social Council: Official Records*).

³ United Nations, Economic and Social Council (1973) *Official Records, Fifty-fourth Session, Resolutions, Supplement No. 1*, Document E/5367, p. 21 (Resolution 1781 (LIV)).

⁴ *Off. Rec. Wld Hlth Org.*, 1973, No. 209, p. 27 (Resolution WHA26.52).

The Committee was informed about a number of other resolutions adopted by international bodies that, among other things, (a) invited appropriate international agencies to cooperate fully in the United Nations programme of action in this field and “to pay special attention, in the formulation of their own programmes relating to the socio-economic consequences of drug abuse, to appropriate means of combating this abuse”;¹ (b) considering that “action by governments and international organs and organizations must be taken simultaneously on all fronts: prevention of abuse, repression of illicit traffic, control of production, manufacture, distribution and consumption, development of training and education, scientific research, treatment and rehabilitation” and that better coordination of all efforts was required, requested “the Secretary-General to study the problem and attempt to solve it”;² (c) authorized the establishment of a “sub-commission on illicit drug traffic and related matters in the Near and Middle East” and work on the same problems by an *Ad Hoc* Committee for the Far East Region;³ and (d) recommended “Governments that are not yet parties to the Convention on Psychotropic Substances⁴ to ratify or accede to this Convention”.⁵ In connexion with point (b) above, the Committee was pleased to learn of a recent meeting of various United Nations agencies convened by the Administrative Committee on Co-ordination at which it was recommended that an inter-agency advisory committee on drug abuse control should be established to address itself to the coordination of programmes in this field. In connexion with item (d) above, the Committee was disappointed to learn that only 13 countries had so far adhered to the Convention on Psychotropic Substances and expressed the hope that the Convention would soon come into force.⁶

3. INTERNATIONAL NARCOTICS CONTROL BOARD

The International Narcotics Control Board had continued to exercise its responsibilities under existing international treaties limiting the use of

¹ United Nations General Assembly. Resolution 3014 (XXVII). In: *Official Records of the General Assembly*, Twenty-seventh Session, Supplement No. 30 (A/8730), p. 68.

² United Nations, Economic and Social Council (1973) *Official Records, Fifty-fourth Session, Resolutions, Supplement No. 1*, Document E/5367, pp. 19–20 (Resolution 1777 (LIV)).

³ United Nations, Economic and Social Council (1973) *Official Records, Fifty-fourth Session, Resolutions, Supplement No. 1*, Document E/5367, pp. 19–21 (Resolutions 1776 and 1780).

⁴ United Nations (1971) *Conference for the Adoption of a Protocol on Psychotropic Substances*, Vienna (Document E/CONF.58/6).

⁵ United Nations, Economic and Social Council (1973) *Official Records, Fifty-fourth Session, Resolutions, Supplement No. 1*, Document E/5367, p. 19 (Resolution 1773 (LIV)).

⁶ Adherence or ratification by 40 countries is required.

narcotic drugs to medical and scientific purposes and to implement, on a provisional basis, the 1971 Convention on Psychotropic Substances. In response to requests from governments for technical advice and assistance on means of improving the effectiveness of drug control systems, it had undertaken a number of consultations and field missions during the past year.

4. UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

The Committee learned that the United Nations Educational, Scientific and Cultural Organization, using assistance provided by the United Nations Fund for Drug Abuse Control, had convened three meetings within the last year to consider a number of matters related to the nonmedical use of dependence-producing drugs.¹

5. INTERNATIONAL COUNCIL ON ALCOHOL AND ADDICTIONS

The International Council on Alcohol and Addictions had continued to facilitate contact between persons working to alleviate and reduce the problems associated with the use of alcohol and other dependence-producing drugs. To this end, conferences and meetings had been organized at international and regional levels, including meetings of small groups of researchers interested in a particular area of investigation. Special attention had been given to the nonmedical use of drugs in African countries with a view to fostering the development of improved programmes in those countries.

PART II PREVENTION OF PROBLEMS ASSOCIATED WITH DRUG USE

1. GENERAL

Throughout history and in all parts of the world, substances that alter mood, perception, or behaviour have been taken by people for a variety of

¹ United Nations Educational, Scientific and Cultural Organization (1973) *Education in more developed countries to prevent drug abuse*, Paris (Document ED/MD/26, report on a Meeting); (1973) *Methodologies for evaluation of mass media programmes for prevention of drug abuse*, Paris (Document COM/MD/25, report on a Meeting); (1974) *Youth and the use of drugs in industrialized countries*, Paris (Document ED/MD/34, report on a Meeting).

recreational, ritualistic, and health purposes. The use of these substances in a manner unrelated to acceptable medical practice often leads to various problems for the drug users and the society in which they live.

The seriousness of the health and social problems involved, the growing concern expressed about these problems, and the importance of utilizing more effective means for their prevention can hardly be overemphasized. The United Nations General Assembly¹ and the last four World Health Assemblies² have on several occasions voiced concern about these matters.

A drug-related problem can be said to exist when some agent or agency judges that a given, presumably drug-related phenomenon is producing or is capable of producing harm to or difficulties for an individual or society, even though it may later be found that the phenomenon is not harmful or that it is not related to the use of the drug in question.³ Conversely, it is likely that not all of the drug-related phenomena capable of producing problems are currently known. Some may go unrecognized for long periods of time, as was the case with the health hazards of heavy cigarette smoking. It may be expected, therefore, that new drug-related problems will continue to be defined and older concerns modified and revised as our knowledge expands.

The Committee was of the opinion that, in many parts of the world, problems associated with the use of beverage alcohol far exceed those associated with the nonmedical use of less socially accepted dependence-producing drugs, such as those of the amphetamine, cannabis, and morphine types.

The human problems related to the nonmedical use of drugs may stem primarily from (a) man-drug interaction (e.g., traffic and other accidents during intoxication, the development of tissue pathology such as disorders of the lung or liver or death due to an overdose of heroin or a barbiturate); (b) man-society interaction (e.g., stigmatization or imprisonment for drug use); or (c) a combination of these and other factors (e.g., unlawful or asocial behaviour such as theft or desertion, or infections due to the use of contaminated drugs or injection equipment). While these problems are drug-related, they should be considered as "problems of people" more

¹ United Nations General Assembly. Resolution 2719 (XXV). In: *Official Records of the General Assembly*, Twenty-fifth Session, Supplement No. 28 (A/8028), p. 85; Resolution 2859 (XXVI). In: *Official Records of the General Assembly*, Twenty-sixth Session, Supplement No. 29 (A/8429), p. 95; Resolution 3014 (XXVII). In: *Official Records of the General Assembly*, Twenty-seventh Session, Supplement No. 30 (A/8730), p. 68.

² *Off. Rec. Wld Hlth Org.*, 1973, No. 209, p. 27 (Resolution WHA26.52); World Health Organization (1973) *Handbook of resolutions and decisions of the World Health Assembly and the Executive Board, Vol. I, 1948-1972*, p. 123 (Resolutions WHA23.42 and WHA24.57); p. 124 (Resolution WHA25.62).

³ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, p. 18 (section 3).

than as simply "drug problems". The difficulties encountered in their prevention are likewise human rather than drug problems, including the difficulty of imposing effective controls on the availability of drugs.

1.1 Use of terms

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

Drug. "Any substance that, when taken into the living organism, may modify one or more of its functions." ¹

Drug dependence. "A state, psychic and sometimes also physical, resulting from the interaction between a living organism and a drug, characterized by behavioural and other responses that always include a compulsion to take the drug on a continuous or periodic basis in order to experience its psychic effects, and sometimes to avoid the discomfort of its absence. Tolerance may or may not be present. A person may be dependent on more than one drug." ²

Psychic dependence. A condition in which a drug produces "a feeling of satisfaction and a psychic drive that require periodic or continuous administration of the drug to produce pleasure or to avoid discomfort." ³

Physical dependence. "... an adaptive state that manifests itself by intense physical disturbances when the administration of the drug is suspended ... These disturbances, i.e., the withdrawal or abstinence syndromes, are made up of specific arrays of symptoms and signs of psychic and physical nature that are characteristic for each drug type." ³

Dependence-producing drug. "A drug having the capacity to interact with a living organism to produce a state of psychic or physical dependence or both. Such a drug may be used medically or nonmedically without necessarily producing such a state. The characteristics of a state of drug dependence, once developed, will vary with the type of drug involved. Some types of drug, including those present in tea and coffee, are capable of producing drug dependence in a very broad sense. The existence of such a state is not necessarily harmful in itself. There are, however, several types

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1969, No. 407, p. 6 (section 1.1). This definition is intentionally broader than that used in connexion with substances intended always to be of benefit to a patient. See *Wld Hlth Org. techn. Rep. Ser.*, 1966, No. 341, p. 7 (section 2).

² *Wld Hlth Org. techn. Rep. Ser.*, 1969, No. 407, p. 6 (section 1.1).

³ Eddy, N. B., Halbach, H., Isbell, H. & Seevers, M. H. (1965) *Bull. Wld Hlth Org.*, 32, 723.

of drug that, because they can produce substantial central nervous stimulation or depression, or disturbances in perception, mood, thinking, behaviour, or motor function, are generally recognized as having the capacity, under certain circumstances of use, to produce individual and public health and social problems. Drugs of the types listed below can produce substantial effects and problems of the kinds mentioned above. As used in this report, the term 'dependence-producing drug(s)' means one or more drugs of the following types :

(1) alcohol-barbiturate type—e.g., ethanol, barbiturates, and certain other drugs with sedative effects, such as chloral hydrate, chlordiazepoxide, diazepam, meprobamate, and methaqualone ;¹

(2) amphetamine type—e.g., amphetamine, dexamphetamine, methamphetamine, methylphenidate, and phenmetrazine ;

(3) cannabis type—preparations of *Cannabis sativa* L., such as marijuana (bhang, dagga, kif, maconha), ganja, and hashish (charas) ;

(4) cocaine type—cocaine and coca leaves ;

(5) hallucinogen type—e.g., lysergide (LSD), mescaline, and psilocybin ;

(6) khat type—preparations of *Catha edulis* Forssk ;

(7) opiate [morphine] type—e.g., opiates such as morphine, heroin, and codeine, and synthetics with morphine-like effects, such as methadone and pethidine ; and

(8) volatile solvent [inhalant] type—e.g., toluene, acetone, and carbon tetrachloride. ”²

Tobacco. “ Though not listed above, it clearly is a dependence-producing substance with a capacity to cause physical harm to the user, and its use is so widespread as to constitute a public health problem. However, unlike the types of dependence-producing drug just noted, it produces relatively little stimulation or depression of the central nervous system, or disturbances in perception, mood, thinking, behaviour, or motor function. Any such

¹ Despite the similarities in the signs and symptoms of alcohol and barbiturate intoxication and withdrawal, the Committee considered them separately from the preventive point of view because of psychological and social differences in the problems associated with their use.

² *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, pp. 8-9 (section 2.1). For a more complete discussion see, for example, Eddy, N. B., Halbach, H., Isbell, H. & SeEVERS, M. H. (1965) *Bull. Wld Hlth Org.*, 32, 721-733.

psychotoxic effects produced by tobacco, even when it is used in large amounts, are slight compared with those of the types of dependence-producing drugs listed above. It is for this reason that dependence on tobacco—perhaps the most widespread form of drug dependence—is not given specific attention in this report. Attention has been restricted to the use of dependence-producing drugs capable of exerting major psychotoxic effects.”¹

Nonmedical use of drugs. “The use of dependence-producing drugs of the types noted above other than when medically indicated.”¹

Drug control. National law or international agreement governing and restricting production, movement, and use of a drug to medical and scientific needs in the interest of public health and for the prevention of problems associated with the nonmedical use of drugs.²

Epidemiology. “The study of the distribution of a disease or condition in a population and of the factors that influence that distribution.”³

Incidence rate. “The rate at which illnesses or other conditions develop during a defined period in a population at risk.”³

Prevalence rate. “There are two indices of prevalence :

(a) point prevalence—the number of cases at one point in time in relation to a defined population ;

(b) period prevalence—the number of cases existing during a period of observation expressed in relation to a defined population.”³

Central case register. “A formal record of defined ‘cases’ maintained by a ‘central’ agency. A ‘case’ may be, for example, a patient with a diagnosed illness, a person presenting designated signs or symptoms, or someone who has exhibited a particular behaviour, such as taking dependence-producing drugs, or been involved in a particular incident, such as being arrested. To add cases to such a register, it is necessary that one or more individuals or institutions report specified information to another (central) agency. The central case register may contain limited or more detailed information about the person or ‘case’ in question. The data included must be recorded in standard form. The records of a treatment

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, p. 9 (section 2.1).

² Based on a definition in *Wld Hlth Org. techn. Rep. Ser.*, 1969, No. 407, p. 6 (section 1.1).

³ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, p. 17 (section 3).

centre or an individual researcher are not considered to constitute a central case register.”¹

Primary prevention is aimed at ensuring that a disorder, process, or problem will not occur.

Secondary prevention is aimed at identifying and terminating or modifying for the better a disorder, process, or problem at the earliest possible moment.

Tertiary prevention is aimed at stopping or retarding the progress of a disorder, process, or problem and its sequelae even though the basic condition persists.

1.2 Focus of report

Many formal and informal policies have been established and numerous actions taken in an effort to prevent entirely or reduce the seriousness of the individual and social problems associated with the use of various types of dependence-producing drug.² Many of the existing policies and programmes are based on differing and sometimes conflicting assumptions and goals, even in one and the same community. For example, some programmes are based on the belief that most drug taking, especially that involving a *socially disapproved drug or manner of use*, is a moral problem, while other programmes appear to be founded on the assumption that drug use stems largely from either individual or social ills. The goal of reducing the health and other costs of alcohol-related problems is more often than not in conflict with the goal of obtaining profits or revenues at individual, corporate, and governmental levels. Unfortunately, many policies and programmes have not been adequately evaluated for their effectiveness in achieving intended goals. Indeed, in many instances the goals appear to be vague and are only implied rather than stated explicitly.

It will be emphasized repeatedly in this report that it is often pointless or even dangerous to recommend or implement preventive actions for drug-related problems until (a) both the broad goals and the more specific objectives are expressed in as quantifiable and measurable terms as possible, and (b) careful thought is given to the possible risk of producing unintended, undesirable side effects. A measure directed toward the prevention of one drug-related problem may actually aggravate other problems.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, pp. 17–18 (section 3).

² For example, those of the alcohol-barbiturate, amphetamine, cannabis, cocaine, hallucinogen, khat, opiate (morphine), and volatile solvent (inhalant) types. See Eddy, N. B., Halbach, H., Isbell, H. & Seevers, M. H. (1965) *Bull. Wld Hlth Org.*, 32, 731–733; *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, p. 9 (section 2.1).

This clearly suggests that, in each society, decision makers must have a thorough understanding of the dynamics of their own unique matrix of interacting factors and must set specific, time-limited goals and priorities for particular problems affecting particular target groups. Yet even if these conditions are met no meaningful action can be taken unless society has the will, knowledge, and capacity to launch effective prevention programmes.

It is the purpose of this report to assess what is and is not known about *preventing problems associated with the use of psychoactive dependence-producing drugs* when taken in a manner unrelated to acceptable medical practice. The Committee emphasized that its concern was with preventing or reducing the incidence and severity of such problems and not simply with the prevention or reduction of drug use *per se*. The latter is seen as but one possible, and often very important, approach to problem prevention where *any* nonmedical use of a particular drug is associated with a high probability that serious problems will ensue; there are numerous other approaches to the prevention or alleviation of problems associated with drug use in addition to the prohibition of such use.

One problem associated with the nonmedical use of drugs—drug dependence (defined in section 1.1)—requires special mention. The characteristics of a state of drug dependence, once developed, vary with the type of drug involved. With drugs of the type listed on page 15, the characteristics of dependence can be so obviously injurious that prevention of dependence *per se* is a major consideration in a society's response to the use of these drugs.

In undertaking its assessment of means to prevent or alleviate problems associated with the nonmedical use of drugs, the Committee made no attempt to consider all the possible drug-related problems that occur with different drugs, different individuals, and in different countries and localities. Instead, attention was directed to identifying a number of general principles of prevention that may be helpful to persons faced with the task of making rational policy decisions in this field. Each problem can be realistically approached only in the context of the other problems competing for the attention and resources of a given society, and then only by taking account of the specific nature of the problem, the circumstances, attitudes, and institutional patterns of the time and place in which it occurs, and the persons and drugs involved.

The Committee was mindful of the fact that the foregoing well-established principle for problem solving is applicable to many health, social, and other problems. Nevertheless, it is worth stressing here because it is so often ignored when programmes in the field of drug dependence are developed. Perhaps this is due in part to the fact that the problems asso-

ciated with the nonmedical use of drugs are “ hedged about with emotion, for one thing, because [they concern] groups and concepts most societies take very seriously : youth, morals, religion, the law ”.¹

1.3 Bases of programme formulation

The nature of the policies and activities established to prevent or alleviate problems associated with the nonmedical use of dependence-producing drugs depends on the nature and severity of any immediate and longer-term effects, and on the prevailing beliefs and assumptions about the causes of drug taking, especially the beliefs held by persons responsible for programme formulation. Drug-related beliefs are significantly influenced by the broad value system of the community, which encompasses judgements on “ (1) the relative worth of material possessions and spiritual, cultural, and traditional beliefs and experiences, (2) the respective importance of individual rights, prerogatives, and responsibilities, and those of society, (3) the nature of practices which are considered to be ‘ good ’ or ‘ evil ’, and (4) the meaning and value of life itself ”.²

Previous reports of WHO expert groups³ summarize the motives and hypotheses that have been postulated to account for the initiation and continuation of the various forms of nonmedical drug use seen throughout the world. These are again summarized in the present report (section 2), not to suggest that one hypothesis is correct and another wrong or to imply the need for a definitive conclusion, but to note their relationship to various preventive programmes and approaches and to emphasize that the most significant causative and precipitating factors for drug use may differ, at least partly, for different drugs, different people, different societies, different times, and different associated problems.

The nonmedical use of dependence-producing drugs and the problems associated therewith are influenced by (a) the characteristics and experiences of the users, (b) the properties of the drug(s) taken and the amount, manner, frequency, and duration of their use, and (c) the broad and immediate social, cultural, and economic environment and circumstances of use.

¹ *Off. Rec. Wld Hlth Org.*, 1973, No. 205, p. xv.

² Cameron, D. C. (1970) *Bull. Wld Hlth Org.*, 43, 591.

³ *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460, p. 11 (section 3.1.1) ; 1971, No. 478, p. 16 (section 3.2) ; 1973, No. 516, p. 18 (section 3.1).

2. FACTORS ASSOCIATED WITH THE NONMEDICAL USE OF DRUGS

2.1 General factors

The availability of dependence-producing drugs is a necessary, but not sufficient, condition for their use. A large number of personal and environmental variables have been suggested to explain why some persons initiate drug use and others do not, and why some stop or use drugs moderately while others progress to a state of drug dependence. However, it is obvious that, while social acceptance, ready availability, poor environmental conditions, and individual pathology may increase the probability of drug use and dependence, they do not ensure that such behaviour will result in a given person. The inability to specify a set of sufficient conditions for the occurrence of drug use or dependence is clearly a limitation in the search for preventive measures.

The Committee shares the view of the WHO Study Group on Youth and Drugs¹ that no single "cause" of taking drugs has been demonstrated but that persons who take dependence-producing drugs apparently do so for a wide variety of stated and perhaps unconscious reasons at various times. "However, one or more of the following motives often appear to be associated with the initiation and continuation of drug-taking: (1) to satisfy curiosity about drug effects; (2) to achieve a sense of belonging, to be "accepted" by others; (3) to express independence and sometimes hostility; (4) to have pleasurable, new, thrilling, or dangerous experiences; (5) to gain an improved 'understanding' or 'creativity'; (6) to foster a sense of ease or relaxation; and (7) to escape from something.

"It must be noted that these motives are not necessarily associated with individual psychopathology or with adverse social influences. They can be and are operative for normal as well as abnormal persons, whether or not such persons are satisfied with the social structure and situation in which they find themselves. Further, these motives do not necessarily lead to drug-taking. Indeed, they can and do lead most persons to obtain satisfactions through activities other than drug-taking.

"Curiosity is one of man's outstanding characteristics; it appears early in life and leads to extensive exploratory behaviour. It is not surprising, then, that many young persons will wish to try certain drugs in order to determine their effects for themselves. Since a great many young persons first try drugs (especially alcohol and cannabis) in the company of others, the novice may find that, in endeavouring to satisfy his curiosity, he may also have achieved a sense of 'belonging' to the group involved

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516.

and/or a sense of independent responsibility for his actions. Indeed, the first or subsequent trials may be more related to the experimenter's need for acceptance as a person or a sense of independence than to his curiosity. It is understandable that these powerful factors, reinforced by the pharmacological and other effects of taking dependence-producing drugs, will make such drugs attractive for some persons once they have tried them. Among the possible reinforcing pharmacodynamic properties of various types of dependence-producing drug are : relief from pain, anxiety, fear, inhibitions, and excessive passivity ; a sense of ease, relaxation, and blunting of consciousness ; a sense of decreased fatigue and heightened awareness of both external and internal sensory and other stimuli, sometimes to an intense degree ; a sense of increased understanding, insight, or creativity ; and the production of dreamy and/or euphoric states. ”¹

In addition to such influence as may be exerted by the foregoing factors—as well as those postulated in sections 2.2–2.4—on beginning, continuing, stopping, and resuming drug use, it is noted that *social controls* have an important bearing on diminishing or enhancing the extent of drug use. Social controls may be *primary*, stemming from family or person-to-person relationships, or *secondary*, deriving from the laws, customs, and mores of the community in which a person customarily lives. An example of the positive effect of such controls is the low prevalence of alcohol-related problems among persons of Jewish background. Also, the regular use of cannabis is quite prevalent in certain rural areas of some countries, but community disapproval is generally effective in preventing “ heavy use ”.²

Conversely, when social controls are lessened or removed (whether because of migration, rapid sociocultural change, or war), undisciplined patterns of drug use are not infrequent. Examples of such negative effects have been seen in a number of countries.³

One of the most revealing studies as to the importance of social stabilizers is the recent follow-up of enlisted men in the US Army in Viet-Nam. The large majority of those dependent on heroin in Viet-Nam did not continue their narcotics use after their return to the USA.⁴ In a different context, it is of interest to note the contrast between the small amounts of cannabis typically used in the USA and the relatively large quantities consumed by

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, pp. 18–19 (section 3.1).

² Chopra, I. C. & Chopra, R. N. (1957) *Bull. Narcot.*, 9 (1), pp. 4–29 ; Roland, J. L. & Teste, M. (1958) *Maroc méd.*, 37, 694–703.

³ Asuni, T. (1964) *Bull. Narcot.*, 16 (2), pp. 17–28 ; Parot, A. (1942) *Ann. méd.-psychol.*, 1, 1–24 ; Tanner, R. E. S. (1966) *Int. J. Addict.*, 1, 9–29.

⁴ Robins, L. N. (1973) *A follow-up of Vietnam drug-users*, interim final report, Washington, D.C., Special Action Office for Drug Abuse Prevention (Special Action Office Monograph, Series A, No. 1).

some US military personnel in the Federal Republic of Germany and Viet-Nam.¹

The loss of effective social controls may result from changes normally considered beneficial. For instance, several observers have suggested that the "hippie" movement and the drug use associated with it were made possible, in part, by the affluence of a generation of youth who had the option of postponing the normal economic responsibilities of adulthood. In general, factors that loosen social structures and reduce social expectations are often associated with deviation from social norms, the "excessive" use of drugs being one example. This is especially clear among young people who leave school prematurely.

Three patterns of drug use were noted in a previous WHO publication.² *Experimental use* consists in trying a dependence-producing drug once or a few times and then stopping. *Casual or recreational use* involves the intermittent taking of a drug without the development of psychic or physical dependence. *Dependent use* involves a compulsive need to take a drug "to experience its psychic effects, and sometimes to avoid the discomfort of its absence".³ The personal and environmental factors involved in these different patterns of drug use will now be discussed with a view to examining appropriate intervention or prevention approaches in subsequent sections.

2.2 Initial and experimental use

In general, the nonmedical use of dependence-producing drugs is most often initiated in adolescence or early adulthood, although in some instances initiation may be more common in older groups, as for example with the ingestion of sedatives and tranquillizers. In part, the observed tendency for drug use to begin in youth may be an artefact of the continuity of individual behaviour, i.e., persons who do not take drugs in their youth will continue to abstain for the same reasons in adulthood. On the other hand, frequency of risk-taking and a tendency to rebelliousness are among the best predictors of subsequent initiation of illicit drug use,⁴ and these traits are, of course, more prominent among adolescents as a whole as opposed to

¹ Tenant, F. S., Preble, M., Prendergast, T. A. & Ventry, P. (1971) *J. Amer. med. Ass.*, 216, 1965-1969; Special Subcommittee of the Committee on Armed Services, House of Representatives (1971) *Inquiry into alleged drug abuse in the armed services, in the 91st Congress, 2nd Session*, Washington, D.C., U.S. Government Printing Office.

² *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, pp. 16-18 (section 2.3.3).

³ *Wld Hlth Org. techn. Rep. Ser.*, 1969, No. 407, p. 6 (section 1.1).

⁴ Smith, G. M. (1973) Statement on the antecedents of teenage drug use before the Committee on Problems of Drug Dependence, National Academy of Sciences/National Research Council, USA, 21-23 May 1973.

adults. Young people who initiate illicit drug use are also more likely to evidence other patterns of deviancy, e.g., truancy from school and sexual promiscuity. In most cultures, males are much more likely to initiate drug use than females, although this difference is not so evident in the recent increase in use among European and North American youth. The consumption of alcohol is so endemic to most cultures as not to require comment on initial or experimental use. Experimentation with cannabis has approached this state in some areas.

In addition to age and sex factors, lower socioeconomic status has traditionally been closely related to this initiation of the nonmedical use of most drugs other than alcohol. Even in those cultures where cannabis and opium use has been permitted or tolerated, the practice was typically held in low esteem and largely limited to the poorer classes of the population. In many such instances, laws prohibiting use were enacted, a situation that contributed to the class differentiation between user and non-user. The recent increase in prevalence, however, has been characterized by a reversal of the lower *versus* middle and upper socioeconomic class relationship, at least in North America.¹ Those of middle-class and upper-class status have been more likely to start using cannabis and hallucinogens than have lower socioeconomic and minority groups. However, this development should be viewed in the perspective of the faddish nature of some drug use and its current association in certain countries with rebellious attitudes.

Probably the most frequently cited reason for initiating drug use is curiosity about drug effects. The desire to be perceived as "adult" or sophisticated and the desire for new and pleasurable experiences are also factors. These are normal characteristics of adolescents. Association with drug-using peers has also been found to be highly predictive of both initiation and extent of use.²

As noted earlier, further reasons for initiation include the need to be accepted by others, the allaying of anxiety, and the seeking of new or thrilling experiences or of understanding or creativity. In some cultures drug use is often initiated as self-treatment in an attempt to relieve or prevent various symptoms, to overcome hunger or fatigue, or because of a belief that certain drugs will enhance sexual capacity or gratification. Initiation may also occur for religious purposes, as an aid to meditation or the attainment of mystical states.

Some of the etiological factors in drug use can be best ascribed to chance: e.g., the historical chance that a particular drug was introduced to the

¹ United States Secretary of Health, Education, and Welfare (1973) *Third annual report to the U.S. Congress on marihuana and health* (mimeographed document).

² Kandel, D. (1973) *Science*, **181**, 1067-1070.

culture ; the chance that an individual in India chose a job or religion with a high prevalence of cannabis use ; the chance that a student was assigned a desk next to a drug user ; or the chance that an adolescent lived in a period when various factors combined to produce a drug-using fad among middle-class youth.

2.3 Casual use

Alcoholic beverages and cannabis preparations are the dependence-producing drugs most often used in a casual or recreational manner.¹ The extent of dependence among alcohol users varies among countries. Adverse clinical and behavioural manifestations, including dependence and cirrhosis of the liver, tend to become apparent in persons with an average consumption of over 150 ml of absolute alcohol a day for prolonged periods. The percentage of alcohol-using persons with this level of consumption varies from 1 to 9%, depending on their country of residence (see section 3.6.1 (a)). In other words, most persons who use alcohol do so on an experimental or casual basis. This is not to understate the seriousness of the problems associated with some casual as well as dependent use of alcohol.

The Indian Hemp Drugs Commission concluded that "excessive" users represented about 5% of the population of ganja (cannabis) smokers.² Likewise, the large majority of those involved in the recent upsurge of cannabis use in Europe and North America can be considered casual users.³ The nonmedical use of opiates is much more likely to result in dependence of the opiate (morphine) type because of its capacity (a) to produce a mental state that is much appreciated by many users and (b) to induce physical dependence when used on a regular basis for a relatively short period of time. However, many persons do take opiate-type drugs on an occasional basis without becoming dependent. The same is also true of drugs of the cocaine and amphetamine types. However, as with opiate-type drugs, dependence on these often develops quite rapidly, especially when intravenous use is involved ; this is so despite the fact that there is no physical dependence associated with the use of cocaine, and little if any associated with amphetamine-type drugs.

¹ Some use of tobacco is doubtless casual, but most use appears to be on a dependent or compulsive basis. However, tobacco is excluded from this discussion for the reasons cited in section 1.1.

² Indian Hemp Drugs Commission (1894) *Indian Hemp Drugs Commission Report, 1893-1894*. Republished in 1969 in : *Marihuana*, Silver Spring, Md., Jefferson.

³ United States National Commission on Marihuana and Drug Abuse (1973) Second report. *Drug use in America : problem in perspective*, Washington, D.C., U.S. Government Printing Office, pp. 63-67.

Whether a person continues to use a substance, once tried, is determined by the degree to which (a) the drug reinforces some personally or socially meaningful function and (b) its use brings about some desired physical, psychological, or social change, whether real or imagined, that is perceived as more pleasant than unpleasant, more desirable or functional than undesirable or dysfunctional. What is perceived as desirable and functional by one person need not, however, be so perceived by another; nor need it correspond to accepted social norms. *The major reasons given for continuing to use a given drug beyond the experimentation stage are pleasure and/or avoidance of discomfort, and the facilitation of social interaction at either the group or the interpersonal level.* Other reasons for continued use include relaxation and relief from normal frustrations and boredom. In some instances drugs may be used on a casual basis for self-medication, for religious purposes, or for allaying fatigue and giving an increased sense of endurance.

The reasons for continuing to use a drug may or may not be related to the reasons for its initial or experimental use. If drugs are taken in a conscious or unconscious attempt to alleviate personal problems, and if these problems persist, there may be a tendency for some such users to increase the amount taken in a continuing search for relief—such continuing and increasing use leading to dependence. Also, in the process of use, a drug may come to serve new or additional functions. These may lead to continued casual use, intensification to dependent use, or the abandonment of use. What was begun out of curiosity may be continued because it is pleasant, provides acceptance in a group, facilitates social interaction, makes the user feel better or more comfortable, or prevents mental and/or physical discomfort associated with absence of the drug.

2.4 Dependent use

Numerous etiological factors have been postulated for the progression from experimental or casual to dependent use. No single “cause” for dependent use has been demonstrated, any more than a single “cause” has been found for initial or casual use. In this connexion, the Committee concurs with the views expressed in its eighteenth report: ¹ “A knowledge of the pharmacological interaction between the drug and the organism and of the interaction between the organism and the environment is essential to an understanding of the nature of drug dependence. Given that pharmacological, human, and environmental factors are present, some of the

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460.

many hypotheses to explain the causation of drug dependence of designated types include the following :

(1) that such drug dependence may be a manifestation of an underlying character disorder in which immediate gratification is sought in spite of the possibility of long-term adverse consequences and at the price of immediate surrender of adult responsibilities ;

(2) that it may be a manifestation of delinquent-deviant behaviour in which there is pursuit of personal pleasure in disregard of social convention, so that to some this is primarily a moral problem ;

(3) that it may be an attempt at self-treatment by persons suffering from (a) psychic distress either of the normal variety seen, for instance, in adolescence or as a reaction to social and/or economic stress, frustration or blocked opportunity ; or the more persistent problem of depressive illness, chronic anxiety, or other psychiatric disorders ; (b) physical distress—hunger, chronic fatigue, or diseases ; (c) a belief that the drug has special powers to prevent disease or to increase sexual capacity ;

(4) that it may provide a means of achieving social acceptance in a social subculture, particularly for the socially inadequate ;

(5) that it may be a manifestation of a permanent or reversible metabolic lesion brought about by the repeated use of high doses of drugs ;

(6) that it may be part of a rebellion against conventional social values relating to pleasure, tradition, success, and status ;

(7) that even in the absence of pre-existing psychopathology, it may result from the acquisition of a complex set of instrumental and classically conditioned responses and may therefore be a form of learned behaviour ;

(8) that even in the absence of underlying psychopathology, it may result from sociocultural pressures leading to heavy use of a drug, for example, alcohol ;

(9) that any or all of these factors may play a role in the causation of drug dependence in a given individual. ”¹

One factor suggested by recent research and relevant to point (5) above is that individual genetic and other biological differences may be related to the probability both of becoming drug-dependent and of experiencing adverse drug effects.²

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460, pp. 11–12 (section 3.1.1).

² Goodwin, D. W., Schulsinger, F., Hermansen, L., Guze, S. B., & Winokur, G. (1973) *Arch. gen. Psychiat.*, 28, 238–243 ; Mendelson, J. H. & Mello, N. K. (1973) *Science*, 180, 1372–1374 ; Schuckit, M. A., Goodwin, D. A. & Winokur, G. (1972) *Amer. J. Psychiat.*, 128, 1132–1136.

As observed earlier, *dependence* on drugs of the type under consideration in this report leads to so many different and often serious problems that prevention of this state *per se* may appropriately be the objective of a number of preventive activities. This is especially true with respect to drugs (e.g., beverage alcohol and cannabis preparations¹) that are widely used in an experimental or casual manner in a number of localities without significant demonstrable harm to the *majority* of, but not all, such users, at least as far as man-drug interactions are concerned. (Of course, many experimental and casual users of such drugs do become dependent on them, with all of the attendant problems this entails for such individuals and for society.) In a country where there is widespread use of a given drug and where the majority of users are not directly and personally harmed by such use, the challenge may thus be to prevent dependence with its associated problems rather than to prevent or prohibit drug use *per se*, especially as the latter objective is often unrealistic. Vigorous attempts to enforce prohibition in the face of a large and insistent local demand have not proved to be politically realistic or even very helpful (as demonstrated by the attempted prohibition of the use of alcohol in Norway and the USA, and of opium and opiates in Iran and Thailand). The unintended side effects of attempted prohibition may be at least as damaging as the problems associated with the original drug-taking pattern. Under such conditions one appropriate objective, among others, might be to try to adopt preventive policies and practices that would keep the rate of dependence among users at the lowest possible level, i.e., keep the attack rate low among persons at risk. It will be seen in section 3.6.1 that the "attack rate"² of dependence on alcohol among drinkers is 9-10 times higher in some countries than in others. Factors significantly associated with such differences deserve intensive study.

2.5 Stopping use

The nonmedical use of drugs is most frequently discontinued after experimental use or a relatively short period of casual use. This is true of socially acceptable or tolerated drugs as well as those whose use is not so accepted. Often, the drug user discontinues taking the drug because of (a) lack of interest, (b) concern about his own welfare, or (c) concern about the

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1971, No. 478, p. 34 (section 4.4.3).

² Assuming that a given group of persons are exposed to a drug during a given period of time and therefore "at risk" of becoming dependent on it or experiencing some other drug-related problem, the term "attack rate" as used in this report means the proportion of these persons who do indeed become dependent or experience such problems.

reactions of others. Intervention on the part of parents, friends, health personnel, or legal authorities may also be involved.

The probability of discontinuation, as with progression to dependent use, varies with different drugs. The use of strong hallucinogens such as lysergide (LSD) appears to be somewhat self-limiting in terms of frequency and duration.¹ These drugs are not reliable mood modifiers, and their utility for producing unique pleasurable experiences decreases with continued use. Individuals frequently consume large amounts of alcohol on an episodic basis during adolescence and young adulthood but reduce or discontinue their use along with the assumption of family and other adult responsibilities.² On the other hand, both alcohol and cannabis may be used on a casual or dependent basis over a period of many years, and such use is not infrequently a lifetime practice, especially in countries where the traditional use of these drugs has long been established. Opiate dependence is generally considered to be a long-term phenomenon but the data on US Army veterans returning from Viet-Nam indicate that relatively short-term usage may be voluntarily discontinued following a favourable change in environmental conditions, a modification of social controls, and a decrease in availability. This finding points to the importance of early intervention efforts. There is also evidence to suggest that a number of opiate users tend to "mature out" or discontinue their use spontaneously between the ages of 40 and 60.³ Drug dependence, especially of the alcohol, barbiturate, and opiate (morphine) types, tends to be a chronic relapsing disorder. Where "maturing out" occurs, the user tends over time to exhibit progressively shorter periods of active drug use and longer periods of therapeutically or self-induced abstinence until he ultimately remains abstinent with respect to his primary drug of dependence. He may, however, increase his use of another drug, e.g., alcohol or cannabis.

Past efforts at producing long-term abstinence in most dependence disorders (opiates, alcohol, etc.) have led to the view that the long-term prognosis for avoiding relapse is generally quite poor. However, while it is still appropriate to view these as chronic relapsing disorders, several developments are beginning to bring about a reassessment of the more pessimistic views. In the past, when the availability of treatment was limited and therapeutic techniques were less well developed, only those drug-dependent individuals who came to the attention of public agencies

¹ McGlothlin, W. H. & Arnold, D. O. (1971) *Arch. gen. Psychiat.*, 24, 35-49.

² There is also some tendency for alcoholics to reduce their consumption in middle age.

³ Winick, C. (1964) *Bull. Narcot.*, 16 (1), pp. 1-11; Vaillant, G. E. (1966) *Amer. J. Psychiat.*, 123, 573-583; Vaillant, G. E. (1973) *Arch. gen. Psychiat.*, 29, 237-241; Waldorf, D. (1970) *Soc. Probl.*, 18, 228-243.

made contact with treatment programmes. These individuals may have represented the sample of drug-dependent individuals with the poorest prognosis. With better and more readily available treatment, a wider spectrum of drug-dependent individuals is being seen, and they are being seen earlier in the course of their disorder. The prognosis under these circumstances seems considerably less bleak and supports the value of making treatment available. Although it is still not possible to state which specific kinds of treatment are most likely to be of benefit to which kinds of drug-dependent individual, many of the more effective programmes involve group-oriented approaches and nonmedically-based self-help organizations providing long-term support. There is also growing recognition that repeated efforts at treatment may result in increasingly longer intervals of abstinence between treatment episodes (accompanied, presumably, by decreased social and health-related problems).

Environmental changes affecting the individual often play a role in the cessation of dependent use, e.g., the loss of a source of supply, moving to a new location, a change in peer group associations, or the establishment of more stable relationships with other persons. In general, positive changes in personal satisfaction, self-image, and achievement may contribute to the stopping of drug use. Finally, cessation may follow the experiencing of a drug-related traumatic event or the witnessing of a similar event in one's associates.¹

In a few countries, enforcement pressure appears to have been quite effective in stopping drug dependence, but in most instances it has been only partially successful. The strenuous enforcement programme in the USA is credited with causing discontinuation of heroin use among many older users no longer able to cope with the difficulties of obtaining "street" drugs or the hazards of their use. In a number of cases there was apparently a shift to the use of other drugs, including increased use of alcohol, although this may not be as prevalent as has been commonly assumed.²

3. APPROACHES TO PREVENTION

3.1 Some planning considerations

The effectiveness of measures designed to prevent individual and public health and social problems varies with the interaction of at least the following factors : (a) the degree to which the causes of the problems are understood ;

¹ Schasre, R. (1966) *Int. J. Addict.*, 1 (2), pp. 23-32.

² Wilmarth, S. S. & Goldstein, A. (1974) *Therapeutic effectiveness of methadone maintenance programs in the USA*, Geneva, World Health Organization (*WHO Offset Publication No. 3*).

(b) the adequacy of available preventive technology and the ease of its application ; (c) the availability of the human and other resources needed to implement a preventive programme ; (d) the degree to which prevention would require people to change their pattern of behaviour ; and (e) the will and vigour with which the programme is carried out. To illustrate, in many parts of the world the interplay of these factors has been such as to make possible a marked reduction in the incidence and prevalence of such diseases as smallpox, malaria, and poliomyelitis. Some campaigns against venereal diseases have been notably effective, only to have some of the gains dissipated when the perceived need or the will to continue the programme diminished and/or changes in social mores occurred. Where multiple, poorly understood causative factors or human behaviour are involved (e.g., in cardiovascular disorders, venereal diseases, and problems associated with the nonmedical use of drugs), expectations as to the effectiveness of preventive measures must be more guarded than in the case of less complex and better understood disorders.

In considering various preventive approaches, one must take into account the communicable nature of drug-using behaviour. Initial interest in drugs and their various effects often appears to be communicated directly from user to non-user. Such interest may also be generated by communications from users and non-users conveyed through news media and some poorly conceived or executed information and education programmes. Once interest has been created in a drug, the potential drug user who has decided consciously or unconsciously to experiment usually places himself in a situation where he will have reasonably ready access to the drug, e.g., in the company of a known or probable user. In most countries, initiation in the use of drugs that are not socially accepted tends to occur through contacts with users who themselves are in a relatively early phase of their drug-taking careers.¹ Longer-term users are often likely to conserve their supplies for their own use, especially when the drug in question is relatively difficult to obtain. " 'Pushing' of drugs to the extent that unwilling non-users are persuaded or forced to buy and use drugs is thought to be rather unusual. " ²

Still another factor to be taken into account when considering preventive approaches is the current trend in many countries toward multiple drug

¹ Alarcon, R. de (1969) *Bull. Narcot.*, 21 (3), pp. 17-22 ; Hunt, L. G. (1973) *Heroin epidemics : a quantitative study of current empirical data*, Washington, D.C., The Drug Abuse Council, Inc.

² As used in this report, " 'pushing' means the act of trying to recruit new drug customers (users or non-users) for profit or for any other reason " (*Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, pp. 22-23 (section 3.2)).

use by the same person.¹ Those who take dependence-producing drugs often shift from one drug to another when the first or preferred drug is unavailable or difficult to obtain. Also, a substantial number of current users take different drugs in sequence or simultaneously in order to achieve the desired effect of the moment. This trend has an important bearing on the planning of programmes intended to reduce problems associated with drug-taking behaviour. Effective controls imposed on the availability of one drug, in the absence of comparable controls on others, may result in increased use of another drug, the nonmedical use of which may be associated with either more or fewer problems than that of the controlled drug.

Measures taken to prevent problems related to the nonmedical use of drugs may be looked upon as primary, secondary, or tertiary (see section 1.1), and a given measure may serve more than one purpose. For example, a programme designed primarily to prevent the sequelae of drug use in dependent users (tertiary prevention) may, through effective treatment of such users, lead to a substantial reduction in their use of drugs. To the extent that these users were formerly important sources of illicit drugs for other persons in their environment, tertiary prevention for them may have a primary preventive effect for others. This effect also reduces the probability of progression of drug use in those who have already begun experimentation. Additionally, a given effort must be viewed in more than one time-frame. Effective intervention with dependent users in one generation may be viewed as a secondary or tertiary preventive effort, but it also may act as a primary preventive measure for a later generation by its impact on the total social and legal environment. Certain civil commitment, maintenance, or substitution programmes may have a primary preventive impact on the environment entirely apart from their major intended goal of easing the disabilities of the chronic opiate users involved. In this sense, even programmes that substitute a drug of dependence through medical channels for a similar drug obtained through illicit channels may serve to reduce "contagion" and thereby "contain" or prevent further spread of that particular form of drug use. Obviously, drug use and drug-related problems may actually be increased by those programmes that permit quantities of prescribed or licit drugs to be made available for use by persons other than those for whom they were intended.

Given the interrelationships between drug users and non-users, between those at highest risk and those at lesser risk, it can be seen that intervention of a preventive nature is difficult to dissociate from intervention of a therapeutic, including rehabilitative, nature for some particular target group; for example, the rehabilitation of chronic alcoholics who drive may eventu-

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, pp. 15-16 (section 2.3.2).

ally prevent loss of life for the non-drinking drivers who share the road with them.

There is still another important way of viewing preventive efforts. Some are *specific* with regard to a particular drug-related problem ; e.g., decreasing the availability of heroin will reduce the likelihood of deaths from heroin overdose in the geographic area involved ; fostering the availability and proper use of sterile injecting equipment will help prevent infections due to contaminated utensils. Other preventive efforts must be considered as nonspecific in relation to a given drug-related problem. For example, measures undertaken to reduce stress stemming from actual or perceived social ills may help remove one possible motive for drug-taking behaviour on the part of some persons ; such measures may also help prevent other socially disapproved behaviour, such as theft. Stress stemming from social ills, if it exists, does not necessarily lead to drug taking ; neither such stress nor its removal is specific with respect to drug use, let alone problems associated with such use.

3.2 Goals of problem prevention

As noted in section 1.2, the Committee is of the opinion that the *broad purpose of prevention* in this field should be *to prevent or reduce the incidence and severity of problems associated with the nonmedical use of dependence-producing drugs*. This is a much broader goal than the prevention or reduction of drug use *per se*. With respect to the nonmedical use of certain drugs in a number of countries (alcohol and perhaps some others), it is also more realistic.

Before consideration is given to particular measures that may be used to help achieve this broad goal, it may be useful to list both some of the problems to be prevented and some more specific or immediate objectives.

The *problems to be prevented* are those experienced by potential and existing drug users and the society in which they live. Among those of a personal nature ¹ are the occurrence of (a) *acute intoxications* (e.g., overdose of depressants, such as those of the alcohol, barbiturate, opiate, and volatile solvent types, resulting in coma and sometimes death ; anxiety, hyperactivity, and toxic psychoses associated with heavy use of stimulants of the cocaine and amphetamine types ; panic or paranoid states sometimes seen with the use of cannabis preparations ; and a variety of mental disorders associated with use of hallucinogens) ; (b) *behaviour changes* (e.g., increased passivity or aggressiveness or participation in socially unacceptable, non-conforming behaviour) ; (c) *adverse effects of certain societal reactions*

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460, pp. 17-18 (section 3.2.3).

against socially unacceptable behaviour (e.g., stigmatization, blocked opportunity, and incarceration) ; and (d) *other complications* (e.g., infections due to contaminated drugs or injecting equipment, injuries sustained in accidents while intoxicated or confused ; organic changes, such as bronchitis from smoking cannabis or tobacco, and cirrhosis of the liver as well as gastritis and neurological disorders associated with alcohol use ; and malnutrition associated with the dependent use of a number of drugs). Among the drug-related problems experienced by society are the human and economic costs of (a) crime and other antisocial behaviour, (b) health, welfare, correctional, and enforcement services, and (c) forgone economic, scientific and cultural production or achievement by drug users.¹

The broad purpose of prevention, noted in the first paragraph of this section, is so general as to afford little guidance concerning possible approaches to its realization. For this reason, it must be broken down into a series of more limited and specific goals or objectives. The clear delineation of reasonably specific objectives, expressed in as quantifiable terms as possible, also helps in the selection of criteria to be used in evaluating the effectiveness of the approaches and methods employed.

The broad purpose stated earlier may be subdivided along the following lines. Additional, increasingly specific objectives could of course have been listed.

(1) *To limit the availability* of specified dependence-producing drugs (see section 3.3) :

(a) to control licit cultivation, production, manufacture, distribution, and manner of use of designated drugs (the degree of control and extent of availability for medical and scientific purposes or other approved uses may vary with the type of drug, e.g., opiates as contrasted with alcoholic beverages) ;

(b) to suppress illicit cultivation, production, manufacture, distribution, and inappropriate manner of use of designated drugs (the intensity and nature of enforcement efforts may well vary with the type of drug and geographic location).

(2) *To reduce social acceptance of, interest in, and demand for* dependence-producing drugs (see sections 3.4 and 3.5) :

¹ McGlothlin, W. H., Tabbush, V. C., Chambers, C. D. & Kay, J. (1972) *Alternative approaches to opiate addiction control : costs, benefits and potential*, Washington, D.C., United States Department of Justice, Bureau of Narcotics and Dangerous Drugs (Final Report, BNDD Contract No. J-70-33 ; mimeographed document).

(a) to encourage the establishment of community and other programmes and activities that would serve as satisfying alternatives to drug-taking behaviour ;

(b) to increase understanding among target groups of community leaders and others who are not at high risk of using drugs in a way that may be associated with personal or social problems ¹ (e.g., enforcement and judicial authorities, health and welfare personnel, teachers, legislators and other policy makers, and, when necessary, the general public) ; such groups need a clear understanding of man-drug interactions and of related interactions between man and society, as well as of the incidence and severity of personal and social problems associated with the nonmedical use of alcohol and other dependence-producing drugs, taking account of the frequency, amount, and manner of their use ;

(c) to modify the interests and attitudes of persons at high risk of using dependence-producing drugs in a manner likely to be associated with personal and social problems, so as to reduce the probability of such use :

(i) to identify high-risk groups, e.g., certain migrants, emotionally or socially disadvantaged and/or unstable persons, and individuals who either associate with persons using drugs in a socially unacceptable manner or frequent places of such use ;

(ii) to foster contact between "helping personnel", on the one hand, and, on the other hand, individuals and groups at high risk of using, or already using, drugs in a manner likely to produce problems ;

(iii) to eliminate ignorance and misconceptions about drug effects ;

(iv) to encourage the use of activities other than drug taking to satisfy basic human needs (see section 3.5.3) ;

(v) to enact and enforce legal controls in such a way as to discourage inappropriate use of dependence-producing drugs but not, in the process, to impose penalties for drug use *per se* that would be more damaging to an individual than his use of drugs ;

(vi) to modify broad and immediate sociocultural mores in such a way as to discourage actively the inappropriate use of drugs (e.g., drinking before driving, becoming intoxicated at social affairs and in public places) ;

¹ It is recognized that some individuals in these target groups may already use, or be at high risk of using, drugs in a manner often associated with problems.

(d) to alleviate personal emotional disorders and social deprivation as well as social ills that may contribute, nonspecifically, to the use of drugs in a manner likely to produce problems.

(3) *To reduce the incidence and severity of complications* (mental, physical, behavioural, social) experienced by persons involved in the non-medical use of dependence-producing drugs.

(4) *To improve understanding* of the causes of problems associated with the nonmedical use of dependence-producing drugs, and of the effectiveness of various approaches and techniques in preventing these problems.

Measures used to achieve the above and related objectives are ordinarily directed primarily at (a) individuals and small groups, (b) their environment, or (c) the availability of dependence-producing drugs. In assessing the usefulness of a particular preventive measure, one must recognize that any measure aimed primarily at one of these three major targets will usually affect the others as well because of the dynamic interrelation between man, his environment, and the drugs in question. Likewise, a measure intended to help reach one objective may contribute to or impede the realization of another, and unintended, negative side effects may be generated by otherwise useful approaches.

3.3 Measures directed primarily toward limiting the availability of drugs

Since the availability of a dependence-producing drug is a necessary precondition for its use and hence for the development of any problems associated with such use, it is not surprising that the imposition of legal controls intended to prohibit or otherwise limit the availability of these drugs is one of the most widely utilized preventive approaches. Such substances as are used outside of appropriate medical practice may be (a) legally produced and distributed to the consumer (e.g., alcoholic beverages in many countries, certain cannabis preparations in a few political jurisdictions, and certain medicaments prescribed in the course of appropriate medical practice); (b) diverted from licit to illicit channels (e.g., drugs of the morphine, amphetamine, or barbiturate type); or (c) produced and distributed entirely within illicit channels (e.g., opium, heroin, and cannabis produced and processed in a clandestine manner).

Controls designed to have the cultivation, production, manufacture, trade in, and distribution of certain dependence-producing drugs limited to use for medical and scientific purposes and to prevent their diversion to illicit channels are imposed as a result of local and national legislation and regulations and international treaties. This requires cooperation at national,

regional, and international levels between national agencies and certain international organizations and bodies directly involved, i.e., the United Nations, the International Narcotics Control Board, and WHO. Such cooperation would be facilitated if, in each country, there were a single national agency, independent of producers and distributors, to collaborate with the international organs concerned. In many countries it is believed that the effectiveness of the control system can be enhanced by keeping the list of controlled substances as small as possible but by taking account of the need for periodic reviews to ensure that controlled drugs with the most favourable benefit/risk ratio are available for medical practice.

In order to prevent the diversion of dependence-producing medicaments from licit to illicit channels, it is important that physicians' prescriptions for such drugs be limited in amount, duration of validity, and number of refills.¹ The accumulation of large amounts of dependence-producing drugs by individuals creates an increased risk of diversion for nonmedical use. Prescriptions for closely controlled drugs should be retained by those filling them for 2-3 years to permit their official inspection as necessary.

Prescribing controlled drugs for drug-dependent persons presents special problems and opportunities with respect to prevention. Bringing such persons into treatment helps break the chain of communicability between users and potential users. It is particularly important to initiate treatment early in a person's drug-taking career since there is evidence that many users may attempt to proselytize their friends and acquaintances during this early phase. As noted above, once users become heavily dependent, especially on drugs that are difficult to obtain, they may tend to reserve their drug supplies strictly for their own use. Also, by then they may have few acquaintances who are not already drug users.

Maintenance or substitution programmes have been established for the management of narcotic dependence in a number of countries. In at least two countries (i.e., the United Kingdom and the USA), it has been found useful to limit the prescribing of narcotics for this purpose to specially licensed physicians in order to minimize the possibility of over-prescribing, with associated diversion of drugs to the illicit market. Members of the Committee understood that, in Iran, there is less medical and other supervision of the use of opium by registered users, a situation that might allow for greater diversion of the drug from licit to illicit use. When any maintenance programme is being considered, it is essential that, beyond any presumed or observed benefits to those enrolled in the programme, account be

¹ "The details of these limitations would be left to governments; it is expected that the limitations would vary according to the nature of the drug involved and local conditions" (*Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 497, p. 19 (section 4.5)).

taken of its possible effect in increasing or decreasing the illicit availability of drugs.

Treatment programmes for drug-dependent persons can produce a variety of beneficial individual and environmental effects, and some of these are considered elsewhere. The point being stressed here is that treatment programmes using dependence-producing drugs can have negative as well as positive effects unless due consideration is given to their impact on drug availability in the programme's environment.

Illicit traffic in dependence-producing drugs involves materials that may have had either licit or illicit origins. Such traffic cannot be "controlled" but efforts can be made to suppress it to the maximum degree possible. This is a difficult task since human intelligence and ingenuity are pitted on both sides of the struggle. International as well as national and local enforcement officials and traffickers are involved. Concerted action at national and international levels, aimed at the suppression of the illicit cultivation, production, and manufacture of dependence-producing drugs and the illicit traffic in such drugs, is one of the basic measures for preventing the emergence of problems associated with their inappropriate use.

3.4 Measures directed primarily at individuals and small groups

For purposes of implementing preventive measures directed primarily at individuals and small groups, it is necessary to try to distinguish between persons who are presumably at high risk of using dependence-producing drugs in a manner likely to be associated with problems of the types noted in section 3.2 and those persons who are not at such high risk. There is little point in attempting to prevent the development of drug-related problems among persons already at low risk of experiencing such difficulties. Of course, not all persons can be placed at one or the other extreme of the degree-of-risk continuum, but, in the interests of both the economy and particularly the appropriateness of preventive efforts, it is essential that this broad distinction be kept in mind. Approaches and objectives related to high-risk groups, if identifiable, certainly differ from those involving low-risk groups. Preventive programmes must also take account of the importance of certain leadership, policy-making, enforcement, and "helping" (health and welfare) groups, most (but not all) of whose members are at relatively low risk of developing drug-related problems.

3.4.1 Identification of persons at high risk of experiencing drug-related problems

How can persons at high risk of experiencing drug-related problems be identified, and what are their characteristics? How may social institutions assist in their identification?

(a) *Personal and other characteristics*

The first question may, in principle, be approached by examining the characteristics of persons who are already experiencing drug-related problems and their manner of drug use, and comparing these with the characteristics and manner of drug use (if any) of persons who are not currently experiencing such problems. (The non-problem group may contain experimental and casual users as well as non-users.) One then makes the operating assumptions that when persons in the non-problem group (i) share some or many of the personal or social characteristics of individuals experiencing drug-related problems, and/or are beginning to use drugs in a manner comparable to that of such individuals, and (ii) live in an area where drugs are easily available and drug use is prevalent, they are at high risk of developing drug-related problems. Such high-risk persons represent prime targets for intensive preventive efforts.

Unfortunately, there is still little concrete information available regarding the special characteristics of drug users in the problem group, as contrasted with drug users in general. Under these circumstances, the assumption must be made that the greater a person's involvement in drug use, the more likely he is to develop drug-related problems. The next logical step is thus to determine what characteristics are in fact associated with great involvement in drug use, whether current or future.

There is limited evidence suggesting that measures of rebelliousness/obedience, academic performance, cigarette smoking, and attitudes toward cigarette smoking "all significantly predict which non-users will become users and which ones will remain non-users. Those same variables significantly predict the future degree of drug involvement of those who will become users." ¹

Other characteristics that are very important indicators of possible present or future use, although not necessarily of the development of drug-related problems, include (i) the availability of drugs, (ii) association with drug-using friends,² and (iii) previous experience with certain drugs, e.g., tobacco and alcohol.¹

Certain characteristics have been shown to be associated to one degree or another with regular drug use in one or more groups. These may be classified roughly into three categories:

1. *Developmental retardation.* This means that to some degree an individual has fallen behind his peers in reaching—through regular channels

¹ Smith, G. M. (1973) Statement on the antecedents of teenage drug use before the Committee on Problems of Drug Dependence, National Academy of Sciences/National Research Council (USA), 21-23 May 1973.

² Kandel, D. (1973) *Science*, 181, 1067-1070.

of family, school, or community—one or more of the milestones that his society or his culture expects him to attain as he progresses from childhood to adulthood, from immaturity to maturity. Each society sets its own tasks of growth and measures of progress, and each creates the social, educational, and vocational arena in which growth takes place. Essential during the developmental process are the achievement of a sense of identity, accomplishment, independence, self-worth, a purpose and meaning in life, and the development of skills in relating to peers of the same and opposite sex and to adults. Failure to develop according to parental and societal expectations in any of these dimensions—for whatever reason, including lack of job and other opportunities—may be manifested by any or all of the following: negative self-image, below-average participation in peer group activities, negative attitudes toward and difficult relationships with authority, truancy, disciplinary problems, low level of aspiration and accomplishment, unwillingness to plan for the future, and rejection of many societal values.

All of these attitudes and behaviours (i.e., characteristics) have been shown in various studies to be associated to some greater degree with drug users than with non-users and each may indicate vulnerability, provided drugs are available and are being used by friends or associates.

2. *Decrease in primary social controls.* A second group of factors stemming from family and interpersonal relationships has been demonstrated to be associated with drug use. Among these are broken homes, lack of parental guidance, transience, migration, marginal social status, voluntary or compulsory separation from normal group membership, and membership in large impersonal institutions, such as very large schools or industries that foster a high degree of anonymity and rely heavily on secondary social controls.

3. *Decrease in secondary social controls.* When social controls deriving from a community's laws, customs, and mores are weakened (whether by rapid sociocultural change, migration, or war), drug-using behaviour often increases, sometimes in a manner that may lead to drug-related problems.

A special situation exists where the usual primary and secondary controls are weakened and new primary controls are substituted for those ordinarily present. For example, this occurs when an individual, for whatever reason, takes up membership in a group that substitutes its own, often rigid, primary controls while rejecting normal societal controls, values, and institutions. These include counter-culture groups, street gangs, and various delinquent and deviant groups. Because, in many societies, drug taking is currently an important symbol of rejection of major societal values and controls, it is often a common activity of such groups, but it is neither

universal nor necessarily "excessive". In many instances such groups reject drug use and some vigorously, even violently, oppose the use of certain drugs.

The loss of normal social controls is particularly unfortunate when drug-taking behaviour leads to stigmatization that excludes the drug taker from the remainder of society. This reaction may be disastrous for the individual since he is often denied normal work opportunities and other means of achieving self-esteem and satisfaction within the main culture. Rather, he may be obliged to seek self-esteem and the gratification of other human needs in a deviant subculture that, in turn, preys on the dominant society as a means of survival. There is ample evidence that when drug-dependent persons are not "shut out" of society, the normal social pressures and responsibilities still function to keep the drug consumption of many of them within somewhat "reasonable" limits, and they not infrequently continue to work and make some contribution to society.

Membership in a counter-culture group that espouses drug use or uses drugs is a major indicator of almost certain use, though not necessarily heavy use.

To recapitulate, the degree to which a person (i) shows characteristics associated with developmental retardation, (ii) has or is experiencing the loss of normal primary and secondary social controls, (iii) lives in an area where drugs are readily available and drug use is prevalent, (iv) has drug-using friends or is associated with a drug-using group, and (v) shows certain characteristics relating to academic performance, rebelliousness, prior experience with tobacco and other drugs, and attitudes toward cigarette smoking, indicates whether and to what extent he is at risk of becoming heavily involved in drug use. It will require further studies, particularly those of a prospective (cohort) nature,¹ to determine which of these and other characteristics are most valuable for identifying, among persons heavily involved in drug use, those who are at highest risk of developing drug-related problems.

(b) Role of social institutions

The forces influencing growth and development, social controls, and drug use include the family; educational, health, and social agencies; religion and its institutions; peer groups; mass media; and the community and all of its other agencies. The relative importance of each will vary from community to community, from culture to culture. So, too, will the role of each community agency, its priorities, and its resources as defined by the community.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, pp. 28-29 (section 4.3.3).

Educational agencies have an important role to play in the identification of individuals at risk. In societies where education is virtually universal and where school is a major factor in the lives of most young people for 8–12 years, it can be highly influential either in facilitating healthy personal growth and development or in contributing to the developmental deficits associated with drug use as well as other destructive or deviant behaviour. This is as much a function of *how* the school does what it does as of any specialized activity that it undertakes.

The school is in a unique position to detect early signs of developmental problems. Caution should, however, be observed in inferring any necessary link between such signs and potential or actual drug use unless drugs are available and the student is associating with drug-using peers. Drug taking is but one of the potentially destructive behaviours to which such young people are vulnerable. To perform its function of identifying persons actually (or at high risk of becoming) involved in the destructive use of drugs, the school must have well-trained, sensitive teachers and other educational personnel who are willing and able to look beyond possible indicators or symptoms and get to know their students well. In some societies this is a role not delegated to the school.

Health and social or welfare agencies are also well placed to identify potential danger signals in a far wider range of persons of all ages. Like the schools, these agencies are concerned with identifying not only persons who might benefit from primary preventive activities but also those in need of secondary or tertiary preventive services.

Workers in several health agencies have been able to identify a high proportion of drug users in a given locality. For example, de Alarcon & Rathod followed the chain of spread of heroin use in a small city in England.¹ They utilized several methods for locating users and were apparently successful in identifying virtually the entire population. A second longitudinal study, also in England, was equally successful in identifying the population of heroin users.² Hughes & Crawford extended this method to the identification of heroin users in distinguishable neighbourhoods within a large city in the USA (Chicago).³ If such defined groups of users can be directed into treatment or otherwise contained, the demand for and presumably the availability of the drug, would be reduced in that area. This approach would be expected to function best in relatively small communities and

¹ Alarcon, R. de & Rathod, N. H. (1968) *Brit. med. J.*, **2**, 549–553; Alarcon, R. de (1969) *Bull. Narcot.*, **21** (3), pp. 17–22.

² Kosviner, A., Mitcheson, M. C., Ogborne, A., Zacune, J., Myers, K., Stimson, G. V. & Edwards, G. (1968) *Lancet*, **1**, 1189–1192.

³ Hughes, P. H. & Crawford, G. A. (1972) *Arch. gen. Psychiat.*, **27**, 149–155; Hughes, P. H., Senay, E. C. & Parker, R. (1972) *Arch. gen. Psychiat.*, **27**, 585–591.

when applied to new epidemics where the supply channels are not well established. However, the Chicago research group has reported a high degree of success in bringing the heroin users of two neighbourhoods into treatment, with a possible reduction in drug availability and incidence of use. The method involved (i) the use of epidemiological research teams, (ii) a vigorous effort by "outreach" teams to bring users into treatment (primarily methadone maintenance), (iii) the provision of immediate and convenient treatment, and (iv) the cooperation of community leaders in the prevention effort.

By being alert to and exploring the circumstances of hepatitis, needle marks, and psychotoxic and other medical complications of drug taking, as well as job loss, failure to seek or obtain work, failure to provide financial support to family, lack of purpose, homelessness, loneliness, and other situations of a type commonly associated with drug use, these agencies may assist in identifying potential drug users and those already experiencing problems related to such use. Equally helpful, and perhaps more relevant, are the many non-traditional community agencies such as special youth counselling centres, crisis centres, and "hot-lines". The latter, which provide immediate telephone contact with experienced and sympathetic persons ready to listen to and offer assistance with many personal and social problems, only some of which are related to actual or potential drug use, can now be found in some 60 countries.

Most community agencies and institutions, provided they have appropriately trained staff, are in a position to offer counselling services to a variety of persons in periods of personal or family crisis. Such crises may occur at the time of, for example, (i) rejection by, or separation from, a person upon whom an individual is emotionally dependent, (ii) transition to a more demanding role in life, or (iii) other serious adverse personal or social circumstances.¹ A number of agencies can provide medical and other therapeutic services to emotionally disturbed and/or socially disadvantaged persons. This includes helping such "high-risk" persons become involved in socially acceptable and constructive activities that will help meet their basic human needs. Some such activities are discussed in the next section.

In addition to fulfilling the relatively passive function of assisting only those who contact them, some agencies have taken a more active role in seeking, with field or "outreach" teams, contacts with individuals in or on the fringe of drug-using groups, or in a transient or marginal status. Their results have often been gratifying, in so far as locating users is concerned.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460, pp. 12-13 (section 3.1.1).

3.4.2 *Peer group influences*

In the context in which the term “peer group” is used in this report, it is not a fixed entity but may be defined as an organic, living, changing social institution created by its members to provide a testing ground or arena in which to establish and elaborate some aspect of independence, identity, initiative, competence, intimacy, or understanding of self and others. The nature, importance, and stability of such a group will vary with its size, the functions it serves, and the degree to which it meets the continuing needs of its members (see section 3.5.3). It may resemble a herd more than a group and serve only to give the person a feeling of being “in” or to afford a degree of anonymity that provides him with an opportunity and support for doing something he would not do with his family or with friends outside the group, such as trying cannabis preparations at a rock festival. It may be an expedient group held together only by mutual participation in a particular activity, such as procuring and using drugs. Neither of these latter types of group is stable and neither serves the functions fulfilled by most peer groups.

In early adolescence, when an emerging sense of independence and identity is important, peer groups tend to be loosely structured and accessible to new members. They provide a supportive and usually not too critical arena in which the young adolescent can take steps toward independence, explore in what ways he is like or unlike other persons, and test his competence. As developmental tasks progress toward understanding of self and others and intimacy, groups become smaller and more exclusive, as is appropriate to the functions to be served. In late adolescence or adulthood the peer group is likely to be only a loosely organized group of couples or individuals who enjoy doing things together as they explore and establish closer relationships, participate in activities of mutual interest, and develop personal and social identity.

It is possible to influence peer groups, but only in ways relevant to the function that they are serving or seeking to serve. If, for example, the function is to declare or affirm independence or to rebel, the best way to influence the group's patterns of behaviour or membership is to recognize clearly the legitimate need for independence and to make available alternative avenues through which the group or its members may develop a sense of independence and recognition. When independence is no longer the rallying point the group will gradually find another focus; membership will then shift in accordance with the relevance of the new focus to the needs of the individuals involved.

If drug use is the particular issue that has been selected for asserting independence or unwillingness to conform to local customs (as has often

been the case in some countries in Europe and North America) it is usually more effective to deal with the need for independence than with the drug use *per se*.

In general, it is easier to modify the activities of a group than to change its membership, except when a member is given the opportunity of joining a group that better fulfils whatever function he values. Even then, group allegiance and pressures may make such a move difficult if not impossible. It is often hard to gain entrance to an already functioning group. Changes in group membership usually occur when an individual or individuals leave an established group to join a newly formed group that offers more satisfying activities or an opportunity to improve status. Members of unstable groups are the best candidates for movement, but, particularly for older adolescents, movement from a drug group to one that does not use drugs would require that the new group provide an opportunity to meet some important need for the particular individual.

Among the important needs served for some persons by their drug-taking behaviour are a recognized or unrecognized desire for adventure, risk-taking, new experiences, self-understanding, creativity, acceptance by and identification with others, new social relationships, assertion of independence, and escape from a variety of physical or psychic discomforts. The serving of such needs may also be the basis of pursuits as different as meditation, religion (both mystical and fundamentalist), creative and cultural activities, wilderness and endurance activities, and ecology movements, to mention only a few. Opportunities to engage in activities alongside other persons with similar interests often constitute the first step in the formation of a group.

3.4.3 *Role of drug information and education programmes*

As noted in section 3.2, one important objective of prevention is to assist selected target groups of community leaders and "helping" personnel to obtain a suitable understanding of man-drug and man-society inter-relationships and the frequency and severity of personal and social problems associated with the nonmedical use of various drugs taken in different ways. Information and education activities intended to serve this objective may be directed primarily at individuals and small groups. Such activities also help to decrease ignorance and misconceptions about drug effects on the part of persons at high risk of using drugs in ways likely to be associated with the occurrence of drug-related problems.

Both information and education activities have an important role to play in preventing destructive drug use and/or decreasing the nonmedical use of psychoactive drugs. Information and education are not, however, to be equated. Each is a tool that must be used with understanding and

skill for carefully defined purposes and carefully defined groups. Much of the disrepute into which both have fallen is the result of confusion between the two and of their misuse.

In 1972, Unesco convened a Meeting on Education in More-Developed Countries to Prevent Drug Abuse. Among other things, the report concluded :

“ It is necessary to clarify the definition, basic concepts and underlying assumptions of drug education, as differentiated from drug information.

“ Drug information is a form of communication which simply imparts factual knowledge or transmits cognitive learning. It is a fairly limited process in which the main elements are usually information concerning drugs themselves and their (harmful) effects upon people, along with instruction regarding specific drug-control legislation and other forms of social control. *Drug education*, on the other hand, is a broad range of concerted activities relating to teaching/learning situations and experience which attempts to maximize opportunities for the intellectual, emotional, psychological and physiological development of young people. ”¹

In short, information activities involve basically a one-way flow of messages from sender to hoped-for receiver. There is ordinarily no opportunity for the receiver to raise questions, clarify issues, express his own interests or concerns, or resolve any anxieties that may have been generated by the information. Educational activities, on the other hand, allow for two-way communication, learning, and resolution of feelings. There are, of course, many circumstances beyond the teaching/learning situation described above that involve two-way communication, learning, and resolution of feelings, even though these may not be their primary purpose—for example, certain group discussions and conferences, or psychotherapy.

(a) *Information programmes*

Social science research has documented very well the methods and techniques of effective communication and persuasion. They are based on highly sophisticated analyses of the meaning and function of the behaviour to be modified or facilitated ; they are carefully adapted to the value structure and style of life of well-defined target groups ; and they need bear no obvious direct relationship to the specific behaviour they are intended to influence.

To be effective, whatever information is made available must be accurate and believable. The perceived source of the message must be judged both

¹ United Nations Educational, Scientific and Cultural Organization (1973) *Report of Meeting on Education in More-Developed Countries to Prevent Drug Abuse, Paris, 11-20 December 1972* (Document ED/MD/26), p. 8.

knowledgeable and trustworthy. It is helpful if that source is liked by and perceived as similar to, or at least understanding of, the persons being informed. "Scare" techniques are effective only under certain very limited and specifiable conditions. The mere repeated presentation of information about an unfamiliar situation, regardless of whether it is presented positively or negatively, may be enough to increase the attractiveness of that situation and thus perhaps even produce an effect contrary to that intended. Information must be appropriate for the receiver's level of development, knowledge, experience, and exposure to risk, and should be made available on the basis of need. The capacity for absorption of information must also be taken into account. When one is bombarded by more stimuli than can be processed, one tends to insulate oneself from that situation, to ignore it. When anxiety is raised to a sufficiently high level and no way to deal with it is provided, it tends to be denied. *Many individuals selectively attend to and believe only that which supports their current attitudes and beliefs.*

Beyond such general principles, the purposes to be served by information in a given situation must be carefully analysed. When information is used as one tool in the prevention of destructive drug use, current knowledge would suggest the following :

Different groups need different types and levels of knowledge depending on their functions. Professionals, especially health professionals, need accurate information about the pharmacodynamic action of the various dependence-producing drugs, the manifestations of all types of drug-related problem, including societal responses and drug dependence, and the treatment and rehabilitation of drug-dependent persons. They also need to know something about the dynamics of the "drug scene" and the general attitudes and behaviour of various types of dependent individual, the role and functions of their drug use, and ways of reaching them.

In contrast, most parents of children who have reached the age of potential drug use do not need detailed pharmacological information about specific drugs. Rather, they require a basic understanding of (a) what drugs are and how they act, (b) the many reasons for their use, (c) the social factors that facilitate or inhibit such use, and (d) the importance of maintaining open lines of communication and a relationship that will encourage their children to share and think through the decisions they face about drug use. They need to recognize that a young person may be considering or actually using drugs for a variety of reasons and that different reasons for use require different responses on their part. They must understand that "Drug initiation and use, however 'strange' [it seems] to outsiders or 'not like him' to parents, is very much like him after all, for it is in keeping with his social, psychological, and physiological apparatus. If it doesn't 'fit' him, he will stop ; otherwise, we may presume that his continued drug use serves

a variety of functions at many levels".¹ If one is to intervene it must be in terms of those functions for that individual.

Information provided to young and older persons for the purpose of influencing their attitudes toward drug use in general or their own potential or perhaps actual use, must be consistent with basic pharmacological knowledge and must be believable in the sense of being consistent with the actual experience of users. It also must be adapted to the levels of psychological and social development of the individual in question, the kind and level of risk to which he is exposed, and the meaning and functions he and his peers assign to drug use. Actual or potential users do not require complete information about the possible pharmacological effects of specific drugs. To a group that values danger and daring, the more dangerous the drug in terms of its reported pharmacological effects, the more attractive it may be.

In view of the complexity of helping vastly different target groups to acquire knowledge about drug use and related problems—knowledge that is appropriate to their respective needs, interests, and existing level and accuracy of information and that takes account of their differing values and beliefs—it hardly seems reasonable to expect one-way communications (information programmes) disseminated via mass media to be particularly helpful. On the other hand, information especially prepared for a given target group (e.g., teachers or physicians) and transmitted to that group through a professional journal may indeed be useful and at the same time relatively free of unintended and unwanted side effects.

Information transmitted through mass media, even when well prepared, will reach many groups for which it was not necessarily intended. A single message may be "heard" quite differently by different groups and individuals, and often in unintended ways. (For example, one not very well conceived message indicated that heroin, if used only 6 times, would lead to "addiction". Subsequently, some new users stated that they had long wanted to try heroin but actually did so only after they understood it could be taken 5 times with safety.) Using mass media deliberately in an attempt to inform the public and potential user so broadly that the latter will be dissuaded from certain or all types of drug use is a good example of a simplistic approach to complex problems—an approach that may, unfortunately, produce the opposite effect. This is not to say that there is no value, in localities where drug use is widespread, in making use of the mass media to inform persons experiencing drug problems about sources of help, or to provide an emergency alert to drug users about the presence on the "street"

¹ Blum, R. H. & Associates (1969) *Drugs II. Students and drugs*, San Francisco, Jossey-Bass, p. 379.

of dangerously contaminated drugs. Helping such persons avoid the use of such materials may be a life-saving measure. The communication of alerts about contaminations also has a negative effect on the relationships between drug users and dealers.

A survey of drug information programmes in the USA¹ characterizes as "shotgunners" a widely prevailing type of preventive "education" programme, which is often the initial—and unsatisfactory—approach to prevention made by a community. Such programmes seem to be based on the assumption that periodic "injections" of information and other superficial, patchwork responses will prevent complex and apparently poorly understood problems.

"The hope that simple, information-giving ... programmes will be sufficient to prevent drug dependence is frequently expressed; however, there is no evidence to support it and there are many reasons to doubt it."² Information alone, no matter how accurate, believable, or relevant, will not necessarily influence behaviour until it is related by the individual to his own experiences, perceptions, feelings, values, and style of life. This can be accomplished through a great variety of group process techniques varying from discussion groups to encounter techniques. Whatever technique is used must be adapted to the values and the social, ethnic, and cultural characteristics of the specific group. Information regarding the use of drugs should not be presented to large or even smaller groups without giving the individuals concerned an opportunity for discussion with a knowledgeable person in a group small enough for effective two-way communication. At this point, an educational approach has been adopted.

(b) *Education programmes*

It was noted earlier that education is widely but inaccurately equated with information; and as "traditional" attempts to modify behaviour with ill-conceived and ineffectively executed information programmes have met with disillusionment, both have fallen into disrepute.

Education is a two-way process in which the facilitation of learning and maturation is more important than the acquisition of facts. It is a process not confined to the classroom. It assumes that the individuals for whom a programme is designed will participate actively in the process of its implementation, evaluation, and any necessary modification. It aims at the enhancement of decision-making skills, the clarification of values and their

¹ Chow, S., Ertle, V. & Keyes, D. (1972) *Drug education*, Washington, D.C., United States Department of Health, Education, and Welfare, National Institute of Education (PREP report No. 36).

² *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460, p. 33 (section 3.4.2).

translation into action, and the development of coping skills. It is concerned with growth and development, and tailors its activities to the developmental level, the social and cultural background, and the interests of the participants. It does not ignore appropriate information: education cannot occur in a vacuum, and its substance is information. Drug education programmes seeking, through modification of interests and attitudes, to reduce the probability of drug-related problems developing in persons already involved in drug use, or at high risk of becoming so involved, should avoid concentrating on the biochemical and pharmacological properties of particular drugs. Instead, such programmes should deal with the personal needs and problems of participants as well as with sociocultural and other environmental factors associated with problem-related drug use.

Such educational programmes may be carried out in school or out and are equally important for adults and youth. Where they are carried out and by whom they are planned and conducted will vary with the well-defined objectives of the programme and the characteristics and needs of target groups. The particular methods used must also be adapted to the objectives and to the group.

The effectiveness of drug education programmes has not yet been adequately evaluated. Those preliminary evaluations that have been done indicate a reduction in some types of behaviour associated with drug use and, in a number of instances, a concomitant reduction or cessation of drug use. Education does not have an immediate impact; it is not like an injection. However, drug education that is consistent with what is known about learning, motivation, growth and development, communication, deviant and destructive behaviour, and cultural anthropology currently holds promise. It needs to be tried and evaluated in a number of different settings and with different types of target group, although it cannot be expected to influence favourably the behaviour of all those it is intended to reach, especially those already experiencing problems associated with dependence (secondary prevention).

3.5 Measures directed primarily at the environment

Untoward socioeconomic and other environmental conditions, while often associated with drug-taking behaviour, are neither necessary nor sufficient to result in the use of dependence-producing drugs in a manner likely to be associated with problems. However, any social condition producing misery, helplessness (e.g., arising from unemployment), discrimination, or degradation will increase the probability of deviant or destructive behaviour on the part of some persons. Whether or not that

behaviour, if it occurs, will take the form of problem-related drug use depends on many factors, including the availability of drugs, the meanings assigned to drug taking by subcultures and the larger society, and the interests and needs of the individual.

Deviance and conformity are intimately connected with the customs, mores, and laws of a society. It is tempting to see undesirable behaviour always as the result of undesirable aspects of the social system : bad producing bad. The work of some sociologists indicates that this "pathological fallacy" distorts the picture.¹ Much that is disapproved of in a society is intimately linked—both causally and in its behavioural manifestations—with things that are approved of and valued. For example, relative financial affluence, which is widely sought after, is positively associated with increasing use of alcohol (see section 3.6) and some other drugs. The positive association between the use of certain drugs and poverty has often been noted in the past. It is now necessary that note also be taken of the relationship in some countries between the use of a number of drugs and relative affluence and availability of leisure time. Once dependent drug taking is established, however, the cost of drugs and decreased capacity for work tend to push such users toward the less affluent end of the income scale.

Given the variety of users, drugs, and contexts of use, as well as the interaction among the three, it is unlikely that any intervention programme could be devised that would be effective in all situations. Each context requires a different approach to prevention. Similarly, preventive programmes effective for one type of drug or one type of user are often not effective for other types. Hence, it is not feasible to outline a detailed preventive programme of worldwide applicability. Each society must design a programme appropriate to its own structure. In addition, a considerable variety of programmes may well be required within individual societies to meet the different needs of various sections of the community.

As noted in section 3.1, certain activities are deemed to be intrinsically desirable as means of improving the quality of life or as mechanisms for equalizing opportunities. While such activities may help prevent some destructive deviant behaviour, their preventive value may not be specific with respect to problem-related drug use or any other single form of deviance; for example, measures to decrease discrimination or foster equal opportunities for all citizens fall into this category. Other measures may have a much more direct relationship to the prevention of problems associated with the nonmedical use of drugs, e.g., measures to modify social

¹ Becker, H. S. (1963) *Outsiders : studies in the sociology of deviance*, Riverside, N.J., Free Press.

attitudes toward and tolerance of the immoderate use of alcohol and other drugs.

In reviewing preventive measures aimed primarily at the environment, the Committee mostly directed its attention to measures that are somewhat specific for drug-related problems; some more general approaches were, however, considered.

3.5.1 *Monitoring the environment*

Before one can carry out any reasonably focused and useful activity to help prevent the development of drug-related problems or, once developed, to help manage or bring them under control, it is necessary first to understand as clearly as possible the characteristics and extent of the problems and the personal and sociocultural factors associated with their occurrence. This calls for the monitoring of drug-taking behaviour and the problems associated therewith in the particular community. Drug-related problems are not static but dynamic, and they tend to increase and decrease in extent and to change with respect to the patterns of use and drugs involved. Continuous or regular periodic monitoring is required in order to remain alert not only to the emergence of new problems but also to the decline or disappearance of old ones. Such variations may be indicators of changes in the drug-taking "scene"—changes that may suggest the need to modify preventive policies and methods. Monitoring over time may also give an indication of the possible effectiveness or ineffectiveness of a given policy or activity. At least some inferences, if not firm conclusions, may be drawn about temporally related events.

Monitoring involves such activities as (a) carrying out probability-sample surveys, (b) obtaining reports from knowledgeable observers (e.g., present or former users or members of "contact teams") involved directly or marginally with drug users, and (c) studying the trends of certain indicators of drug-use problems. Among the latter are (a) rates of admission to hospitals of persons suffering from various medical complications related to drug use (e.g., toxic psychoses, hepatitis and other infections), (b) rates of first admissions and readmissions to programmes for the treatment of drug-dependent persons, (c) incidence and character of problems encountered among persons contacting crisis centres, and (d) rates of arrest or conviction in connexion with such drug-related offences as possession or sale of drugs.

Of course, many factors affect the accuracy and completeness with which events of this type are recorded, among them the stigma associated with drug use (which leads to under-reporting), emotional factors, the diversity

of drugs and agencies involved,¹ and changes in policies governing treatment programme admissions or intensity of enforcement. Such difficulties, together with problems of confidentiality, are encountered in maintaining central case registers (section 1.1) of drug users.² If well maintained and already available in a given community, such registers can provide valuable information on trends in the incidence and prevalence of drug use. However, they ordinarily furnish little direct information about many of the problems associated with such use, and they are not usually suited to the giving of timely alerts to significant changes in drug-using practices.

“Street” drugs may be monitored as to price and the nature and degree of adulteration by checking those that are seized or purchased for the purpose. The resulting data may indicate the effectiveness of enforcement practices. Also, as noted in section 3.4.3 (a), information about the presence on the “street” of dangerously contaminated drugs, if passed quickly to potential users via the mass media or underground press, may not only save lives but impair user-dealer relationships.

An established monitoring system, especially when it uses the services of persons in close contact with those taking drugs in a destructive manner, may be of help in determining quickly the accuracy of rumours and “reports” about particular drug-related situations or events, e.g., the number and behaviour of youth who participated in a particular drug-using party and the types of drug involved. Because of the emotion-provoking nature of nonmedical drug use, “reports” of such events are not infrequently inaccurate and overdramatized. An action taken in response to an inaccurate emotion-laden report may be not only inappropriate but damaging.

The Committee considered that the establishment of an objective, coordinated monitoring system to keep under review changes in the character and extent of community problems associated with the nonmedical use of dependence-producing drugs is an important element in any preventive programme in this field; problem definition is, after all, an essential first step. Monitoring systems need not be expensive or embody only or all the methods mentioned above. To attempt, however, to embark upon any substantial preventive programme in the absence of such monitoring can be very expensive in terms of wasted efforts or even an aggravation of the problems the programme was intended to alleviate.

3.5.2 *Improving the effectiveness of social controls*

As noted in section 3.4.1 (a), social controls stem from family and interpersonal relationships and from community laws, customs, and mores.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, pp. 12-15 (section 2).

² *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, p. 25 (section 4.2.2).

There is a dynamic relationship between the law and the social acceptability of drug taking ; each can and does reinforce the other.

(a) *Legislative approaches*

Legislative and regulatory approaches may be directed toward limiting the availability of dependence-producing drugs ; authorizing or fostering the development of treatment, correctional, and enforcement resources and services ; providing for compulsory treatment of persons who use dependence-producing drugs in a destructive or unlawful manner ; punishing persons for the use of drugs or acts closely related to such use (e.g., possession or sale of "small" amounts) ; punishing and/or quarantining individuals who traffic in drugs ; or deterring others from drug use or trafficking.

Measures related to the availability of drugs are discussed in section 3.3. The importance of developing needed treatment, correctional, and enforcement services is self-evident. However, opinions vary as to the emphasis that should be placed on each type of service and the usefulness of particular approaches and methods for each of them.

With respect to the role of compulsion in the treatment of drug-dependent persons, the Committee was of the opinion that the conclusion contained in its eighteenth report was still valid, viz. "... that the clinical evidence was not sufficient either to support or to refute the case for various forms of compulsory treatment, but ... that, in spite of considerable experience, compulsory detention alone had not been shown to be beneficial".¹

Noting also the observations and opinions on "punishment for using drugs or for acts associated with use"² contained in the report of a WHO Study Group on Youth and Drugs, the Committee expressed its broad concurrence and summarized its views as follows :

1. The application of penal sanctions to *drug-dependent persons* usually does not deter them from returning to drug use when afforded the opportunity.
2. The threat of even severe penal sanctions does not ordinarily deter a *drug-dependent person* from continuing to use drugs in a manner likely to be associated with problems.
3. In all likelihood, the extent to which non-users, experimental users, and casual users will be deterred from using drugs by the existence of legal sanctions (detection and conviction) is more related to the probability that these sanctions will be applied than to their severity. The proportion of

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460, p. 28 (section 3.3.5).

² *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, pp. 33-35 (section 5.3.4).

a non-dependent population that will be deterred by the prospect of possible punishment doubtless also varies with the type of drug and the time and place of use. Generally speaking, however, the existence of legal sanctions can be expected to help reduce the broad social acceptability of drug use.

4. "It is important that discrepancies between [a statutory or other] official public policy and its application be reduced to the greatest extent possible".¹

5. "In situations where punishment is used in the management of problems associated with the non-medical use of dependence-producing drugs, such punishment should be commensurate with the gravity of the offence in terms of its actual or potential harm to others or the offender himself."¹ Severe penal sanctions for the possession of small amounts of a drug intended for personal use are no less inappropriate than minor penalties for major traffickers of drugs that are highly liable to produce dependence, whether or not such a trafficker is himself a drug user. "In view of the preceding observations on (1) the 'efficacy' of punishment as a deterrent, (2) the desirability of reducing discrepancies between a policy and its application, and (3) the importance of fitting the penalty to the seriousness of the crime, imprisonment for the possession of small amounts of dependence-producing drugs for personal use does not appear to be appropriate in most instances."² The Committee also concurred that "efforts should be undertaken to decriminalize drug-taking *per se* in those jurisdictions where such action is a crime".² One of the reasons for this is that "it is highly desirable to bring drug-users and 'helping personnel' into contact on a voluntary basis. As long as there are legal sanctions against the use of drugs *per se*, this will be difficult to achieve".²

(b) *Social customs, mores, and attitudes*

Beyond the laws and regulations of a community, its social customs and mores also serve to foster or limit deviant behaviour of a destructive type. It is apparent that many such factors may have an important bearing on problem-related drug use even though they are not specific with respect to drug taking or associated problems. Among these general influencing factors are the character of a community's norms and values (section 1.3), its family life, its traditions, and its educational and religious institutions. To no small extent, these factors influence what sort of person will become deviant and what type of destructive deviant behaviour he will manifest.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, p. 34 (section 5.3.4).

² *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, pp. 34-35 (section 5.3.4).

More specific to the problems associated with the nonmedical use of drugs are the prevailing assumptions and beliefs about the "causes" of drug-taking behaviour and the "effects" of such activity (section 2). Interestingly enough, these beliefs and related attitudes are often more attuned to the drug substance *per se* and its social acceptability in the community than to the extent and severity of individual and social problems associated with its immoderate use. In some countries cannabis is seen as the "problem" drug while alcohol may not be regarded in the same light; in another country, the reverse may be true.

It is often noted that many persons live in cultures that facilitate the development of positive attitudes toward drug use and mood modification. Such attitudes may be fostered by advertisements for widely and socially accepted substances, such as alcohol (see section 3.6.3), as well as for many medications claimed to be capable of relieving most of the minor and many of the major discomforts of man. It is argued that such advertising has resulted, in some countries, in a drug-oriented culture in which there is thought to be a drug for the relief of every problem. This is often said to encourage an attitude of acceptance of illicit drug use but the validity of this assumption has not been thoroughly investigated. Though not conclusive, one study found that drug-using youth was more receptive to pharmaceutical advertisements than were non-users.¹ While it is unlikely that even a total ban on drug advertising to the general public would eliminate problems associated with the use of alcohol (section 3.6.3) and other dependence-producing drugs, the burden is on those who profit from the sales of these substances (governments not excluded) to justify why society should continue to tolerate what is probably a significant aggravating factor. Further research on drug advertising is certainly in order.

In addition to the question of paid advertising, the mass media have tended in many places to glamorize, in song and otherwise, participation in illicit, drug-related activities, particularly in connexion with certain popular singers and large-scale musical events. Some believe that with an apparent decline in the "hippie movement" this may be a less significant factor than it once was, at least as far as its music-related aspect is concerned.

Beyond general attitudes concerning the use of dependence-producing drugs, communities hold specific convictions about what may properly be considered appropriate and acceptable use of certain drugs. Such attitudes are particularly important in governing the amount, time, place, and other circumstances of use of alcohol and other drugs, the local use of which is legal and/or accepted and tolerated.

¹ United States National Commission on Marihuana and Drug Abuse (1973) *Second report. Drug use in America : problem in perspective*, Washington, D.C., U.S. Government Printing Office, p. 390.

Most experimental and casual drug users, that is, those who are *not already dependent* on a drug, will respond in their drug taking to the manifest attitudes and expectations of the smaller groups and larger society of which they are a part. If, for example, driving after drinking is widely socially proscribed, many persons will refrain. In a number of countries, it is the custom for a group of persons going to a place where alcoholic beverages are to be served to select one of its members to be the driver, who is expected to abstain on that occasion. By responding to social expectations, he may avert an alcohol-related accident. In some cultures intoxication—from whatever source—is pleasantly tolerated in a variety of circumstances, while in other cultures the repeated immoderate use of an intoxicant in a given group may soon lead to an expression of social disapproval. Once alerted, the incautious casual user may become more circumspect and stop short of becoming a dependent user.

Two major preventive objectives aimed primarily at the immediate and broad sociocultural environment of potential and existing drug users are (a) to help improve the understanding of community leaders of all types about man-drug and related man-society interactions, and (b) to help improve the effectiveness of social customs and mores in preventing the problems associated with the use of drugs.

It will perhaps seem unnecessary to state that the purpose of deterrence is to try to avoid harm to the individual or society; for this reason, a policy or action taken to prevent harm should not be more harmful than that which is to be prevented. Some sociocultural attitudes can and have resulted in responses in the name of deterrence that are not only harmful to both the individual and society but also of questionable deterrent value (see also section 3.5.2 (a)). Such attitudes, as well as those that are destructively tolerant, require attention.

Unwanted behaviour may be discouraged by showing disapproval appropriate to the seriousness of that behaviour, when it occurs. To manifest disapproval, it is ordinarily not necessary or desirable to reject the person exhibiting the behaviour. Such rejection can be more harmful than helpful. Future unwanted behaviour can be deterred by providing individuals with opportunities to engage in interesting and otherwise personally satisfying activities instead of the unwanted behaviour; these are termed meaningful alternatives and will be discussed in the following section (see also section 3.4.2).

Stating the preceding objectives and principles is obviously easier than implementing them. However, unless preventive activities incorporate these principles they are unlikely to achieve their purpose. In this connexion, it should be recalled that programmes designed to “educate” are more apt to result in deterrence than those that merely “inform” (see also section

3.4.3). Example, especially as set by community leaders and within peer groups, may have a potent influence on attitudes and behaviour.

3.5.3 *Meaningful alternatives*

In many countries, there are clear indications that certain young persons, often minority-group members, are overrepresented in groups involved in the use (problem-related or otherwise) of socially disapproved drugs. It has been postulated that a factor common to many of these groups is that the members feel cut off or alienated from the values of the dominant culture and are thus more likely to engage in behaviour that runs counter to the dominant values. Indeed, it is believed that a number of such groups have adopted the use of drugs, particularly those drugs not traditionally used within the dominant culture, as a symbol of estrangement from that culture. Drug use of this type may or may not result in harm deriving from the man-drug interaction but it is often associated with difficulties in the man-society sphere. Such difficulties may stem from the group's adoption of values foreign to those of the dominant culture, or from its self-imposed separation from the dominant culture for that or other reasons. Alternatively, the man-society difficulties may be created largely by society's subsequent stigmatization and rejection of the group because of their unconventional behaviour or ideas. In any event, unconventional drug use by alienated persons helps society to identify them as such and, at least to that extent, may increase man-society difficulties.

Most persons share a number of basic human needs whether or not; as individuals, they feel estranged from the dominant culture, use dependence-producing drugs in a manner likely to be associated with problems, or are at high risk of doing so. Among these are a need to (a) satisfy curiosity, (b) experience pleasure (sensory, intellectual, emotional, relaxing, or stimulatory), (c) have a sense of identity (who one is, whom one is like and unlike), (d) have some degree of independence of thought and action, (e) be recognized for what one is doing, can do, or has done, (f) be accepted by some peers, (g) be able to rely on someone, and (h) have some sense of purpose in life. One's "purpose" may be as limited (and difficult) as obtaining the immediate gratification of all one's desires, or as broad (and difficult) as eliminating all problems associated with the use of dependence-producing drugs.

These needs vary in intensity with different persons and within the same person at different times. Ordinarily, they require not only satisfaction at one time but repeated satisfaction through time. It is to fulfil such needs that much drug taking appears to be initiated, continued, and stopped (section 2). It is around the satisfaction of these needs that peer groups are

formed (section 3.4.2), and it is also around their satisfaction that meaningful alternatives to destructive drug-taking behaviour have been and can be developed.

It is probable that persons currently experiencing problems associated with the use of drugs would be helped to reduce or discontinue such use by any measure enabling them to become involved in other activities that would fulfil the kinds of function being served by their drug use. Similarly, making such activities available to persons at high risk of becoming involved in such use might be expected to be a more effective means of reducing or preventing drug-related problems than assisting the treatment, including the rehabilitation, of persons already experiencing such problems.

The type and range of activities that might be expected to help fulfil one or more of the basic human needs mentioned above are limited only by the imagination of those concerned with developing them. The following broad types and examples are merely indicative: (a) participation in activity groups (e.g., arts and crafts, athletics, language study, music, public affairs or current events, religious activities); (b) service to other persons (e.g., serving as an aide in a hospital; participating in a social service or other human contact activity; acting as an assistant or leader at a playground, youth centre, or in any activity group; making "contact" with drug users in need of help; helping ex-users or their families; serving as a member of a rescue squad or volunteer fire department); (c) service in environmental improvement activities (e.g., anti-pollution activities; activities for the development of park, playground, or recreational facilities; nature and wildlife conservation; wilderness projects); and (d) helping the unwillingly unemployed to find work.

Perhaps the most important step in developing meaningful alternatives to actual or potential problem-related drug use is to *consult the "consumers"*—the potential participants—about their interests and wishes as individuals and as members of peer groups. Unless the alternative activities are attractive to the prospective participants, there will be little or no participation.

Whether such fulfilling activities are made available within the dominant culture or outside it is largely irrelevant, except as it influences the willingness of alienated, destructive drug users—existing or potential—to participate in them. If, for whatever reason, problem-related drug use is markedly reduced, discontinued, or prevented among alienated individuals and groups, the question of the usefulness or desirability of their returning to the values of the dominant culture revolves around issues largely outside the concern of this report. The question becomes relevant only if their continued alienation increases the probability of future problem-related drug use, as compared with the probability of such use were they to return to the dominant culture. It is noted that environmental factors militating against the

problem-related use of drugs, as well as other factors conducive to such use, are to be found both outside of and within most dominant cultures.

3.5.4 *Alleviating general environmental stress*

Substantial stress, particularly when viewed as stemming from unfair practices and attitudes, may place some of the persons experiencing such stress at greater risk of behaving in deviant and sometimes destructive ways than they would be in the absence of stress. Among the kinds of environmental stress often cited in this connexion are (a) racial and other discrimination, (b) blocked opportunity, (c) unhygienic or unsafe working conditions, (d) unfair business or labour practices, (e) slum housing conditions, (f) poverty, and (g) failure to be accorded deserved recognition. Granted the availability of dependence-producing drugs, alleviating these general stresses may help to reduce the probability of destructive drug-taking behaviour.

It has been suggested that some general socially-oriented programmes might well be given a specific prevention objective with respect to drug-related problems. Neighbourhoods known to have a high prevalence or incidence of such problems might, for example, be granted priority for urban renewal. Groups at high risk of experiencing drug-related problems (e.g., certain migrants) might be accorded priority for temporary or permanent housing in order to help them stabilize their situation. Potential, former, and present drug users might be given special assistance in obtaining employment or gaining access to other social or medical services from which they are sometimes excluded.

It is recognized that there are many persons who would argue that drug use should not be made a ticket for special or priority service. Each community will have to decide this on the basis of the extent and seriousness of its drug-connected problems in relation to other problems with a claim on its attention. However, it is noted that drug-related problems create difficulties not only for users but for society; and current smaller problems, while perhaps less insistent, are ordinarily more easily managed than later, but larger, ones.

Because of the importance of sociocultural factors in influencing human development and behaviour, changes in the physical base or environment of a society are *unlikely* to reduce the problem-related use of dependence-producing drugs in the absence of parallel changes at the sociocultural level. If accompanied by such changes, urban planning and renewal and the availability of suitable housing and recreational facilities may be expected to help reduce destructive deviant behaviour, including that related to drug use. Further studies on these relationships are urgently needed. Since

physical and sociocultural environmental factors interact with and influence one another, changes in the physical environment of a subculture or the larger society may foster sociocultural change, as well as serve as external evidence of such change.

Concern over drug taking and its associated problems should not, however, be the sole reason for remedying conditions that diminish any person's dignity or deny him a sense of worth, accomplishment, identity, integrity, or hope.

3.6 Special consideration relating to alcoholic beverages

Most of the difficulties encountered in preventing individual, public health, and social problems associated with the use of dependence-producing drugs other than beverage alcohol are also encountered with the latter substance. However, in many countries, not only are the problems associated with the use of alcohol far greater in magnitude than those associated with other dependence-producing drugs, but their prevention and control are complicated by the following factors :

1. The use of beverage alcohol is so widespread as to be commonplace ; its consumption is legal and/or broadly accepted and tolerated in most parts of the world.

2. Not only does alcohol consumption have no demonstrable direct adverse effects on the health or social situation of the great majority of users, but it is also found by them to be pleasurable or satisfying in many ways.

3. The production and distribution of alcoholic beverages involves the livelihood of millions of persons and provides very substantial revenues to governments.

4. Even though only a relatively small proportion of drinkers experience direct adverse effects, the sum of all users is so great that the total number of persons experiencing such effects must be measured in scores of millions rather than in hundreds or thousands.

In many countries, the number of persons adversely affected by alcohol consumption clearly exceeds those so affected by any or all of the other dependence-producing drugs considered in this report. Perhaps a comparison with more familiar disorders will underscore the magnitude of the problem. It has been said that in many countries only cancer and cardiovascular ailments exceed alcohol-related health problems in number of victims, the misery caused the sufferer and those close to him, or the human and economic

costs of these conditions to the community as a whole. While it is difficult to substantiate such a comparison fully, the point is clear : alcohol-related problems are very serious. In recent years rates of "excessive" alcohol use and alcohol-related mortality and morbidity have risen sharply in many countries. During the same period the relaxation of alcohol control measures and increased affluence have made it easier for people to obtain alcoholic beverages.

3.6.1 Problems associated with "excessive" drinking

(a) Excess mortality

Recent studies have shown that in some countries there appear to be positive correlations between *per capita* alcohol consumption, rate of death from cirrhosis of the liver, and "excessive consumption" (defined as daily average consumption in excess of 150 ml of absolute alcohol).^{1, 2} An

TABLE 1. NUMBER OF PERSONS HAVING AN AVERAGE DAILY CONSUMPTION IN EXCESS OF 150 ml OF ABSOLUTE ALCOHOL PER 100 000 PERSONS 15 YEARS AND OLDER IN 25 SELECTED COUNTRIES, 1970 *

Country	No. of persons consuming over 150 ml/day	Country	No. of persons consuming over 150 ml/day
France	9 050	German Democratic Republic	2 760
Italy	7 390	USA	2 690
Spain	5 350	Yugoslavia	2 680
Luxembourg	5 000	Denmark	2 470
Federal Republic of Germany	4 820	Canada	2 460
Portugal	4 690	United Kingdom	2 130
Switzerland	4 420	Sweden	1 990
Soviet Union	4 290	Netherlands	1 870
Austria	3 690	Poland	1 870
Belgium	3 650	Ireland	1 830
Hungary	3 630	Finland	1 500
Australia	3 290	Norway	1 150
New Zealand	3 040		

* de Lint, J. (1974) The epidemiology of alcoholism ... In : Kessel, N. et al., ed., *Alcoholism : A medical profile. Proceedings of the First International Medical Conference on Alcoholism, London, 10-14 September 1973*, London, B. Edsall.

¹ Lederman, S. (1964) *Alcool, alcoolisme, alcoolisation : mortalité, morbidité, accidents du travail*, Paris, Presses Universitaires de France ; *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, p. 11 (section 2.3.1).

² 150 ml of absolute alcohol is equivalent to 375 ml (12.7 oz) of whiskey (40% alcohol) or 937 ml (31.6 oz) of wine (average 16% alcohol) or 3 000 ml (101.4 oz) of beer (5% alcohol).

average consumption in excess of 150 ml a day is seen in clinically treated alcoholics ; it is also associated with a high risk of cirrhosis.¹ In 1970, 1-9% of persons 15 years of age or older residing in 25 selected countries drank at this level (Table 1). It can be seen that there is a significant positive correlation between high average *per capita* consumption and a high rate of "excessive use" (compare data for those countries listed in both Table 1 and Table 2).² The positive relationship between *per capita* consumption

TABLE 2. RELATIVE PRICE OF BEVERAGE ALCOHOL, CONSUMPTION (INCLUDING PERCENTAGE CONTRIBUTION OF DISTILLED SPIRITS), AND DEATHS FROM LIVER CIRRHOSIS IN VARIOUS COUNTRIES

Country	Alcohol consumption ^a	% contribution of distilled spirits to total alcohol consumption ^b	Relative price ^c	Death from cirrhosis of the liver ^d
France	24.66	13.5	0.016	51.7
Italy	18.00	12.6	0.027	30.5
Portugal	17.57	4.1	0.023	48.0
Austria	14.47	18.2	0.025	38.5
Federal Republic of Germany	13.63	21.2	0.026	29.0
Australia	10.71	^e	0.029	7.8
Czechoslovakia	10.27	17.4	0.080	14.8
Canada	8.95	36.0	0.029	11.6
Belgium	8.42	15.0	0.022	14.2
United Kingdom	7.66	14.2	0.057	4.1
Ireland	7.64	34.4	0.092	5.0
Denmark	7.50	17.2	0.069	11.6
Netherlands	6.19	37.0	0.028	5.7
Finland	4.16	46.7	0.117	5.4

^a Litres of absolute alcohol consumed *per capita* for persons aged 15 years and older in 1966 or 1967. Data collected by the Addiction Research Foundation, Toronto, Canada.

^b de Lint, J. & Schmidt, W. (1971) The epidemiology of alcoholism. In: Israel, Y., ed., *Biological basis of alcoholism*, New York, John Wiley & Sons; Produktschap voor Gedistilleerde Dranken (1969) *Verslag over het jaar, 1968*, Schiedam.

^c The cost of 10 litres of absolute alcohol as contained in the least expensive beverage available to the consumer, divided by personal disposable income. Data were obtained by the Addiction Research Foundation, Toronto, from the appropriate government departments in each country.

^d Annual rate per 100 000 persons aged 20 years and older. Data taken from the *Demographic Yearbook 1966*, New York, Statistical Office of the United Nations, Department of Economic and Social Affairs, 1967.

^e Data not available.

¹ de Lint, J. & Schmidt, W. (1971) *Brit. J. Addict.*, **66**, 97-107.

² "In a given group, the proportion of persons consuming above a designated level is related not only to the average amount consumed per group member but also to the extent to which certain individuals consume amounts substantially above or below the average. As a result, the average alcohol consumption of a group in which everyone drinks about the same amount (little variability) may be similar to that of a group in which some individuals consistently drink heavily and the others relatively little (great variability). Obviously, there are biological limits to the amount that any one person can consume, and thus to the upper limit of consumption" (*Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, p. 11 (section 2.3.1)).

TABLE 3. ALCOHOL CONSUMPTION, RELATIVE PRICE OF BEVERAGE ALCOHOL,
AND DEATHS FROM LIVER CIRRHOSIS IN PROVINCE OF
ONTARIO, CANADA, 1928-1967 *

Year	Alcohol consumption ^a	Relative price ^b	Deaths from cirrhosis of the liver ^c
1928	2.81	0.102	4.4
1929	3.09	0.099	4.1
1930	3.00	0.101	3.8
1931	2.64	0.112	4.0
1932	2.05	0.148	4.2
1933	1.77	0.153	4.2
1934	2.09	0.137	4.2
1935	2.41	0.112	4.2
1936	3.05	0.097	4.2
1937	3.36	0.086	4.5
1938	3.68	0.085	5.0
1939	3.55	0.082	5.2
1940	3.64	0.074	5.0
1941	4.00	0.068	4.9
1942	4.73	0.063	5.0
1943	4.91	0.064	4.8
1944	4.46	0.069	4.6
1945	4.86	0.064	4.9
1946	5.82	0.069	5.4
1947	6.50	0.065	6.0
1948	7.09	0.057	6.5
1949	7.18	0.058	7.2
1950	7.23	0.055	7.7
1951	7.23	0.052	7.5
1952	7.32	0.051	7.7
1953	7.64	0.055	8.3
1954	7.73	0.056	8.7
1955	7.55	0.047	8.8
1956	7.91	0.045	9.4
1957	7.86	0.044	10.3
1958	7.96	0.043	11.0
1959	7.77	0.043	11.5
1960	8.14	0.043	11.8
1961	8.14	0.043	11.6
1962	8.23	0.041	11.3
1963	8.46	0.040	11.4
1964	8.73	0.039	11.9
1965	8.77	0.038	12.6
1966	9.18	0.039	12.9
1967	8.91	0.035	13.2

* Popham, R. E., Schmidt, W. & de Lint, J. (1975) The prevention of alcoholism: epidemiological studies of the effect of government control measures. In: Ewing, J. A., ed., *Drinking*, Chicago, Nelson-Hall (in press).

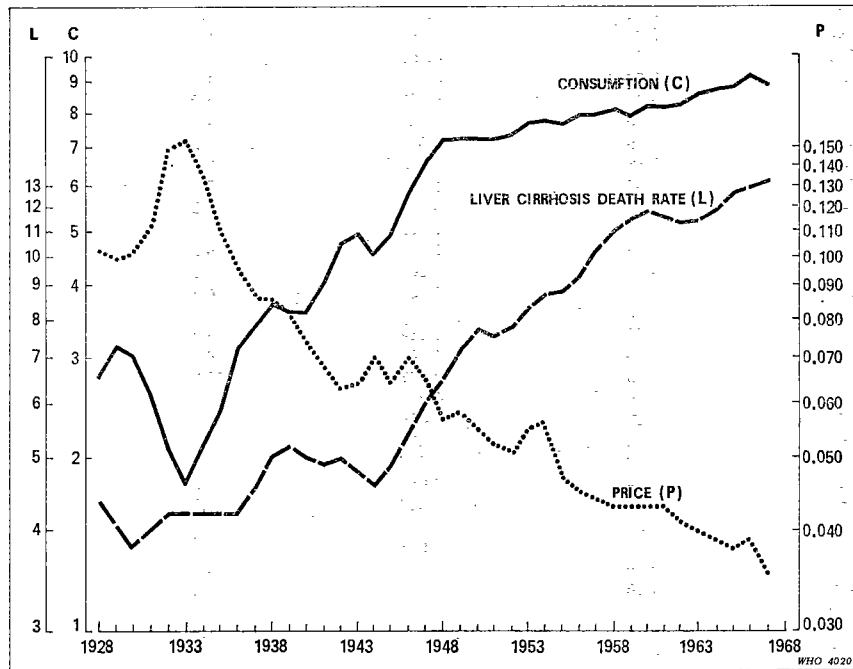
^a Litres of absolute alcohol consumed *per capita* for persons aged 15 and older.

^b Average price of 10 litres of absolute alcohol divided by personal disposable income.

^c Centred two-year moving averages of deaths from liver cirrhosis per 100 000 persons aged 20 and older, corrected to allow for the differences between the Fifth and Sixth Revisions of the International List of Diseases and Causes of Death (see Popham, R. E. (1956) *Quart. J. Stud. Alcohol*, 17, 570; World Health Organization (1952) *Comparability of statistics on causes of death according to the Fifth and Sixth Revisions of the International List*, Geneva).

and rate of death from cirrhosis of the liver is shown in Table 2. However, on the basis of the data presented in Table 3 and Fig. 1, it cannot be determined whether the increase in number of deaths from cirrhosis noted

FIG.1. ALCOHOL CONSUMPTION, RELATIVE PRICE OF BEVERAGE ALCOHOL, AND DEATHS FROM LIVER CIRRHOSIS IN PROVINCE OF ONTARIO, CANADA, 1928-1967 *



* Popham, R. E., Schmidt, W. & de Lint, J. (1975) The prevention of alcoholism: epidemiological studies of the effect of government control measures. In: Ewing, J. A., ed., *Drinking*, Chicago, Nelson-Hall (in press).

between 1928 and 1967 in the Province of Ontario, Canada, was related primarily to the steady rise in the level of alcohol consumption or to systematic, progressive changes in other factors during this period of time. Studies of selected groups of heavy drinkers nonetheless reveal that their rates of death from all causes are 2-4 times those of the surrounding general populations (Table 4).

TABLE 4. EXCESS MORTALITY IN SOME SAMPLES OF EXCESSIVE ALCOHOL USERS *

Investigator	Sample	Number of deaths		
		Observed	Expected	Observed Expected
Gillis	802 patients treated for alcoholism, South Africa	90	22.9	3.9
Pell & D'Alonzo	899 "alcoholic" employees, USA	102	31.7	3.2
Brenner et al.	1 343 patients treated for alcoholism, USA	217	72.6	3.0
Nicholls et al.	935 patients treated for alcoholism, England	309	112.7	2.7
Sundby	1 722 male patients with diagnosis of alcoholism, Norway	1 061	496.9	2.1
Giffen et al.	343 male drunkenness offenders, Canada	191	89.7	2.1
Schmidt & de Lint	6 514 patients treated for alcoholism, Canada	738	346.2	2.0

* de Lint, J. (1974) The epidemiology of alcoholism ... In: Kessel, N. et al., ed., *Alcoholism: A medical profile. Proceedings of the First International Medical Conference on Alcoholism, London, 10-14 September 1973*, London, B. Edsall.

In a study conducted by the Finnish Foundation of Alcohol Studies it was estimated that, between 1960 and 1968, the world production of alcoholic beverages increased as follows :

beer	41%
wine	15%
distilled spirits	40%

Moreover, the *per capita* consumption of alcoholic beverages in Europe over the same period rose by 17%.¹ From a public health standpoint, it is evident that ways must be found to halt or reverse the current worldwide trend toward increasing alcohol use and alcohol-related health damage.

(b) *Traffic and other accidents*

The fact that alcohol is a significant causal factor in accidents involving automobile, pedestrian, and other modes of transport and resulting in injury to persons is well established. It has also been demonstrated that some preventive measures designed to reduce the number of alcohol-

¹ Sulkunen, P. (1973) *Alkoholipolitiika*, 4, 147-154.

related accidents are effective. For example, a report¹ from the United Kingdom states that road accidents dropped significantly immediately following the introduction of a new law specifying a statutory blood alcohol level for drivers and requiring drivers to submit to breath testing in specified circumstances. In actual numbers, the reduction, during the first year of the law's operation, was reported to be 1 152 fewer people killed, 11 177 fewer injured seriously, and 28 130 fewer injured slightly. It was concluded that there seemed to be " little doubt that the introduction of the statutory blood alcohol level for drivers in the United Kingdom, initially at least, led to a marked fall in road accidents." More recent impressions that the early decline may be reversing itself suggest the need for careful documentation and sufficient time to establish the relative effectiveness of such a programme.

The major elements of programmes designed to reduce alcohol-related road accidents in various countries (e.g., Canada, Norway, Sweden, United Kingdom, and USA) are :

- (1) legislation designating a specific maximum permissible blood alcohol level, with penalties stipulated for persons found driving with higher levels ;
- (2) enforcement procedures, aided by appropriate methods for measuring breath or blood alcohol levels to detect violators ; and
- (3) public education.

Many factors influence the relative effectiveness of such a programme in meeting its stated goals. Among these are the vigour of enforcement and the consistency of punishment ; people are likely to be deterred from driving after drinking if they come to believe that there is a high probability that those who violate the law will be detected and punished. Programmes directed to the alcohol-related traffic-accident problem illustrate an important primary prevention approach to a complication associated with alcohol. The aim is not primarily to prevent drinking, nor to prevent driving, but to prevent the combination of the two. Since such programmes are generally accepted by the public even in countries where the level of acceptance of alcohol use is high, they can become a particularly important focus for government action for the prevention of drug-related problems.

Most research on drug-related traffic accidents has until now focused on alcohol. However, other psychoactive drugs taken separately or in

¹ The Road Safety Act, 1967, and its effect on Road Accidents in the United Kingdom, Ministry of Transport, London, reported in *Alkohol und Verkehrssicherheit, Konferenzbericht der 5. Internationalen Konferenz über Alkohol und Verkehrssicherheit, Freiburg im Breisgau, 22-27 September 1969*, section IV, pp. 8 & 10.

combination with alcohol are of growing importance in this connexion as they are being used by ever larger proportions of the population. Indeed, some research already indicates that users of a range of drugs (stimulants, depressants, tranquillizers, and alcohol) have more accidents than would be expected for their age, sex, and traffic exposure (measured in terms of distances driven).¹ Further, alcohol and certain sedatives potentiate one another in their effects on driving ability, i.e., their combined effects are more than additive.²

Obviously, programmes to prevent alcohol-related traffic accidents are most appropriate and should receive greatest priority in areas having a high level of vehicular traffic and social patterns conducive to moderate or high levels of alcohol intake.

(c) *Economic impact*

The economic impact of alcohol-related illness on the health services of various countries is substantial. Studies in France, Canada, Finland, and the USA indicate that the proportion of persons with alcohol-related illnesses among hospitalized patients ranges from 10 to 50%. In one country, over 40% of the total expenditure for health services is attributable to the treatment of alcohol-related diseases and about 50% of all hospital beds are occupied by patients suffering from such diseases.³ It is important to note that these figures do *not* include such factors as the cost of alcohol-related problems to various social welfare programmes, industrial costs related to excess absenteeism or industrial accidents, or the cost of alcohol-related traffic accidents and consequent injury and death, all of which are known to be substantial. For example, studies in Canada and the USA have indicated that alcohol is a significant factor in approximately 50% of the deaths due to automobile accidents.⁴ A calculation of all these costs of alcohol-related problems might quite possibly reveal that, for some governments, they exceed total governmental revenues from the sale of alcoholic beverages.

¹ Smart, R. G., Schmidt, W. & Bateman, K. (1969) *J. Safety Res.*, **1** (2), 67-73.

² Kielholz, P., Goldberg, L., Obersteg, J. I., Pöldinger, W., Ramseyer, A. & Schmid, P. (1969) *Dtsch. med. Wschr.*, **94**, 301-306.

³ Bresard, M. (1969) *Rev. Alcohol.*, **15**, 81-96.

⁴ Campbell, E. (1969) *Mod. Med. (Minneap.)*, **24**, 35-42; United States Department of Transportation (1968) *1968 Alcohol and highway safety report. A study transmitted by the Secretary of the Department of Transportation for the Congress, in accordance with the requirements of Section 204 of the Highway Safety Act of 1966, Public Law 89-564*, Washington, D.C., U.S. Government Printing Office, p. 14.

While current data do not show that government¹ monopoly systems *per se*, as compared with licensing systems, are particularly effective in regulating levels of consumption, the monopoly system does prevent the proliferation of groups with a vested interest in increasing alcohol consumption and hence possible vested interests in opposing the development of effective programmes to prevent associated problems.

3.6.2 *The question of specific beverage consumption*

It is commonly asserted that there are fewer alcohol-related health and social problems in those countries where beer or wines are the beverages of choice as compared with countries where spirits are preferred. Some governments have acted on this assumption and developed policies of differential taxation with the objective of promoting the use of beer and/or wine in lieu of beverages with a higher alcohol content. An examination of the literature and statistics from many different jurisdictions reveals no consistent evidence to support this contention.^{2, 3} It can be seen from Table 2 (page 62) that countries having the higher average levels of alcohol consumption are not necessarily those in which spirits made their greatest percentage contribution as a source of alcohol.

In Table 2 the positive correlation between *per capita* consumption of alcohol and death rate from cirrhosis of the liver is highly significant ($P \leq 0.001$), and this is not materially influenced by the percentage contribution of distilled spirits to total alcohol consumption. Further, there is no significant relation between deaths from cirrhosis and percentage of distilled spirits consumed *per se*.⁴ However, rate of death from cirrhosis is not the only indicator against which to judge the influence of the potency or other characteristics of a beverage on the occurrence of alcohol-related problems. Further information is needed, for example, on the relationship between the consumption of spirits and various antisocial behaviours associated with intoxication. The special contribution (if any) of beer and wine to various problems associated with the "excessive" consumption of alcoholic beverages also requires further study.

¹ For a substantive discussion of the effects of various government control measures on drinking behaviour, see Popham, R. E., Schmidt, W. & de Lint, J. (1974) The effects of legal restraint on drinking. In: Kissin, B. & Begleiter, H., ed., *Biology of alcoholism*, vol. IV: *Social biology*, New York, Plenum Publishing Corp. (in press).

² de Lint, J. & Schmidt, W. (1971) The epidemiology of alcoholism. In: Mardones, J. & Israel, Y., ed., *Basic aspects of alcoholism*, New York, John Wiley & Sons.

³ The usefulness of encouraging the substitution of beverages with an alcohol content as low as 1-2% for those of 5% or more may, however, deserve further trials.

⁴ After elimination of the effect of total alcohol consumption.

3.6.3 *Advertising*

While there is little in the scientific literature regarding the impact on alcohol consumption of various types and magnitudes of advertising, it is difficult to assume that the alcoholic beverage industry would continue to allocate large sums of money to advertising without evidence from its marketing studies that such expenditures were justified. That the pattern and sometimes the volume of sales of many consumer products may be favourably affected by advertising is well established, and there seems little reason to suppose that alcoholic beverages might differ in this regard. However, it is recognized that a particular company within the industry may consider advertising "justified" as a means of helping it maintain or increase its own share of the market, without feeling any need to show that its advertising efforts contribute to an overall increase in the total consumption of the industry's products. There obviously are forces more powerful than paid advertising that contribute to the use of alcohol. There is no industry-sponsored advertising in a number of countries where the production of beverage alcohol is a State monopoly, yet some of these countries, like those that allow advertising, have very substantial alcohol-related problems. If paid advertising were eliminated in countries where it now exists, in all probability this measure would have no significant effect on the drinking patterns of persons already dependent on beverage alcohol or those highly accustomed to using it in a casual manner with no related problems. However, there can be little doubt that advertising in many countries may well contribute to and reinforce the overall interest in and level of acceptance of drinking in general (see section 3.5.2 (b)). Such reinforcement can hardly be expected to assist the efforts made by agencies (e.g., health and traffic control) to reduce the amount of problem drinking. In so far as possible, paid advertising should be restricted or discontinued.

3.6.4 *Level of acceptance*

The degree to which a government may be able to use control policies such as taxation to help prevent alcohol-related health and social problems will depend in part on the prevailing attitudes toward alcohol use (or its "level of acceptance") in the country in question. In "high-acceptance" countries, for example, drinking tends to be fully integrated into everyday activities. There is often little or no awareness of the hazards of heavy, chronic alcohol intake; the regular consumption of rather large quantities is often viewed as normal and "manly". Such countries have few or no legal controls other than licence fees and low taxes on alcohol, and usually show high levels of alcohol consumption and alcohol-related problems. In contrast, in "low-acceptance" countries, a significant "dry" sentiment

may prevail and heavy drinking is widely understood to be associated with hazards to health. Legal controls tend to be numerous and restrictive, and alcohol taxation levels are generally high. Such countries typically have relatively low levels of alcohol consumption and alcohol-related health and social problems.

3.6.5 *Price in relation to purchasing power*

Of all the preventive approaches considered, pricing, whether regulated by taxation or by other means, appears to be one of the more demonstrably effective instruments available to many governments to help control the average *per capita* level of alcohol consumption and, thereby, the extent and seriousness of alcohol-related health and social problems. However, pricing cannot be expected to affect all alcohol-related problems to a similar degree; nor will it influence the drinking patterns of all those who consume alcoholic beverages.

In pricing, it is not the *absolute price* of alcoholic beverages but their *relative price* that must be considered—that is, the average price of a given quantity of alcohol expressed as a fraction of average disposable income. Studies conducted in Canada have indicated that relative price is closely associated with indices of alcohol consumption and certain alcohol-related health problems. Whenever the relative price was high, consumption and mortality from cirrhosis of the liver were low, and *vice versa*. As previously noted, it cannot be decided from data of the type given in Table 3 (page 63) whether the increase in rate of death from cirrhosis was related primarily to the steadily increasing *per capita* consumption of alcohol or to some other factor changing progressively over time. A significant negative correlation between relative price and level of consumption can, however, be seen in Tables 2 and 3 after elimination of the time effect. No instance is known of a population in which a high relative price is accompanied by a relatively high rate of alcohol-related problems (see Tables 2 and 3 and Fig. 1).

Because of the close inverse relationship between a country's "level of acceptance" and the political feasibility of adopting a governmental "relative price policy" for the protection of health, vigorous measures would probably be needed to generate public support for such a policy, particularly in "high acceptance" countries.¹ It must be remembered that increases

¹ In some situations it may be wise to consider the relationship between absolute price and level of consumption, or the relationship between average disposable income and consumption, rather than focusing solely on the relative price of beverage alcohol in relation to consumption. For example, where disposable income is very low or very high, a substantial increase in price may be associated with less fluctuation in level of consumption than when the level of income is less extreme. Also, well established local patterns of drinking (type of beverage, circumstances of use) may be less affected by price and/or income changes than drinking patterns that are not as solidly entrenched.

in relative price would affect all persons who consume alcoholic beverages—the large majority who experience no direct adverse effects on their health or social situation as well as the minority who do. Also, such increases might have a greater influence on the drinking patterns of the former group than of persons in the minority group, especially those already dependent on alcohol. To obtain public support for a policy of high relative prices would require improved individual and public understanding of :

- (1) the personal hazards of heavy alcohol consumption ;
- (2) the human, economic, and other consequences for society of high consumption levels—e.g., automobile accidents, industrial losses, health and welfare costs, and crime ;
- (3) the individual and social benefits of appropriate preventive and control measures.

Achieving greater understanding of this last point is of particular importance since an increase in taxes, for example, is usually seen by the public as simply a way for the government to raise money for needed services. Seldom is taxation viewed as a possible measure for decreasing the extent and severity of health and social problems.

Education and information programmes, including the dissemination of information via the mass media, might well be used to help gain public acceptance for a policy of increasing the cost of beverage alcohol, especially in countries where there is extensive use. In such circumstances there is little risk of stimulating more interest in trying alcohol than already exists.

3.6.6 *Recommendations*

Because of the pandemic character of the trend toward ever-increasing alcohol consumption, new initiatives are required at international, regional, national, and local levels to help reduce the extent and seriousness of the attendant individual, public health, and social problems. To this end, it is recommended that WHO give early consideration to inviting governments :

- (1) to direct special attention to the extent and seriousness of the individual, public health, and social problems associated with the current use of alcoholic beverages in most countries of the world, and the widespread trend toward higher levels of consumption ;
- (2) to examine closely the magnitude of the human and financial costs, both direct and indirect of alcohol-related health and social problems as compared with the private and governmental revenues (profits, wage

earnings, taxes) and other benefits related to the production and consumption of alcoholic beverages ;

(3) to review, in those countries where the sale of beverage alcohol is permitted, current policies governing taxation or other means of establishing price levels, with a view to studying the influence of the cost of such beverages, in relation to the average purchasing power of the population, on the extent and seriousness of various alcohol-related problems ;

(4) to eliminate, in so far as possible, mass media advertising of alcoholic beverages ;

and

(5) to develop vigorous public education and information programmes designed to help achieve the objectives listed above.

It is further recommended that WHO periodically :

(1) convene groups of experts to review and consider the implications of research and other data related to the prevention of problems associated with the use of alcoholic beverages ; and

(2) make available the results of their work to the governments, other organizations, institutions, and individuals concerned.

3.7 Concerted action

Concerted action (i.e., action that is jointly planned and carried out in a cooperative or harmonious manner) is difficult to achieve in many fields of endeavour ; this is particularly true of attempts to prevent or otherwise manage problems associated with the use of dependence-producing drugs. The nature and extent of such problems differ from one locality to another and with time. Moreover, no single " cause " of these problems or of drug-taking behaviour has been demonstrated ; pharmacological, personal, and environmental (sociocultural and economic) factors are involved. There exist many differing views about the interplay and relative importance of these factors, views that are influenced by differing sociocultural and personal value systems as well as by evidence derived from various scientific studies. Because of this diversity of views, many different official and voluntary organizations and agencies¹ as well as numerous professional disciplines²

¹ For example, those involving education, enforcement, citizens' interests, correctional measures, health, industry, the judiciary, labour, legislation, mass media, parents, religion, social welfare, vocational and other rehabilitation, and youth.

² For example, biostatistics, ecclesiastics, clinical psychopharmacology, clinical psychology, cultural anthropology, economics, epidemiology, journalism, internal medicine, law, pedagogy, political science, public health and social welfare administration, and sociology.

have important roles to play in efforts to prevent the problems involved. Despite this diversity or, perhaps, precisely because of it, it is important that there be general agreement on the part of those involved as to the goals and objectives to be achieved and a mutual understanding of the approaches and methods to be used. Without such agreement and understanding, the actions taken are likely to be discordant, confusing, ineffectual, or even counter-productive, i.e., aggravating the problems instead of alleviating them.

3.7.1 *Functions to be carried out*

To facilitate concerted action, it is first necessary to define broadly the functions and activities that are to be harmonized. Means suitable for one function or type of activity may be less suitable for another; and different groups and individuals may be involved in performing various functions.

The following sequential functions are involved in implementing a flexible and dynamic preventive system that will encourage continued planning and programme development: (a) defining the nature of the situation—the specific problems to be prevented or lessened in a particular community; (b) planning; (c) delivering the planned services; (d) gathering data needed for programme evaluation; (e) evaluating these data; and (f) modifying the programme to meet changing needs, to eliminate ineffective or counter-productive measures, to give priority to the more effective activities, and to test new approaches or methods.

Defining the situation requires identifying clearly the nature or character of the problems to be attacked before developing plans for that attack. It is not essential that the extent or magnitude of those problems, as opposed to their character, be fully known before planning or undertaking some preventive activity. The *character* of a problem, in large measure, will indicate the quality or nature of an appropriate response. The *extent* or magnitude of the problem is indicative primarily of the size and intensity of the response required, not the nature of that response. Section 3.5.1 discusses some approaches to this first function.

There are a number of *programme planning principles* that, if adhered to, will facilitate later concerted action:¹

1. The skills of a number of disciplines and organizations are necessary in the planning, as well as the operation, of programmes in this field.

¹ Cameron, D. C. (1971) *WHO Chronicle*, 25, 9–10; Hilleboe, H. E. & Schaefer, M. (1967) *Papers and bibliography on community health planning*, Albany, N.Y., Graduate School of Public Affairs, State University of New York at Albany.

2. Realistic planning requires the cooperation and participation of (a) persons fully acquainted with the attitudes, customs, and resources of the country or locality in which the programme is to be implemented, (b) persons familiar with the special health and social problems associated with the use of drugs¹ and the various means used for their prevention, treatment, and control, and (c) persons who have or are to have major responsibility for the operation of the programme.

3. Specific objectives, as well as broad goals, should be stated in as quantifiable terms as possible (section 3.2); priorities and immediate and longer-term target dates should be established for these objectives.

4. Criteria and related measures should be identified for subsequent use in evaluating the degree to which each of the objectives is being achieved.

5. Large-scale programmes should be based on scientifically demonstrated premises. Where such knowledge is lacking, a proposed approach or method should first be tested on a pilot basis and applied on a larger scale only after its worth has been demonstrated. If such a pilot test is not feasible (e.g., because of time limitations or difficulty of establishing suitable controls), a large-scale programme should be undertaken only if it is based on operating assumptions widely held by knowledgeable persons of the types listed in paragraph 2, above, representing at least 3 or 4 different professional disciplines.

6. Provision should be made for developing activities in the proper sequence, for example with respect to (a) the scope of the programme (moving from limited to broader or additional target groups, geographic areas, or drug types), (b) training (necessary personnel should be trained before beginning additional activities), and (c) assuring the availability of counselling, treatment, or other helping services before undertaking case-finding procedures.

Clearly, the implementation of preventive measures directed primarily toward limiting the availability of drugs will involve different disciplines, organizations, and agencies from those involved in implementing preventive measures directed largely at individuals and small groups, or at the environment. Concerted action by these disciplines and agencies will be greatly facilitated if key community leaders who are to be directly involved in the preventive programme, and others whose views and attitudes help shape pertinent sociocultural values and beliefs, can be afforded an opportunity

¹ Including, if possible, persons who themselves have experienced drug-related problems.

to learn about the programme objectives and approaches and their bases before major activities are undertaken—in short, by developing, to the greatest extent possible, a common understanding and “philosophy”.

Among the more important organizations and agencies that can contribute to a concerted approach are health and social services and educational institutions (both official and unofficial), law enforcement agencies, and legislative and judicial bodies. These exist in nearly all types of society. In many countries, special youth programmes are also to be found. The views and contributions of economists, sociologists, cultural anthropologists, industrial and labour leaders, historians, and clergymen, among others, should not be overlooked.

The function of *evaluation* is considered in section 3.8. It is simply noted here that, in order to obtain a suitably objective appraisal of such programmes, the evaluators must include some persons who not only are knowledgeable about evaluative methods and about preventive activities of the type to be evaluated, but who also are not directly involved in the programme in question.

3.7.2 *Means of fostering concerted action*

At the outset, a distinction must be made between carrying out related activities in a cooperative or even integrated manner, on the one hand, and the coordination or actual amalgamation of organizational structures, on the other hand. The latter is but one possible method for helping to achieve coordinated or harmonious delivery of services; however, it does not always contribute to this end, and, even when it does, more is usually needed. In any event, it is unlikely that all governmental, let alone voluntary, organizations and agencies will come to be organized primarily around the provision of services in this field.

The focus of concerted action should be the carrying out of designated *measures* directed primarily toward specified *targets*. Among the possible measures are: (a) various actions or policies intended to prevent the problem-related use of dependence-producing drugs; (b) preventive and other means of reducing the extent and seriousness of problems being experienced by those already involved in drug use (e.g., treatment, including rehabilitation, activities, and activities directed against the illicit traffic in drugs); and (c) all drug-related activities and other closely related activities in such fields as education, health, and social welfare. The targets can be defined in terms of: (a) geographic or political subdivisions (e.g., national, regional, community, neighbourhood); (b) particular persons (e.g., community leaders, members of certain professions, individuals and groups at high risk of involvement in problem-related drug use); or (c) the availability or use of

a particular drug (e.g., alcohol or another locally accepted dependence-producing drug as compared with drugs whose use is not socially accepted).

There is also the question of how best to coordinate certain new innovative activities with existing services in the field of prevention. "Outreach", "contact", and other early case-finding activities, as well as certain services designed to help people in trouble cope with personal emergencies, are illustrative of such newer approaches. Since many alienated persons are reluctant to seek help from "establishment" institutions, identified with the dominant culture, certain services must be provided in non-traditional settings. This may be done even if the new service is supported in part or wholly by an established health or welfare agency. "New" and "older" services should complement one another and be provided in a cooperative and harmonious manner. Whether either could perform its functions if the two were fully integrated at the outset is questionable. However, it is entirely possible that more complete integration, if otherwise desirable, might be undertaken at a later time.

A number of techniques have been used to facilitate concerted action within and between organizations directly responsible for programme implementation. Among these are the following :

(1) The use of carefully selected boards and *ad hoc* or permanent committees at various levels of community organization to assist in fact-finding and in the planning and implementation of programmes, e.g. :

(a) appropriately representative advisory bodies concerned with the technical aspects of the programme ;

(b) appropriately representative advisory bodies concerned primarily with improving community programme relations ;

(c) coordinating bodies (especially those of an inter-agency character) concerned with voluntary harmonization of the actions of different organizations or agencies directed to the same end ; and

(d) control bodies having power not merely to advise or foster voluntary cooperation but to control policy and related expenditures.

(2) The use of *joint* observation and training activities at both inter-organizational and interdisciplinary levels, e.g. :

(a) by repeated observation visits to (i) the locale or "scene" where drug taking occurs, such as "skid row", "pubs", divans, certain clubs, and selected sections of the city or village frequented by drug users, and (ii) the places where drug users come or are brought when they are in difficulty, such as sobering-up stations, emergency rooms in outpatient clinics and hospitals, crisis centres, contact centres, jails, courts, and temporary or emergency sleeping and eating facilities ;

(b) by participation in—not merely passive observation of— a variety of “ therapeutic communities ” or other preventive or therapeutically oriented activities.

(3) The use of conferences, discussion groups, and seminars with and without the presence of representatives of organizations not directly responsible for programme implementation (e.g., parent-teacher groups or other voluntary organizations) or the general public.

It is recognized that some organizations tend to do things very much in their own way—like some individuals who wish to “ do their own thing ” —and that some of these and other organizations may tend either to be reluctant to accept responsibility or, on the contrary, to usurp it. All of this calls for a great deal of tolerance on the part of those concerned with promoting concerted action. It is recognized also that most persons really begin to cooperate only when they come to know and trust one another. Perhaps the single most important means of fostering the joint planning and cooperative execution of activities directed to a common end is to provide opportunities for the key persons involved to get to know each other well. This is not to imply that mutual trust and respect always flourish under such circumstances. It is simply that these attitudes are not likely to develop between total strangers.

3.8 Role of research

There is a lack of needed information about many aspects of the problems associated with the use of dependence-producing drugs, not the least of which is information about the effectiveness of various intervention measures, both preventive and therapeutic. The possibility that some preventive programmes may have been counter-productive underlines the urgent need to determine the usefulness of what is being done.

Because of the perceived seriousness of drug-related problems, numerous officials and organizations have felt forced to “ do something ” about them without first determining the usefulness of that “ something ”. This is understandable but it is not a reason for continuing to do the same thing for an extended period of time without checking either the assumptions underlying the action taken or the effectiveness of that action in achieving its purpose. It is necessary to learn from experience and, having learned, to make sure that the resulting information reaches policy-makers responsible for continuing or modifying a given policy.

To help achieve the general goal of improving preventive (and other) interventions intended to avoid or lessen the problems associated with the use of dependence-producing drugs, it is necessary that answers be sought to the following three questions :

1. Given a specified problem, does a particular intervention result in a change in the problem and does this change represent an improvement rather than a worsening ?

2. How can a positive change be further improved ?

3. How can that change be achieved at the lowest possible cost in human as well as financial terms ?

These questions apply both to existing activities and to those that may be considered for future implementation. They are discussed in the following sections.

3.8.1 *Evaluative studies*

The chances of being able to provide a definitive answer to the first question listed above will be enhanced to the degree that it is possible to state in precise operational terms each of the three elements involved in the question : (a) the problem being addressed, and the related objective ; (b) the intervention method to be used for achieving the objective ; and (c) the criteria to be used for measuring the degree of change in the original problem.

With respect to element (a), an imprecise, undifferentiated objective such as “ to stop drug ‘ abuse ’ ” would be inadequate. Objectives must be formulated in terms that are as precise and as quantifiable as possible, for example :

(1) to help primary school teachers in community A to achieve a better understanding of the influence of personal and sociocultural factors on drug taking by preadolescent children in that community ; or

(2) to reduce the rates of morbidity and mortality due to the use of variously adulterated “ street ” drugs in community B.

Similarly, expressing the intervention method in broad, vague terms—e.g., “ an information and education programme involving the use of mass media ”—would not be conducive to evaluation. What is required is a specific operational statement of the means to be used. To return to the hypothetical situations referred to in (1) and (2) above, appropriately formulated intervention methods might be :

(1) ten 2-hour seminars on the subject in question for primary school teachers in community A, held at weekly intervals, and conducted by Dr X, using specified study materials ; or

(2) the immediate issuing of alerts to drug users in community B whenever dangerous adulterants are discovered in the “ street ” drugs seized or purchased periodically for monitoring purposes.

The same principles apply to the formulation of element (c), the criteria to be used in measuring the nature and degree of change achieved in the problem. It is not enough to rely on the impressions, for example, of the person who initiated an "information and education programme" concerning the present level of drug "abuse". The phenomenological or functional criteria to be used in measuring change must be specific, well defined, and as quantifiable as possible. For example, one might evaluate the degree of change by :

(1) pre-intervention and post-intervention testing of seminar participants in community A with respect to their knowledge and attitudes on drug use, by means of standardized test instruments ; or

(2) ascertaining and comparing the rates of hospital admissions in community B for drug-related complications stemming from the use of adulterated "street" drugs, before and after the issuing of "adulteration alerts".

The likelihood of being able to carry out reasonably comparable evaluations of (a) various preventive approaches within a given programme or community, or (b) the same or other approaches in different programmes or communities, will increase to the extent that these same three elements can be not only formulated precisely and operationally but also *standardized* and agreed upon in advance of evaluation. Such standardization will, of course, enhance the comparability of the programmes themselves, as well as of their evaluations.

Two types of data may be used as indicators both of the nature and extent of drug-related problems at a given point in time, and of their changes over time : (a) already available data, which are ordinarily collected to serve purposes not necessarily related to the monitoring of the use of dependence-producing drugs (e.g., vital statistics, data from health, welfare, and enforcement services), and (b) new data collected specifically to help answer questions pertinent to drug-related problems. However, a variety of definitions and methods are used by the numerous organizations involved in collecting and recording data of the first type, and this will doubtless continue to be the case since such data are utilized in connexion with widely differing goals and activities. To have some idea of what these various data may mean, it is necessary not only to know something about the definitions and information-collecting methods used but also to be aware of significant events that may affect the data (for example, rates of arrest for a given offence may decline or increase because of changes in enforcement policy as well as because of changes in the frequency of offending). Already available data are usually more useful as indicators of trends in a given locality than

as indices for comparisons between communities, and especially between countries. While governmental and other data-gathering efforts most likely will never come to be organized primarily around the needs of those concerned with drug-related problems, there is still considerable room for greater attempts to encourage (a) improved record-keeping and (b) greater uniformity in the definitions of terms and concepts used in connexion with drug-related problems as well as those shared with other fields of endeavour. These terms and concepts include drug-related illnesses and disorders, deaths, disability, offences, traffic accidents, and services. Agreement on the meaning of terms and the nature of the methods to be used in collecting such data is usually reached without too much difficulty when several investigators jointly develop a new collaborative programme. However, the terms used by different groups of investigators will not necessarily coincide. As observed earlier, the comparability of programmes will be enhanced by the use of standardized terms and concepts. It should be noted that data-collection efforts need not necessarily be complex in order to provide useful information.

Programme evaluation¹ may involve before-and-after studies, in which baseline observations of certain variables are made before instituting a new policy or procedure and observations of the same variables take place at stipulated intervals after the intervention. Evaluation may also be carried out in connexion with "natural experiments", where differences in outcome can be studied in relation to intervention policies in two or more communities or countries. When possible, it is desirable to perform and evaluate controlled field trials, in which persons or groups are allocated to "treatment" or "control" status and the former are then exposed to a given intervention. After the intervention, comparisons are made between the two groups.

As noted in section 3.7.1, persons who are knowledgeable about evaluative methods and familiar with preventive activities of the type to be evaluated, but who are not directly concerned with operating the programme in question, are essential in carrying out objective evaluations of programmes in this field. They should in addition participate in the overall planning and design of the intervention in order to facilitate a valid evaluation of its outcome.

3.8.2 *Improving preventive programmes*

Returning to the remaining questions of how to improve preventive programmes and how to provide such services at the lowest possible human and financial cost, the Committee noted that the realization of these goals involves at least three elements:

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, pp. 29-31 (section 4.4).

(1) full utilization of the principles and functions considered in section 3.7.1 ;

(2) the carrying out, to the extent feasible, of comparative cost/benefit and cost/effectiveness evaluations involving not only the human and financial costs of programmes but the quality and quantity of benefits achieved ; and

(3) the acquisition of new knowledge about the etiology of drug-related problems and the development of improved methods of carrying out preventive activities at all levels.

The first two elements were discussed in preceding sections. It remains to be stressed that, in addition to cost/benefit and cost/effectiveness analyses, there is a need for research on etiology, which may well enable more effective preventive programmes to be formulated.

Priority areas for research, as well as suggested strategies for implementing studies in these areas, have been proposed by a number of WHO expert groups.¹ Several have called for studies on the natural history of drug taking and associated problems, especially studies of a prospective (cohort) nature.² Because these involve following large groups for considerable periods of time, such studies are expensive and slow to yield results. When feasible, quasi-prospective² (cohort) studies can be used so as to reduce materially the time and costs involved. In any event, prospective natural history studies appear to be the single most important potential source of valid answers to such questions as the following : Why is it that some persons adopt a drug-using way of life while others with many similar personal and sociocultural characteristics do not ? What are the bases for individual susceptibility ? What are the characteristics of persons at high risk of using drugs in a problem-related manner ? Why do some persons become dependent on drug use, while other users do not ? What specific or non-specific precipitating factors are involved in dependence ? How is deviant behaviour detected and labelled as such ? Does such labelling help perpetuate or discourage deviant behaviour of a destructive nature ? The answers to these and many similar questions might well be useful for devising more effective preventive approaches.

Because of the varied problems associated with the use of different types of dependence-producing drug by users having diverse characteristics and

¹ For example : *Wld Hlth Org. techn. Rep. Ser.*, 1957, No. 131, pp. 11-12 (section 6) ; 1966, No. 343, pp. 13-14 (Annex 1) ; 1967, No. 363, pp. 39-41 (section 4) ; 1971, No. 478, pp. 34-38 (sections 5 and 6) ; 1973, No. 516, pp. 43-45 (section 6.3) ; 1973, No. 526, pp. 31-37 (sections 5 and 6).

² *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, pp. 28-29 (sections 4.3.3 and 4.3.4).

living in dissimilar sociocultural environments and circumstances, it is likely that natural history studies will be needed in a variety of settings. In some countries, the problems associated with destructive deviant behaviour, including those involving the nonmedical use of dependence-producing drugs, are so costly in human and economic terms that the question is no longer "can we afford such studies?" but rather "can we much longer afford to forgo such studies?"

Other studies that could have an important bearing on the effectiveness of preventive programmes are those of a pharmacological and biochemical nature. For example, research on opiate antagonists and agonist-antagonists, a relatively recent development, offers a promising approach to secondary prevention. Work in this same area could result in the development of effective analgesics and antitussives with less dependence-liability than many of those now available.¹ An improved understanding of the metabolism and mechanisms of action of different types of dependence-producing drug might well contribute to the development of better blocking agents (e.g., naloxone), sensitizing compounds (e.g., disulfiram), and substitutive agents (e.g., methadone) carrying important implications for treatment as well as prevention.

4. CONCLUSIONS AND RECOMMENDATIONS

The Committee recognized the complexity and multifactorial nature of the human problems (individual and social) associated with the nonmedical use of dependence-producing drugs, and the consequent difficulties of preventing or lessening such problems. Taking these factors into account, and recognizing also the existence of serious deficiencies in basic knowledge related to this field—knowledge whose acquisition and application involves the skills of a wide variety of professional disciplines—the Committee made the following observations and recommendations with regard to prevention.

4.1 General

1. The broad purpose of preventive measures should be to prevent or reduce the incidence and severity of *problems* associated with the nonmedical use of dependence-producing drugs. This goal is at once broader, more specific, and, with respect to certain drugs in many countries, more realistic than the prevention of nonmedical drug use *per se*.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1972, No. 495.

2. The prevention or amelioration of problems associated with the use of dependence-producing drugs should be given high priority in countries involved in the present or possible future production, distribution, or use of such drugs. When account is taken of the problem-related use of both socially accepted and socially disapproved drugs, these problems can be seen to be already or potentially very costly in human as well as material terms in most countries.

3. Programme planning and implementation in this complex field, as in others, should : (a) utilize the knowledge and skills of many disciplines ; (b) involve persons who are familiar with local attitudes, customs, and resources, who are knowledgeable about the particular problems involved (in this case the special health and social problems associated with the destructive use of drugs and the various means available to manage them), and who have or are to have major responsibility for the operation of the programme ; (c) state objectives in terms that are as operationally specific and quantifiable as possible ; (d) establish the criteria and measures to be used in evaluating the effectiveness of the programme ; (e) to the extent possible, be based on scientifically demonstrated knowledge ; (f) encourage the proper sequential development of activities ; (g) provide for evaluation that is as objective as possible ; and (h) allow for programme modification needed to meet changing conditions, to give priority to the more effective policies and activities, and to test new approaches and methods.

4. Concerted action (i.e., action that is jointly planned and carried out in a cooperative and harmonious manner) should be fostered by (a) planning and implementing programmes as indicated in paragraph 3, above ; and (b) providing those persons whose cooperation is needed with opportunities for joint observation of problems, training, and working in order for them to develop a common basis of understanding and, to the greatest extent possible, a sense of mutual trust and respect.

4.2 Availability of drugs

1. Continuing attention should be given to (a) improving the effectiveness of controls on the licit production, distribution, and use of dependence-producing drugs and suppressing the illicit traffic in such drugs ; and (b) promoting further cooperation to this end at international (worldwide and regional), national, provincial, and community levels. The availability of a dependence-producing drug is a necessary precondition for its problem-related use.

2. Consideration should be given, in so far as dependence-producing drugs are concerned, to the implementation of Article 21 of the Constitution of WHO, which, among other things, authorizes the Health Assembly "to adopt regulations concerning . . . advertising and labelling of biological, pharmaceutical and similar products moving in international commerce".¹

3. Physicians' prescriptions for dependence-producing drugs should be limited in amount, duration of validity, and number of refills. The accumulation of large amounts of dependence-producing drugs by individuals creates an increased risk of diversion for nonmedical use.

4. In countries where maintenance regimens are utilized, consideration should be given to permitting only specially licensed physicians to prescribe dependence-producing drugs for drug-dependent persons being maintained on them. Special licensing for this purpose has been found useful in some countries for minimizing the possibility of over-prescribing, with associated diversion of drugs to the illicit market.

4.3 Individuals and small groups

1. With regard to preventive measures to be directed primarily at individuals and small groups, a clear distinction must be made between (a) those persons and groups among whom it is desired to reduce the present or potential interest in and demand for drugs to be used in a manner likely to be associated with individual or social problems; and (b) those among whom it is desired to foster a broad understanding of the complex and interacting personal, pharmacological, and sociocultural factors involved in problem-related drug use in order that they may (i) influence sociocultural attitudes and customs so as to help prevent such use, and (ii) support the development of approaches and services needed not only to help prevent drug-related problems but to cope with them in a rational manner when they do occur. Such a distinction is essential because different means must necessarily be used in seeking to achieve different objectives with largely different individuals and groups.

2. Activities intended to modify existing or potential interest in and demand for drugs to be used in a manner likely to be associated with problems should be aimed at individuals or groups at high risk of becoming involved in such use. There is little point in trying to prevent the development of drug-related problems among persons at low risk of experiencing such difficulties.

¹ World Health Organization (1974) *Basic documents*, Twenty-fourth edition, Geneva, p. 7.

3. When attempts are made to identify individuals involved in or at high risk of becoming involved in problem-related drug use, consideration should be given to the degree to which such persons (a) show characteristics associated with developmental retardation ; (b) have been or are experiencing a loss of the usual primary (e.g., interpersonal and family) and secondary (e.g., institutional and other sociocultural) controls ; (c) reside in an area where drugs are readily available and drug use is prevalent ; and (d) have drug-using friends or acquaintances. Many studies have shown that such persons are overrepresented among those experiencing problems associated with the use of drugs.

4. Intensive efforts should be made to locate persons already engaged in problem-related drug use so that, to the degree feasible, they may be enabled to find and live in a different environment and/or begin treatment as early as possible. Because of the communicable nature of drug-using behaviour, "several investigators have developed case-finding strategies resembling those developed in connexion with venereal diseases, where initial case contacts are used to help ... find other likely cases. This technique appears to be particularly suited to identifying narcotic-dependent persons because they are usually forced into frequent or continuous association with other users in order to maintain their supply of drugs".¹ This is especially so in localities where the drug of choice is difficult to obtain. Bringing a user into treatment is a secondary preventive measure for the person himself, but, by reducing the likelihood that he may be a source of drugs for others, it may be a primary measure with respect to them.

5. The aid of traditional educational, health, and social welfare institutions and also less traditional "contact", counselling, crisis, and emergency services should be especially enlisted in helping persons involved in problem-related drug taking to find assistance appropriate to their needs.

6. In general, programmes designed to help prevent problems associated with the use of drugs that are not already widely used should avoid mass media information activities. This recommendation is made not merely to avoid the continued use of simplistically conceived, often inaccurate, and possibly counter-productive information activities of this type. Information disseminated via mass media, even when well prepared, necessarily reaches many different audiences and may be "heard" in quite different ways, although usually in a manner that selectively supports the current attitudes and beliefs of the "listener". The repeated presentation of information about an unfamiliar situation, regardless of whether it is

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 526, p. 26 (section 4.2.3).

presented positively or negatively, may be enough to increase the attractiveness of the situation and interest in it.

7. It is desirable that a clear distinction be made between information activities and education activities, and that preference be given to the latter as one possible approach, among others, for increasing the understanding of selected target groups about the complex, interacting factors associated with problem-related drug use. Information activities involve basically a one-way flow of a message—from a “sender” to a hoped-for “receiver”. They ordinarily provide no opportunity for the receiver immediately to raise questions, clarify issues, express his own interests and concerns, or resolve any misunderstandings or anxieties that may have been generated by the information transmitted. Educational activities, on the other hand, allow for two-way communication, learning, and resolution of feelings. However, the effectiveness of various educational activities in the prevention of problem-related drug use has not yet been adequately evaluated.

4.4 Environment

1. Each community in which a preventive programme is being carried out should monitor, on a periodic or preferably continuous basis, the nature and extent of the problems related to drug use in that community and the personal and sociocultural factors associated with their occurrence. Drug-related problems are not static, but dynamic. They are affected by changes in fashions and patterns of use, and by the intended and unintended consequences of preventive and therapeutic interventions.

2. Educational and other activities (see section 4.1, recommendation 4 (b)) should be undertaken to help community leaders of all types to develop a better understanding of the complex and interacting personal, pharmacological, and sociocultural factors associated with problem-related drug-taking behaviour so as to enable them (a) to support the development of needed and appropriate preventive and therapeutic services, and (b) to encourage, by example and otherwise, the evolution of cultural attitudes and traditions in a direction that will discourage problem-related drug use without at the same time condoning the use of would-be deterrent practices that may be more harmful to society and the individuals concerned than the particular type of drug use being discouraged. This calls, among other things, for a reappraisal of practices that actively encourage the use of dependence-producing drugs, such as public advertising of, e.g., alcoholic beverages, certain tobacco products, and medicaments for mood modification. In so far as possible, such advertising should be eliminated.

3. Provision should be made so that meaningful alternatives to problem-related drug use are readily available. When these alternative activities are being developed, consultation and advice must be sought from those for whom they are intended. To be attractive, the activities will need to fulfil one or more of the basic human needs around which much individual and group behaviour is organized and which are often related to drug taking.

4. When the possible use of punishment is being considered as a means of deterring the problem-related use of drugs, account should be taken of the following: (a) despite considerable experience, there is no evidence that penal sanctions or the threat of such will ordinarily deter *drug-dependent persons* from continuing to use drugs, if given the opportunity; (b) the extent to which the threat of punishment will deter *non-dependent persons* from using drugs in a manner likely to be associated with problems (e.g., driving while intoxicated) is uncertain, but such deterrent value as exists is probably related more to the certainty of punishment than to its severity; (c) penal sanctions are ordinarily applied only at some cost to society and not infrequently at considerable cost to the individual concerned; (d) legal and other sociocultural sanctions and controls against those who offend against laws or customs, whether drug users or not, should be commensurate with the gravity of the offence in terms of its actual or potential harm to the offender or others; and (e) legal and other sociocultural controls should not interfere unduly with bringing persons engaged in problem-related drug use *per se* into contact with "helping personnel" on a voluntary basis.

5. Environmental conditions leading to undue stress should be alleviated as rapidly as feasible, particularly those conditions that are seen by most disadvantaged persons as being unfair (e.g., discrimination, blocked opportunity, slum conditions, certain business and labour practices). Any contribution that such stresses may make to engendering the destructive use of drugs is largely nonspecific. Concern over such drug use should not, however, be needed to remedy conditions that diminish any person's dignity or deny him a sense of worth, accomplishment, identity, integrity, or hope.

4.5 Special considerations relating to alcoholic beverages

1. It is recommended that WHO convene groups of experts periodically to consider the implications of available information concerning the prevention of problems associated with the use of alcoholic beverages.

2. WHO should also give consideration to inviting governments to direct their special attention (a) to the human and material costs of alcohol-related problems, (b) to the possible influence of pricing and advertising

of alcoholic beverages on the magnitude of these problems, and (c) to the role that might be played by information and, preferably, education in reducing these problems.

4.6 Research

1. Far greater attention should be given to the objective evaluation of the usefulness of existing and proposed preventive and therapeutic programmes in this field. Such evaluation can be facilitated by establishing specific operational objectives, clearly defining the methods to be used, and specifying the criteria and measures for use in examining the nature and extent of any changes associated with the interventions.

2. Attempts should be made to acquire additional basic knowledge, especially concerning (a) the natural history of the problem-related use of dependence-producing drugs of various types when taken by persons with differing characteristics in widely divergent sociocultural circumstances, and (b) the mode of action of the several types of dependence-producing drug and means of altering or blocking those pharmacodynamic characteristics associated with the development of individual and social problems.

3. In the implementation of recommendations 1 and 2(a) above, emphasis should be placed on prospective and quasi-prospective (cohort) studies.

PART III

INTERNATIONAL CONTROL OF INDIVIDUAL DRUGS

1. DIFENOXIN

The Committee considered a notification concerning difenoxin¹ submitted by the Government of Belgium in accordance with (a) Article 1 of the 1948 Protocol bringing under international control drugs outside the scope of the Convention of 13 July 1931 for limiting the manufacture and regulating the distribution of narcotic drugs, as amended by the Protocol signed at Lake Success on 11 December 1946 and (b) Article 3 of the Single Convention on Narcotic Drugs, 1961. After noting

¹ This substance was called diphenoxylate acid before the International Nonproprietary Name difenoxin was recommended. The chemical name used in the notification was 1-(3-cyano-3,3-diphenylpropyl)-4-phenylisonipecotic acid. *Chemical Abstracts* has more recently adopted the chemical name 1-(3-cyano-3,3-diphenylpropyl)-4-phenyl-4-piperidinecarboxylic acid.

also the opinion expressed by a previous Expert Committee¹ that difenoxin, an active metabolite of diphenoxilate, “ because it (1) produces morphine-like effects, (2) will suppress abstinence phenomena of a known dependence of the morphine type, and (3) will sustain dependence of the morphine type essentially as does the parent substance diphenoxylate, must be considered a dependence-producing substance comparable with morphine ”,¹ the Committee concluded that difenoxin should fall under the regime laid down in the 1931 Convention for drugs specified in Article 1, paragraph 2, Group I, and be added to Schedule I of the Single Convention on Narcotic Drugs, 1961. It therefore recommended (a) that, pursuant to Article 1 of the 1948 Protocol, the Committee’s opinion with respect to difenoxin and its salts should be communicated by WHO to the Secretary-General of the United Nations ; and (b) that, pursuant to Article 3, paragraph 3 (iii) of the Single Convention on Narcotic Drugs, 1961, the Secretary-General of the United Nations should be notified that, in the opinion of WHO, Schedule I of the Single Convention requires an amendment, namely, the addition of difenoxin.

2. PREPARATIONS CONTAINING DIFENOXIN

After considering a notification from the Government of Belgium under Article 3 of the Single Convention on Narcotic Drugs, 1961, concerning preparations of difenoxin, and after considering the relevant views of members of the WHO Expert Advisory Panel on Drug Dependence, the Committee was of the opinion that preparations of difenoxin containing, per dosage unit, not more than 0.5 mg of difenoxin and a quantity of atropine sulfate equivalent to at least 5% of the dose of difenoxin have a composition and effectiveness comparable to those of diphenoxylate preparations, which are at present classified in Schedule III of the Single Convention on Narcotic Drugs, 1961. A similar classification of such preparations of difenoxin would seem appropriate.

The Expert Committee therefore recommended that, pursuant to Article 3, paragraph 4 of the Single Convention on Narcotic Drugs, 1961, the Secretary-General of the United Nations be notified that, in the opinion of WHO, Schedule III of the Single Convention requires an amendment, namely the addition of the following paragraph :

preparations of difenoxin containing, per dosage unit, not more than 0.5 mg of difenoxin and a quantity of atropine sulfate equivalent to at least 5% of the dose of difenoxin.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460, p. 38.

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