



PANAMERICAN HEALTH ORGANIZATION

WORLD HEALTH ORGANIZATION



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AND DRUG ABUSE

## MENTAL HEALTH

### INTRODUCTION

This document is divided into three sections: Mental Health, Alcoholism, and Drug Abuse. In their underlying idea and organization, these three areas form an integral part of the Mental Health Unit. However, in the interests of a clear and emphatic definition, it has been found preferable to discuss them separately.

## I. MENTAL HEALTH

### 1.1 Present Situation

In spite of a steady and consistent process of improvement in the various areas of mental health in Latin America, the rate of change is not keeping up with the growing needs and demands of the people. The purpose of this document is to outline the general characteristics of the process in the light of the demographic, socioeconomic, political and administrative variables in the countries of the Region; to analyze the present position in as detailed a manner as possible from the point of view of epidemiology and assistance; and to highlight those areas in which concerted action by national and international health organizations is urgently required to cope effectively with mental health in the Continent.

The inherent factors in the Latin American situation which give its mental health problems their peculiarity include, among many others, the following:

- a) The heterogenous nature of the population and the uneasy co-existence of segments ethnically and socioeconomically dissimilar. Only in a few countries do we find any uniformity of population likely to have a favorable influence on the development of more or less uniform mental health plans.
- b) The rapid and in many instances chaotic process of urbanization, especially in the large cities, with the added factor of wholesale migration from rural area to metropolis and the consequent creation of marginal sectors lacking even the most elementary resources for preserving health.
- c) Low health levels in the population generally, reflecting the persistent predominance of infectious diseases, malnutrition, high child mortality indices, etc.
- d) High indices of illiteracy and unemployment, the latter caused by a generally poor or rudimentary state of industrialization and diversification of economic activities.
- e) Differences in the existing health policy structures as well as in the structure, administrative efficiency, and priority status of health programs, with---paradoxically---tacit uniformity in regard to the low priority given to the various aspects of mental health.

It is perfectly evident that while the figures for the incidence and prevalence of certain clinical conditions, especially psychotic disorders, are in keeping with those in other parts of the world, conditions are

exceptionally favorable in Latin America for a potential, indeed definite, rate of increase in other nosological areas, particularly neuroses, personality disorders, situational reactions, and conditions in which psychological factors such as those noted above have a decided influence, e.g., alcoholism, mental retardation, drug abuse, delinquency, suicide, or convulsive states.

In these circumstances we also come up against structural deficiencies which inhibit a rational and systematic approach to the problems. In a number of countries of the Region there are no channels and/or sources of basic statistical information, let alone precise epidemiological data. The demand for assistance by vast sectors of the Latin American population is inadequately satisfied for lack of material, human and therapeutic resources. In spite of significant advances in some countries, the curricula of medical schools still do not give psychiatry and kindred disciplines the importance it is essential to give them. Physicians trained in these schools still do not have a real social sense in regard to the role they have to play. Psychiatrists are not only too few; they are also unevenly distributed. Finally research, the cornerstone of coherent plans and programs, is half-hearted and lacks real identity and purpose.

## 1.2 Epidemiological Profile

Mention has already been made of the lack of information inhibiting the presentation of reliable overall figures and data; but those given below, although partial or fragmentary, do make it possible to gain a rough idea of the general situation in the Continent in the light of the common characteristics listed in the preceding paragraphs.

### 1.2.1 Morbidity

Because of the difficulties inherent in the accurate detection of new cases and pinpointing of the onset of disease, except in acute cases, there is a scarcity of studies, and hence of figures, on the incidence of mental diseases in various countries of Latin America. On the other hand, there is more information on the prevalence of these disorders, and we have tried to summarize this information in the table on page 3.<sup>1</sup>

The diversity in the rates found reflects not only the variety of methodologies, population groups and periods covered by the studies, but also the variety of clinical theories and definitions underlying them. At any rate, in virtually all the types of disorders detected, the figures tend to be even higher than those generally accepted. The mental pathology totals in some instances go beyond the findings of some of the universally known studies of prevalence in other parts of the world (Midtown Manhattan, Stirling County and Sweden). Particularly striking is the high prevalence

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<sup>1</sup>Adapted and expanded from González, R. *Epidemiología Psiquiátrica*. Portuguese version. Mimeographed, 12 pages. PAHO/WHO, Washington, D.C.

PREVALENCE OF MENTAL DISEASES PER 1,000 HABITANTS IN A NUMBER OF LATIN AMERICAN COUNTRIES

Place	Researchers	Year	Size of sample	Psychosis	Neurosis	Epilepsy	Mental Retard.	Total
Lima (Peru)	Rotondo et al	1975	239	32.7(b)	154.1(b)	16.0(b)	-	426.0(b)
Santiago (Chile)	Horwitz and Muñoz	1958	3,203	14.2	205.0	20.0	11.8	
Mexico City	Dirección Gen. de Salud Ment.	1960		4.6	4.6	7.3		40.5
Mexico City	Cabildo	1964	11,328	10.1	134.5	3.0	12.2	329.6
Costa Rica (rural)	Adis Castro	1966	650	24.8(c)	402.4(c)	21.7(c)		
El Cerrito (Colombia) (semirural) (f)	León et al	1967	187	60	364	14	14	
San José								
Costa Rica (urban)	Adis Castro	1967	100	70.0(c)	280.0(c)	20.0(e)		
Lima (Peru)	Mariátegui et al	1968	2,901	11.0	54.8	14.1	13.8	
Santiago (Chile)	Horwitz and Marconi	1968	2,705(e)	3.0	153.0	11.0	12.0	175.0
Lamis (Argentina)	Tarnapolsky et al	1969	1,046	9.5	128.4	11.5	14.7	179.7
Santiago (Chile)	Moya et al	1969		2.3	122.0	14.0	10.0	
B. Aires (Argentina)	Grimson et al	1970	3,357			9.3	33.5	

a) Over 15 years; b) Over 20 years; c) Over 18 years; d) Only male subjects; e) Includes relapses and lost cases; f) Rates extrapolated from a random subsample of 38 adults between 20 and 49 years.

of neurotic disorders and psychoses. Among the former, and according to those studies where the degree of refinement in clinical delineation is highest, the most frequent, are undoubtedly depression and anxiety. Also noteworthy is the virtually uniform figure for mental retardation in all but one of the studies. The total rates increase still further if we add other types of pathology--nosologically questionable according to some psychiatric circles--such as personality disorders, psychophysiological disturbances, etc.

The annual rates for initial consultations and primary admissions to specialized establishments may be indicators of the incidence of mental disturbances in the population at large. In this connection, and simply as indirect data, mention may be made of two relatively recent studies.<sup>2,3</sup> In one of them it was found that of a total of 1,105 initial consultations in a given year, 439 (39.7 per cent) of cases were diagnosed as psychoses (predominantly paranoid schizophrenia--more than half); 241 (21.80 per cent) organic cerebral syndromes; 219 (19.82 per cent) neuroses; and 78 (7.05 per cent) personality disorders. According to the same study, out of 379 primary admissions, 246 (64.9 per cent) were diagnosed as psychotic reactions; 57 (15.0 per cent) organic cerebral syndromes (chronic and acute); 49 (12.9 per cent) neuroses, and 23 (6 per cent) personality disorders.

In the second study (a statistical compilation at national level over the period of a year), out of 105,086 primary admissions to public and private establishments, 34,748 of the cases (33.06 per cent) were endogenous psychoses; 27,842 (26.5 per cent) organic cerebral syndromes; 12,174 (11.6 per cent) neuroses; 8,841 (8.4 per cent) epilepsies; and 5,274 (5 per cent) mental retardation, not counting a variety of other conditions. Without losing sight of the differences in collection of data, universes surveyed, admission policies, etc., the figures may also have reflected different philosophies in regard to the treatment and clinical handling of similar conditions. Even so, in community hospital establishments, psychoses, organic cerebral syndromes, and neuroses constitute more than three quarters of the cases among the population served.

### 1.2.2 Mortality

Although mental disorders per se cause relatively few deaths, depressive conditions must be regarded as an exception, since in many instances they culminate in suicide. This has led a number of authors to affirm that

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<sup>2</sup>Bambarén, V.C. Primeras Consultas y Primeros Ingresos en un Hospital Psiquiátrico. Rev. Psiq. Per 5: 65-75, 1965.

<sup>3</sup>Moraes Andrade, O. "Saude Mental e Assistencia Psiquiátrica no Brasil." In: Psiquiatria Social y América Latina. Eds: C. Martins and Luis M. de Assis. Editorial Referencia Ltda. São Paulo, 1971.

suicide reflects mortality due to depression. On the other hand, epidemiologists and clinicians tend today to regard a significant percentage of homicides and deaths by accident as having a marked psychological or emotional component as a causal factor, so that it is worthwhile looking closely at the figures available.

#### 1.2.2.1 Suicide

In the first place, some general data for countries where the problem has been specifically studied. We must bear in mind the inadequacy of the information, which in this case is the result not merely of administrative shortcomings but basically of concealment, or the (involuntary) entry of the event under another statistical heading (accidental death, concurrent disease, etc.).

Over a period of 70 years, the suicide rate in the city of Buenos Aires dropped from 33 per 100,000 in 1895 to 0.3 per 100,000 in 1966.<sup>4</sup> A study made in Mexico shows a coefficient of 3.5 suicide attempts per 100,000 inhabitants in 1957, and a coefficient of 2.5 per 100,000 in 1963.<sup>5</sup> Mexico has one of the lowest suicide rates in the world. In Venezuela, the suicide rate in 1967 was 6.3 per 100,000.<sup>6</sup>

The table below shows the range of figures for mortality by suicide in the countries of the Region (rates per 100,000 inhabitants, adjusted by age, between 1965 and 1970).<sup>7</sup>

Costa Rica	2.4 - 3.6
El Salvador	7.5 - 10.4
Uruguay	7.1 - 8.2
Venezuela	6.6 - 7.8
Chile	5.2 - 7.8
Argentina	7.1 - 7.5
Mexico	0.8 - 2.1
Peru	1.5 - 2.0
Jamaica	1.1 - 1.9
Barbados	1.2 - 2.1
Canada	8.6 - 9.0
Colombia	3.1 - 4.4
Cuba	11.7 - 12.9

<sup>4</sup>Tamopolsky, A. and del Olmo, G. "Perspectiva de los Trabajos Epidemiológicos en la Argentina." In: Epidemiología Psiquiátrica en América Latina (Eds: J. Mariátegui and G. Adis Castro) pp. 43-53. Acta, Fondo para la Salud Mental. Buenos Aires, 1970.

<sup>5</sup>Cabildo, A., H. Investigación Epidemiológica en México. *Ibid.*, pp. 126-139.

<sup>6</sup>Rendón, A. R.: Suicidio e Intento de Suicidio en Venezuela. In: Psiquiatría en la América Latina - Anales del V Congreso Latinoamericano de Psiquiatría. Ed: H. Rosselli. pp. 287-296. Ediciones 3er Mundo. Bogotá, 1970.

<sup>7</sup>Adapted from: World Health Statistical Reports, 1965-1970. WHO, Geneva.

Dominican	
Republic	2.7 - 2.8
Ecuador	2.5 - 2.5
Guatemala	2.7 - 2.8
Nicaragua	0.6 - 1.4
Panama	3.1 - 3.8
Paraguay	2.6 - 3.2
U.S.A.	7.9 - 8.2

As can be seen, El Salvador, Cuba, Canada, United States of America, Uruguay, Venezuela and Argentina have the highest rates, while Jamaica, Nicaragua and Costa Rica have low mortality figures.

The table on page 7 shows age-specific percentages of deaths by suicide in 12 Latin American countries (information covering both sexes, 1967-1970).<sup>8</sup>

We find extremely high figures (above 30 per cent) in seven of these countries in the age group 15 to 24 years. This in itself imposes the need for decisive studies of an epidemiological nature. The same source indicates at least one country where the suicide and homicide figures are high, in open contradiction of the widely accepted view that there is an inverse ratio between the two conditions. In five other countries there appears to be no difference in the suicide rate for the two sexes in the age group 15 to 24. This phenomenon too is completely at variance with the patterns found in the countries of Western Europe and North America. In short, we need to know more about the common and differential factors governing "self-destructive behavior" in the countries of the Region. This knowledge is essential for implementing programs of prevention or "crisis detention" which make a positive contribution to reducing the figures.

Finally, another source of information<sup>9</sup> enables us to present the following table of age-specific annual rates, for mortality due to suicide per 100,000 inhabitants, by sex, between 15 and 74 years of age, in 12 cities during 1962-1964.

In Cali, Guatemala City and Mexico City, the male suicide mortality rates tend to decline in the highest age group. In six other cities, on the other hand, the rates increase with age. In regard to women, the mortality rates in Latin American cities are similar to those of cities in the English-speaking countries for the 15 to 34 years age group, but they show wide divergences from then onwards.

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<sup>8</sup>Taken from: PAHO Proposal on Study of Violent Deaths in Latin America. By C.F. Frederick, Consultant. 9 pp., Washington, D.C. 1974.

<sup>9</sup>Puffer, R.R. and Griffith, G.W. Patterns of Urban Mortality. Scientific Document No. 151. PAHO/WHO, Washington, D.C. 1968, pp. 177.



## AGE-SPECIFIC PERCENTAGES FOR DEATH BY SUICIDE IN 12 LATIN AMERICAN COUNTRIES\*

	<u>5-14</u>	<u>15-24</u>	<u>25-34</u>	<u>35-44</u>	<u>45-54</u>	<u>55-64</u>	<u>65-74</u>	<u>75-84</u>
Argentina	1	16	15	14	16	17	12	6
Costa Rica	6#	31	20	22	2	14	0	6
Cuba	2#	24	17	15	12	11	9	7
El Salvador	0	42	22	13	8	7	2	1
Mexico	2	34	20	15	9	10	5	2
Nicaragua	-	34	6	13	26	0	13	0
Chile	4	24	22	19	14	8	4	2
Uruguay	1	12	13	16	19	16	13	9
Peru	-	31	19	17	14	5	4	1
Colombia	2	41	24	13	9	5	2	1
Venezuela	4	29	20	17	12	10	4	2
Panama	4#	42	20	18	12	10	6	-
Canada	.7	13	16	20	19	16	8	3
U.S.A.	.5	10	13	18	20	17	10	7

\*Both sexes

#Information as of 1970; remaining information obtained earlier (1967-1968)

It is important to compare these figures with those for countries in other parts of the world. In 1965,<sup>10</sup> the highest suicide rates were found in Hungary (29.8 per 100,000), Austria (22.8), Czechoslovakia (21.5), West Germany (20.0), Finland (19.8), and Denmark (19.3). The lowest rates were found in Jordan (0.2), the Philippines (0.5) and Ireland (1.8).

#### 1.2.2.2 Homicide

There are those who think that the mental health of the community can be measured by indirect parameters. Deaths by homicide represent one of these parameters, and although in the statistics for some countries they are bracketed with operations of war, it is essential that they be taken into account by public health and mental health bodies.

The following table presents the range of figures for deaths by homicide between 1965 and 1970 per 100,000 inhabitants, adjusted by age, in the countries of the Region:

Argentina	4.9 - 6.7
Barbados	1.8 - 2.3
Canada	1.2 - 1.9
Chile	4.6 - 6.8
Colombia	15.2 - 17.8
Costa Rica	2.8 - 4.9
Cuba	3.8 - 4.0
Dominican Republic	3.4 - 9.9
Ecuador	7.8 - 8.9
El Salvador	25.4 - 34.0
Guatemala	13.9 - 14.8
Jamaica	0.7 - 1.9
Nicaragua	28.0 - 33.3
Panama	3.5 - 4.9
Paraguay	17.2 - 18.8
Peru	1.6 - 2.3
U.S.A.	5.3 - 7.3
Uruguay	3.0 - 4.8
Venezuela	8.3 - 10.1

Seven countries have rates higher than 10 deaths per 100,000 inhabitants; eight others have rates under five per 100,000. In general, the rates for death by homicide are higher for males than for females. The mortality rates are highest in the younger age groups. In some countries it is evident that at least 50 per cent of cases cover periods of marked political unrest which result in an increase in the number of acts of violence.

<sup>10</sup>Epidemiological and Vital Statistics Report, Vol. 20, No. 11, WHO, Geneva, 1967.

### 1.2.2.3 Accidents

Another indirect means of evaluating the possible influence of mental disease as a factor in the mortality figures available is the study of deaths from non-traffic accidents (including lesions of unknown origin). It is assumed, with some justification, that many non-traffic accidents may be "concealed suicides"--the concealment voluntary or involuntary. There is an inverse ratio between rates of death by suicide and by non-traffic accidents, but the sum of the figures for both shows a surprising uniformity at between 25 and 30 per 100,000 inhabitants. Although this involves a certain amount of conjecture, it imposes the need for epidemiological studies designed to throw light on the phenomenon. In this context it is pertinent to present the following table containing the range of figures for deaths from these causes, rates per 100,000 inhabitants adjusted by age, between 1965-1970, for the countries of the Region:

Argentina	23.3 - 25.3	
Barbados	7.6 - 23.8	
Canada	24.9 - 31.2	
Chile	20.3 - 60.3	
Colombia	37.5 - 38.6	
Costa Rica	25.0 - 31.2	
Cuba	23.4	(1968)
Dominican Republic	17.5 - 18.1	
Ecuador	38.7 - 42.3	
El Salvador	20.5 - 27.6	
Guatemala	30.5	(1969)
Honduras	75.4 - 79.7	
Jamaica	15.3 - 20.4	
Mexico	47.2 - 55.6	
Nicaragua	38.9 - 41.0	
Panama	28.8 - 32.8	
Paraguay	23.2 - 26.2	
Peru	25.8 - 31.3	
U.S.A.	23.4 - 25.6	
Uruguay	22.6 - 28.4	
Venezuela	25.1 - 28.8	

If we look at the various age groups, the death rates due to non-traffic accidents per 100,000 inhabitants in 1969-1970 can be seen from the following table.<sup>11</sup>

<sup>11</sup>Adapted from: World Health Statistical Reports, 1969-1970. WHO, Geneva.

Country	Age group								
	5	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75
Barbados	20.0	7.4	12.9	9.1	19.7	18.8	33.3	33.1	-
Canada	33.0	11.2	39.9	22.5	25.1	31.8	35.3	45.8	190.0
Chile	55.2	15.6	41.4	55.8	67.8	68.5	77.9	89.2	173.9
Colombia	36.9	18.7	36.4	38.5	41.8	45.8	55.7	97.5	208.7
Costa Rica	21.2	10.4	23.8	28.9	35.5	39.3	42.3	60.6	132.4
Cuba (1968)	30.2	8.5	25.8	21.2	18.9	19.9	24.9	45.2	261.5
Dominican Republic	15.2	8.6	18.7	20.7	23.8	19.7	24.1	40.4	75.3
Ecuador	31.5	17.8	37.5	43.0	52.1	60.8	71.0	115.5	189.0
El Salvador	11.3	12.8	26.0	29.6	35.7	34.6	38.4	84.9	154.8
Guatemala (1969)	13.2	14.6	28.5	35.6	48.4	44.0	59.9	81.8	135.3
Honduras	10.0	13.4	77.6	131.4	136.2	117.1	105.5	108.8	217.1
Jamaica	13.2	8.5	19.5	19.9	22.0	20.5	25.4	38.3	160.5
Mexico	38.7	20.9	49.7	66.8	72.3	73.7	83.4	110.5	178.1
Nicaragua	14.9	13.3	39.0	60.5	56.6	60.0	76.3	123.6	164.6
Panama	21.0	15.7	34.3	34.6	27.9	45.7	54.4	63.3	179.0
Paraguay	27.5	14.9	21.7	17.9	27.4	23.4	33.8	45.3	219.4
Peru	32.0	12.9	24.3	30.2	38.6	40.6	52.1	66.6	134.5
U.S.A.	39.4	10.6	22.6	23.3	26.3	31.3	39.6	56.6	196.2
Uruguay	16.3	11.5	29.2	30.9	31.4	37.8	43.4	64.5	189.7
Venezuela	27.0	14.8	30.3	25.3	27.5	29.7	40.8	66.5	188.3

In spite of the diversity in the figures and the way they vary from country to country, the following observations may be made: a) seven countries of Latin America show rates above 30 per 100,000 in the under 5-years

group; the implications here in regard to parental negligence are obvious; b) the same implications apply to the high rates in the old-age groups; the community cannot evade its responsibility for adequate care for the children and the aged among the population; c) five Latin American countries far exceed all the rates for the United States of America in the 15 to 34 age group; d) apart from those mentioned in the extreme age groups, there tends to be another intermediate one in the 45 to 54 year group in most countries.

Finally, we give another table of rates per 100,000 inhabitants by age and country, for both sexes, for deaths due to traffic accidents in 1969-1970.<sup>12</sup> From the clinical and public health points of view, equally important in making an accurate estimate are psychiatric disorders arising out of various accidents and lesions,<sup>13</sup> a subject on which little has been written in Latin America.

#### 1.2.2.4 Mental Disease Proper

Unreliable though the registration of mortality rates for mental disease as such may be, it may be worthwhile including the rates in this epidemiological sketch as reflecting the attitude and approach of professional workers to the impact of mental disorders on the population. It should be explained that the rates reported, although obviously could they be more precise, do not include suicides, homicides, accidents, deaths from cirrhosis of the liver and other indirect indices of latent mental pathology.

Below are death rates due to mental diseases per 100,000 inhabitants, adjusted by age, in 1969 and 1970:<sup>14</sup>

<u>Country</u>	<u>1969</u>	<u>1970</u>
Barbados	7.1	3.7
Canada	1.5	1.4
Chile	3.4	*
Colombia	0.6	*
Costa Rica	4.8	4.1
Cuba	*	*
Dominican Republic	0.8	1.2
Ecuador	2.4	2.9
El Salvador	5.0	7.1
Guatemala	7.4	*
Honduras	2.1	1.9

\*No data available

<sup>12</sup>Taken from: World Health Statistical Reports. WHO, Geneva, 1969-1970.

<sup>13</sup>Culpan, R.H. and Taylor, C.M. Psychiatric Disorders Following Road Traffic and Industrial Injuries. Austria. N.Z. J. Psychiat. 7: 32-39, 1973.

<sup>14</sup>Adapted from: World Health Statistical Reports. WHO, Geneva, 1969-1970.

ACCIDENT MORTALITY RATES AGE-ADJUSTED AND AGE-SPECIFIC PER 100,000 INHABITANTS,  
BY SEX AND COUNTRY 1969-1970

COUNTRY	Age-specific rates	- 5 years	Age in years							
			5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 and over
Barbados	16.0	11.3	7.3	18.9	23.6	24.6	25.8	12.8	24.9	---
Canada	24.1	11.2	13.3	46.4	28.2	20.6	22.5	28.0	35.1	40.3
Chile	19.3	8.1	9.4	15.6	24.0	31.3	34.5	39.7	45.3	57.4
Colombia	10.9	4.7	7.0	10.9	13.4	14.3	15.4	18.8	26.7	27.4
Costa Rica	13.6	4.5	6.1	19.4	18.4	16.9	15.8	21.2	33.1	41.4
Cuba	9.9	2.7	4.3	13.6	14.4	9.8	13.0	14.3	25.4	51.3
Dominican Rep.	7.0	1.8	3.1	8.7	9.6	10.6	9.8	11.9	16.3	15.5
Ecuador	15.8	6.2	9.2	14.3	19.7	22.3	25.8	25.0	42.5	59.3
El Salvador	9.5	2.0	6.0	9.2	13.5	15.1	13.2	15.2	25.1	18.5
Guatemala	7.2	2.9	3.7	7.8	10.3	8.7	9.2	12.5	20.4	23.8
Jamaica	6.9	2.4	3.9	7.1	8.9	10.6	10.8	13.0	14.2	17.4
Mexico	7.2	2.3	3.3	7.2	9.4	11.0	11.5	13.5	18.8	25.6
Nicaragua	10.1	3.9	5.1	12.5	15.7	10.7	12.9	13.1	20.3	39.9
Panama	10.6	2.9	4.6	12.7	15.8	13.4	16.8	16.0	27.1	36.3
Paraguay	13.2	1.9	7.0	16.5	15.5	18.2	13.4	30.7	39.6	59.1
Peru	8.2	4.2	3.8	6.8	10.4	13.1	14.4	16.8	18.5	22.0
U.S.A.	25.3	11.4	10.0	50.3	32.5	25.3	25.6	28.2	34.7	43.7
Uruguay	5.3	2.1	3.1	5.8	6.5	6.9	8.5	8.6	14.4	14.1
Venezuela	26.6	7.7	11.6	34.6	36.4	37.9	37.1	48.8	61.3	50.2

<u>Country</u>	<u>1969</u>	<u>1970</u>
Jamaica	2.0	1.2
Mexico	5.2	5.6
Nicaragua	2.3	*
Panama	0.8	0.8
Paraguay	4.8	4.8
Peru	2.0	*
U.S.A.	2.2	*
Uruguay	4.2	3.7
Venezuela	1.5	1.8

\*No data available

El Salvador, Mexico, and Guatemala show the highest rates. In most countries during the period under consideration, the figures tend to fall from one year to another. Although it is tempting to think that this indicates better overall care, it is more realistic to attribute any differences to factors other than the gathering and reporting of information.

Finally, if we add together the death rates for mental diseases, accidents, suicides, homicides and injuries of unknown origin per 100,000 inhabitants, adjusted by age, between 1969 and 1970, we get the following table:

<u>Country</u>	<u>1969</u>	<u>1970</u>
Barbados	32.6	48.0
Canada	61.9	51.5
Chile	60.1	*
Colombia	63.6	*
Costa Rica	47.4	48.6
Cuba	*	*
Dominican Republic	29.5	35.4
Ecuador	67.2	67.3
El Salvador	67.6	78.7
Guatemala(1)	64.9	*
Honduras(2)	81.7	77.3
Jamaica	32.2	24.1
Mexico	88.8	79.3
Nicaragua	82.1	*
Panama	42.9	49.9
Paraguay	63.0	58.5
Peru	40.9	*
U.S.A.	60.5	*
Uruguay(1)	38.0	40.4
Venezuela	64.5	64.0

\*No data available

(1) No data on injuries of unknown origin

(2) No data on suicide, homicide and injuries of unknown origin

There are countries like Nicaragua, Mexico, Honduras, and El Salvador where total deaths from these causes amount to almost one tenth of the total mortality figures, thus indicating the growing impact of mental health disease problems on vital statistics for the Continent.

### 1.3 Existing Services

The fundamental feature of the existing mental health services in the countries of the Region is their instability. This is true both of the minimal infrastructure aspects and of their planning and functioning. There are vast segments of the population which have no services, however elementary, whereas other minority segments are provided with timely care services of good quality. In virtually all the countries, the State assumes most of the responsibility for providing services. Until relatively recently, these tended to be, first and foremost, hospitalization services for chronic patients or persons whose advance toward the chronic condition was helped on by the hardly edifying conditions in such establishments. The last decade has seen a definite tendency in the Continent toward modernization of the services, although there is still a long way to go.

The existing services can be classed from two points of view: according to the administrative department or agency of which they form part, and according to the nature of the services rendered. Let us round off this chapter with a brief reference to the output and level of utilization of the services.

1.3.1 According to the administrative departments to which they are attached, the mental health services existing on the Continent are of four basic types:

#### 1.3.1.1 State Services

All in all, the State apparatus is responsible for 75 to 90 per cent of the psychiatric facilities in most of the Latin American countries. At the outset, this type of service structure was geared to custodial care in the traditional type of asylum,<sup>15</sup> but it has gradually been diversified.

#### 1.3.1.2 Social Security Services

In most Latin American countries, the Social Security service structure has shown vigorous growth and tends to expand its action and the range of its coverage more and more. The facilities are modern, and the agency itself has resources enabling it to expand. In the psychiatric field, however, the situation is not so promising, since as a general rule

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<sup>15</sup>Velasco A., J. M. "La Salud Mental en las Américas." In: Primer Seminario Latinoamericano de Salud Mental. PAHO/WHO Scientific Publication No. 81, pp. 8-18, Washington, D.C., 1963.



psychiatric care given by "Social Security" is restricted; thus in the case of hospitalization the length of stay of the patient in its establishments is limited.

#### 1.3.1.3 Public Welfare

While Social Security tends to increase its participation in the task of offering health services, "Public Welfare" and similar charitable institutions are tending to withdraw, basically for lack of funds, allowing their health establishments to be absorbed by the State, and to devote themselves to other areas of social service. With few exceptions, this type of administrative department plays only a minimal role in the provision of mental health services.

#### 1.3.1.4 Private Services

It is perhaps stretching the definition somewhat to speak of the services of specialists in private practice as an "administrative department," but there is no denying the growing importance of this sector, especially in urban areas. The individual practitioner predominates, even though there is an increase in the variety of forms of organization. The fundamental weakness here is the limited size of the stratum of the population served and the fact that they are money-making entities geared to supplying the needs of the well-to-do classes.

1.3.2 According to the nature of the services rendered, the following are the types of service:

#### 1.3.2.1 Hospitalization Services

These are provided under the four headings referred to in the previous section, but there are differences in regard to the type of patients and clinical problems covered, the nature of the care given, the personnel involved, the duration of the services, and the costs. There are:

- a) Psychiatric hospitals: These as a rule depend on the State; they are basically geared to the less privileged socioeconomic classes; they operate to full capacity most of the time; and they house a large number of chronic patients, predominantly cases of organic cerebral syndrome, psychosis, alcoholism, and personality disorder. The types of treatment range from the purely custodial to serious attempts at creating a therapeutic community,<sup>16</sup> although psychodrug and electroshock treatment

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<sup>16</sup>Clovis Martins and L. Marques de Assis (Eds.) *Psiquiatria Social de América Latina*, Anais do VI Congresso Latinoamericano de Psiquiatria. Ed. Referencia Ltda. São Paulo, 1971.

predominate. Generally speaking, the numbers of professional and auxiliary personnel are limited, and the degree of training varies. Because of the nature of their clientele, the average stay in these hospitals is more than four months. Finally, they are not coordinated with adequate extramural follow-up programs (outpatient consultation services).

- b) Psychiatric services in general hospitals. Most of these services, although they are not sufficient in number and do not meet the standards suggested by WHO Expert Committees,<sup>17</sup> form part of hospitals under the ministries of health or social security organs, with a tiny proportion in privately owned hospitals or general medical clinics. The rationale for these services is the provision of aggressive, vigorous treatment of acute cases, the patient being kept for a short time and returned as soon as possible to the community and productive life. This system, which was very widespread in the United States of America early in the 1960's,<sup>18</sup> has taken a rather long time to gain a firm foothold in Latin America. In actual fact, however, it is proving to be the most up-to-date approach as far as psychiatric care and teaching are concerned, and serves to emphasize the essentially medical nature of the role of the mental health worker. The influence of this philosophy, as reflected in more or less well-defined policies of admission of cases, is manifest in the predominance of neurotics among its patients, persons in whom, as a rule, situational factors give rise to acute symptoms. Hence hospitalization is shorter (not longer than 30 days). These services house patients whose socioeconomic origins may be on the average higher than those in the psychiatric hospitals. There may be greater variety of therapeutic treatment, including individual psychotherapy and the participation of skilled auxiliary personnel. Hence individual hospitalization costs are higher.
- c) Specialized psychiatric units. These may admit patients belonging to selected populations, such as children (and they may also include centers especially devoted to specific problems such as mental retardation, infantile autistic disorders, etc.), alcoholics or drug addicts, providing special treatment régimes, highly individualized and hence costly. They require a large budget, and a large proportion of the few specialized psychiatric units are in private hands, with a small proportion basically attached to Public Welfare departments. The staff should also, in principle, be numerous, and particularly well trained, but for

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<sup>17</sup>WHO Technical Report Series No. 73, 1953.

<sup>18</sup>Kauffman, R. et al. Mental Health Quarterly News, pp. 27:4, 1957.

the most part this is not the case. Generally speaking, this type of service is uncommon, in spite of the growing need for it and for variants on it.

- d) Other services. Almost incidental to the mental health services are places like prisons, police stations, church parishes, etc., which at times may house appreciable numbers of emotionally disturbed persons. The peculiar features of such arrangements make it difficult to estimate the numbers handled in this way, and also make it obvious that there is little coordination. Treatment is undoubtedly almost non-existent and confined to single or casual contacts. Most of the cases are chronic schizophrenics, alcoholics, drug addicts, psychopathic personalities or persons with chronic character disorders.

#### 1.3.2.2 Outpatient Consultation Services

Like the hospitalization services, outpatient services are rendered with the various administrative structures referred to above. It can be stated emphatically that this is the type of service which absorbs the bulk of the population of neurotics, manageable psychotics, persons with situation problems, epileptics, and retarded persons requiring care, and that in spite of its growing importance it is still inadequate to cover the demand, so that there are long waiting lists, and the actual treatment given is brief and superficial and its effect probably negative as far as good doctor-patient relations are concerned.

Outpatient consultation services are given in:

- a) Psychiatric hospitals
- b) Psychiatric wards of general hospitals
- c) Health units and health centers
- d) Dispensaries
- e) Community mental health centers
- f) Private consulting rooms.

The first five of these have a number of features in common, and the first two embrace approximately 80 per cent of consultations. The patients involved are generally middle-class, lower middle-class and lower class, and the predominant cases are neuroses, situational reactions, mental subnormality and epilepsy. Because of excessive demand and staff shortages, contact with the patient is minimal and the basis of treatment is drug administration. No rational use is made of non-medical personnel for therapeutic activities, or of crash psychotherapy techniques, behavioral therapy, or group therapy for the same reasons. The patient population shows marked irregularity in attendance and ingestion of medication. Outpatient services do not have adequate paraprofessional personnel or social workers capable of collaborating effectively on follow-up, house visits, "retrieval" of patients evading control, etc.

#### 1.3.2.3 Mental Health Centers

In the wake of the report of the United States Joint Commission on Mental Illness and Health<sup>19</sup> and of the new law on mental health enacted in the United States in 1963<sup>20</sup> came the philosophy and concept of mental health centers as pivots of the community psychiatry movement. This philosophy, a new departure with profound social and public content, fully imbued with the principles of prevention, made a deep impression in Latin America also, at any rate as a statement of the new importance of emotional and mental health as an integral part of total health. Unfortunately, only a few countries have made any attempt to adapt the concept to their own circumstances or to implement the mental health center idea.<sup>21</sup> Paradoxically, in the country where the concept originated, the Mental Health Center is regarded in the present decade as "on its way out," greater stress being placed on the integration of activities for the preservation of mental health as part of the activities of the Health Maintenance Organization" (HMO).

At all events, the Mental Health Center embraces the practice of prevention at all levels, with special reference to primary prevention, intensive treatment of acute cases, and rehabilitation of chronic cases. Combined with this is the notion of community participation and the aspirations of the Center to become a nucleus for the integration of the activities of the community served. We have of course to recognize the ambitious and all-embracing nature of the idea and the practical difficulties of total implementation, especially in regions and countries like Latin America.

#### 1.3.2.4 Rehabilitation Units

These are more specific in their aim, and they are few in number in Latin America. They are services, generally ambulatory, designed to cope with specific problems, such as care for alcoholics and drug addicts. On another level, the idea embraces units or services for the rehabilitation of chronic mental cases--farms, factories, sheltered workshops, or work therapy centers such as exist in Argentina, Mexico, Costa Rica and Brazil.

#### 1.3.3 Utilization of the Services

While it may be said that the utilization of the existing services is probably total as far as figures are concerned, from the point of view of real availability the statement may be misleading if it is inferred that

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<sup>19</sup>Joint Commission on Mental Illness and Health: Action for Mental Health. Basic Books, New York, 1961.

<sup>20</sup>Kennedy, J. F.: Message from the President of the U.S. Relative to Mental Illness and Mental Retardation. 88th Congress. House of Representatives. Document No. 58. U.S. Govt. Printing Office. Washington, D.C., 1963.

<sup>21</sup>Cabildo, H.M. Organización de Servicios de Salud Mental en Centros de Salud Pública. In: Resúmenes del V Congreso Mundial de Psiquiatría. pp. 157-158. La Prensa Médica Mexicana, Mexico, 1971.

demand is covered. It has already been pointed out that resources are insufficient, and that there are not enough personnel, either numerically or qualitatively, to meet even the manifest demand. At the present moment there are in Latin America approximately 3,000 doctors concentrating essentially on the care of mental patients; 6,000 psychologists (whose connection with the mental health system is slight, peripheral, and shaky, for want of adequate standards in practically all the countries); not more than 500 psychiatric nurses; a negligible number of psychiatric social workers; and less than 100 psychiatric occupational therapists with university degrees. There are approximately 130,000 psychiatric beds in Latin America as compared with nearly 750,000 in North America.<sup>22</sup>

The yield of services, in the sense of productivity in terms of the number of patients cared for per bed and per year in a given hospital establishment, has peculiar characteristics in the field of mental health in Latin America. On the basis of length of stay as referred to above, it may be estimated that a psychiatric bed in a general hospital yields four to six care periods a year, whereas in a psychiatric hospital, because of the prolonged stay of the overwhelming majority of patients (according to a recent publication the average stay of a patient in a psychiatric hospital in Lima is 14 years)<sup>23</sup> the yield per bed is much lower than unity. The uneconomic nature of this system, in present circumstances, is obvious. In general, the tendency today is for hospitalization to be brief; it is estimated that not more than 20 per cent of all psychiatric patients should be hospitalized for longer than 15 days.

If we look at the yield of outpatient departments, we again find differences according to the particular circumstances. One doctor/hour in private practice accounts for one patient in psychotherapy and two patients in drug therapy. During the same hour, an outpatient department of a general hospital of the Social Security type may handle four to six patients, and in a State-owned general hospital or a Public Welfare hospital the number may rise to as many as 10 patients an hour. The conclusions as far as quality of care is concerned are obvious.

With regard to utilization, in other words, sectors enjoying the benefit of the existing services, it has already been mentioned that the general and psychiatric hospitals tend to deal predominantly with the needy classes (the vast majority) in the areas where they live, namely the urban areas; the Social Security services with limited segments of the

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<sup>22</sup>PAHO/WHO. Facts on Health Progress, 1971. Scientific Publication No. 227. pp. 50, Washington, D.C., 1971.

<sup>23</sup>Tejada, K., D.C. Higuera. La Hospitalización Psiquiátrica en el Perú. Revista Neuro-Psiquiat. 36:207-221, 1973.

population; and the private services with minority sectors. Obviously, any mental health policy must aim at the best and most efficient service to the majority by making economic use of the existing services.<sup>24</sup>

These figures are approximate and are expressed in general terms to apply to the Continent, even though there are differences from country to country and indeed in parts of one and the same country; this is bound up with the greater or lesser emphasis on mental health in the national health programs.<sup>25</sup>

#### 1.4 Needs and Demand

The Ten-Year Health Plan for the Americas,<sup>26</sup> drawn up at the III Special Meeting of Ministers of Health of the American countries in 1972, summarized the general and specific objectives of mental health activities for the decade ahead. The Plan was formulated following a detailed discussion of the hard facts of the situation throughout the Continent. It may be stated that essentially the needs and demands brought out there have not varied; on the contrary, their reality is even more marked. In 19 countries there are already mental health units, sections or divisions at Ministry of Health level, but this is not sufficient. The vital needs in Latin America at present go far beyond the existing concrete plans, and even the most rosy expectations, because of their many-sidedness. The 1972 Plan is therefore still a precise catalog of programs waiting to be implemented. It should nevertheless be pointed out that its goals would become virtually unattainable if the Continent did not at the same time crystallize bold plans for economic and social development.

In general terms, it is not unduly rash to state that the Latin American community requires of its health authorities the crystallization of the following in relation to mental health:

- a) Flexible, up-to-date forms of hospitalization which respect human dignity;
- b) The installation of psychiatric services which specialize in child and juvenile problems and mental retardation;

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<sup>24</sup>Kiev, A. Introducing Psychiatric Programs to Developing Countries. In: *Resúmenes del V Congreso Mundial de Psiquiatría*. pp. 117-118. La Prensa Médica Mexicana, Mexico, 1971.

<sup>25</sup>González, R. *Tipología*.

<sup>26</sup>PAHO. Ten-Year Health Plan for the Americas. Final Report of the III Special Meeting of Ministers of Health of the Americas. Official Document 118, Washington, D.C., 1973.

- c) Opportunities for specialized care in regard to problems of alcoholism and drug dependence;
- d) Expansion of ambulatory care facilities in urban and rural areas.

A more detailed approach to needs and demands embraces the following:

#### 1.4.1 Personnel

##### 1.4.1.1 Volume and Classification

We have just had occasion to note an approximate estimate of the present number of professional and non-professional workers in mental health in Latin America. The common denominator is shortage, and obviously poor distribution could be added. The professional workers may be doctors (psychiatrists) and paramedical staff (psychologists, nurses, social workers, occupational therapists), in addition to auxiliary personnel with special skills (mental health advisers, "technicians," assistants, etc.) whose training is still at an incipient stage.

##### 1.4.1.2 Location

It is no exaggeration to state that 80 per cent of the professional and para-professional personnel is concentrated in the capitals of the countries and the larger urban centers which, except in the case of Mexico, Argentina and Brazil, are actually very few. In the case of physicians, almost 60 per cent are concentrated in the urban areas where only 20 per cent of the population live.<sup>27</sup> The figure is as high as 90 per cent in the case of psychiatrists. The reasons for this inescapable fact include the following:

- a) Shortage of manpower;
- b) Concentration of hospitals, clinics, mental health centers, universities and professional associations in the same zones (poles of attraction);
- c) Consequently, lack of professional and economic incentives and opportunities for genuine self-expression in places remote from the urban centers;
- d) Nevertheless, side by side with this the predominance, in spite of a tendency toward a change for the better, of an individualistic outlook in the training of the mentality and attitude of the mental health worker without adequate inculcation of a public health philosophy and a collective service mentality as the pragmatic basis of his activity.

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<sup>27</sup>Horwitz, A. and Burke, M.H. "Health, Population and Development"  
In: Population Dilemma in Latin America (Eds. J. M. Stycos and J. Arias).  
pp. 145-195. Potomac Books, Washington, D. C., 1966.

Even in densely populated urban centers, the distribution of the existing personnel is uneven, non-State spheres of action predominating. In some instances, the personnel in the latter is the best trained and hence the most competent. The logical consequence is the proven fact that only a minority of the population is given the best type of care.

#### 1.4.1.3 Training

At the root of many of the shortcomings pointed out lie, obviously, inadequate programs for the training of personnel at all levels, and the functions even of those that do exist are for the most part not properly coordinated. Apart from inadequate numbers, training programs tend to be marked by:

- a) Shortage of full-time teaching staff;
- b) Imbalance between the theoretical and practical or field aspects of the activity programmed, when this exists;
- c) Only nominal or limited participation and backing by academic or State centers of standing;
- d) Lack of congruity in regard to the employment market or job opportunities following training;
- e) Failure to understand the drive, need, implications and scope of work in multidisciplinary teams, the projection of this to the community, and its productive participation in the process;
- f) Insufficiency of refresher or upgrading programs.

The Ten-Year Health Plan for the Americas includes among the goals in relation to mental health personnel the necessity to:

- a) Train 5,000 psychiatrists within 10 years by means of three-year courses;
- b) Qualify 5,000 doctors in basic psychiatry to service communities of less than 20,000 inhabitants;
- c) Establish international centers for the training of health personnel in mental health work, at professional and intermediate levels;
- d) Establish annual postbasic courses in psychiatric nursing in at least 10 countries;
- e) Provide one occupational therapist for each 50 psychiatric beds and a total of 2,000 such therapists through in-service training;
- f) Provide, as a minimum, the services of one professional occupational therapist per psychiatric institution, training these personnel by means of psychiatric rehabilitation courses.
- g) Provide training on mental health problems, particularly in the fields of prevention, and of alcoholism and drug dependence, to other sectors such as education, justice, agriculture,



etc., with particular emphasis on the teaching profession, labor organization leaders, youth organizations, and other groups active in the community.

#### 1.4.2 Services

The inference to be drawn from all the above is that, in addition to the overall increase in psychiatric and mental health facilities in the countries of the Region, the technical needs in respect of the services revolve basically round the provision of human and material resources adequate to meet the demand. By material resources we mean not only suitable physical plant but the indispensable technical items (ranging from the provision of complete sets of psychological tests, through the indispensable work therapy materials, to one-way mirrors or closed-circuit television systems). The actual staff must be familiarized with modern techniques of prevention, evaluation, treatment and rehabilitation. If we leave aside the services as they exist in the United States of America and Canada, the goal of at least one bed per 1,000 inhabitants repeatedly recommended by bodies such as WHO (even though highly questionable in present circumstances) is still far away.

The Ten-Year Health Plan also indicates the necessity to:

- a) Promote for each country a ratio of psychiatric beds per 1,000 population consistent with its requirements, giving priority to ambulatory treatment and short-term hospitalization, preferably in general hospitals.
- b) Establish each year five new community mental health centers in cities with a population of 100,000 or more, integrating them into the local health services and stimulating the active participation of the community in regard to them.
- c) Organize existing psychiatric services to ensure one psychiatrist per 100 beds and one specialized psychiatric nurse per 500 beds. Every hospital specializing in mental health should initiate continued educational programs in psychiatric nursing. Rehabilitation programs in mental health hospitals should be included.
- d) Provide that a minimum of 5 per cent of the beds in general hospitals be reserved for mental patients.
- e) Organize national services to combat alcoholism as part of the general health services, at the rate of one per year.

### 1.4.3 Population

One of the drawbacks--complex but not insoluble--to the adequate structuring and implementation of mental health programs in the Hemisphere is the enormous variety of population groups to be served by such programs. This multiplies the need because of the diversity of attendant problems. The most obvious parameters may of course prove to be the ethnic and socioeconomic ones, but they are not the only ones, nor probably the most significant.

#### 1.4.3.1 Varieties

#### 1.4.3.2 Demand

From a strictly public health point of view, the most important classification of population groups would be:

- a) By age groups: Children, adolescents, adults and old people generate different needs and demands. Latin America, with a population which will represent 65 per cent of that of the Americas by the end of the century,<sup>27</sup> is a continent with a predominantly young population (almost 50 per cent under 30 years of age). On the other hand, life expectancy is gradually rising, and bringing with it the emergence of a large number of potential areas of emotional conflict. However, the child population is the least favored in regard to the existing services and/or programs, to judge from works published in various countries,<sup>28</sup> and this is a considerable drawback. As far as adolescents and adults are concerned, the programs and services in shortest supply are special services (drug addiction, alcoholism), in spite of the growing prevalence of these disorders. Only 10 countries have alcoholism programs. Practically all the countries have drug addiction offices, most of them juridically slanted. Rehabilitation programs for drug addicts have been tried out in nine countries.

With regard to the aged in the population, there has been talk of "psychological prejudices and obstacles"<sup>29</sup> preventing the development of adequate services. At the present

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<sup>27</sup>Horwitz, A., and Burke, M.H., op. cit.

<sup>28</sup>Alva, V. *La Psiquiatría Infantil en el Perú*. Thesis for the degree of Doctor of Medicine. Cayetano Heredia University, Lima, 1973.

<sup>29</sup>Strejilevich, S.M. "Obstáculos al Desarrollo de la Gerontopsiquiatría en América Latina." In: *Resúmenes del V Congreso Mundial de Psiquiatría*. La Prensa Médica Mexicana. Mexico, 1971.

time, there are 11 million "senior citizens" living in Latin America, and by 1980 there will be 14 million. Two million live in cities of more than 200,000 inhabitants, and in some urban zones they constitute 10 per cent. The present tendency to exclude this segment of the population should cease.

- b) By geographical location: Urban population and rural population. Within the urban population, the main interest is centered on the sector described sociologically as the "marginal" population. It may be well to specify the meaning of the terms used. Rural population is taken to mean the population living in places with less than 2,000 inhabitants, and "marginal" population those living on the outskirts or edges of large cities (shanty towns, "slums," etc.) with particular sociocultural characteristics.<sup>30</sup>

The rural population constitutes a significant sector (at least 46 per cent of the total) which is virtually devoid of basic medical care, let alone mental health care. There is no documented proof that the prevalence of specific mental disorders is substantially lower in this type of population. Indeed, one study at least points to the contrary.<sup>31</sup> The minimum requirement of this sector in terms of mental health would be to provide adequate theoretical and practical material on psychiatric and mental health subjects for general practitioners or public health doctors assigned to or residing in the area, and appropriate arrangements for the referral of difficult cases to suburban or urban centers. The programs already sponsored by PAHO/WHO should be intensified.

In the view of sociologists and other social scientists, the "marginal" population is bound to be a sector of growing interest in respect of study, potential conflict (especially in mental health terms) and, obviously, efforts to tackle and solve the problem. The rate of growth of this population group is positively alarming and the problems of overcrowding, poor sanitary conditions, formation of "subcultures", and incubation of so-called "social evils" are not the least. The marginal character of these groups is not merely geographic (in relation to the city itself); it is essentially cultural and human. There are isolated studies on the subject.<sup>32</sup> The demand is huge, but it is being met only half-heartedly and in respect of the whole

<sup>30</sup>Smith, T. L. *Studies of Latin American Societies*. Anchor Books. Doubleday & Co. Garden City, N.Y. 1970.

<sup>31</sup>Adis Castro, G. "Prevalencia de Problemas de Salud Mental en Costa Rica." In: *Epidemiología Psiquiátrica en América Latina* (Eds.: J. Mariátegui, G. Adis Castro), pp. 89-114. Acta, Fondo para la Salud Mental, Buenos Aires, 1970.

<sup>32</sup>Valdivia P., O. *Migración Interna a la Metrópolis. Contraste Cultural, Conflicto y Desadaptación*. Impr. Univ. S. Marcos. Lima, 1970.

population, while the psychosocial peculiarities of its members are unknown or ignored. There is no doubt whatever that the final objective will be total integration into urban life, but until this is achieved the specific problems of these groups must be faced realistically.

It is obvious therefore that the needs and demands of the population in terms of general psychiatric care and special problems can only be met by the coherent inclusion of mental health programs in integrated health programs, and by the practice of the concept of "sectorization,"<sup>33,34</sup> sometimes called "the quiet revolution" in the area of mental health.<sup>35</sup>

#### 1.4.4 Research

The planning and introduction of better mental health services, and the optimum use of the resources available, can only come about through a rational program of research applied to the facts as they are in the Hemisphere. On its findings likewise depends the motivation of governments and ministerial health planning bodies to abandon traditional attitudes toward the planning of priorities, and to give mental health greater prominence.

It is no secret that mental health research in Latin America as a rule lacks well-defined direction and meaning. Only in the last decade has research acquired an increasingly rich social content as a result of what has been accomplished at various national and international psychiatric congresses. Its impact is still modest; but any rate the needs for research in the Region can be established as coming first and foremost under the following headings:<sup>36</sup>

#### 1. Psychiatric epidemiology:

- a) Field studies to determine the prevalence and incidence of mental disorders in general.

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<sup>33</sup>Paumelle, Ph. Psychiatrie de Secteur--Psychiatrie communautaire, espoir ou alibi? La difficile mise au monde du Psychiatrie. In: Psychiatric Research in our Changing World. pp. 62-73. (Ed: G.F.D. Heseltine.) Excerpts. Medical Foundation. Amsterdam, 1969.

<sup>34</sup>García Buñuel, L. and Guedes, L. "The Psychiatric Hospital as Mental Health Center." In: Psychiatric and Mental Health Services. PAHO Scientific Publication 210, Washington, D.C., 1970.

<sup>35</sup>Gittelman, M. Sectorization: The Quiet Revolution in European Mental Health Care. Amer. J. Orthopsychiat. 42:159-167, 1972.

<sup>36</sup>See also Yolles, S.F. "Investigaciones de Salud Mental" In: Primer Seminario Latinoamericano de Salud Mental. PAHO Scientific Publication No. 81, pp. 60-81, Washington, D.C., 1963.

- b) Field studies to determine indices of disorders of proven importance in public health, i.e., suicide (or violent death), alcoholism, drug abuse, mental retardation, school absenteeism, etc.
- c) Prospection and follow-up studies of particular cohorts to determine the natural history of psychiatric conditions.
- d) Formulation of hypotheses and their heuristic proof, or the implementation of studies designed to prove hypotheses already stated by previous studies in relation to specific mental disorders.
- e) Improvement and standardization of epidemiological study methods in the interest of a more effective interchange of experience at the continental level.<sup>37</sup>

2. Social and community psychiatry:

- a) Studies of opinions and attitudes in the general public and specific sectors of it toward psychiatry and psychiatric disorders.
- b) Studies of the present situation and efforts to achieve changes or to integrate "healers" and community leaders into mental health programs.
- c) Studies of "field experiments" on the feasibility or materialization of mental health centers, alone or in association with general health centers in urban, semi-rural or rural populations.
- d) The study of the probable contribution of non-medical agencies in the community to the establishment of primary psychiatric care networks.
- e) The study of psychosocial factors in the production and/or prevention of mental disorders in the population.
- f) Studies on the effects of internal migration on the mental health of the population.

3. Psychiatric administration and operational research:

- a) Descriptive and comparative studies of the utilization of existing services (latent demand and satisfied demand).

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<sup>37</sup>WHO: The International Pilot Study of Schizophrenia. Vol. 1. Geneva, 1973.

- b) Studies on the availability, utilization, training and yield of the existing human resources, with special emphasis on planning.
- c) Pilot studies on experiments designed to adapt or activate the existing services with a view to reducing the numbers of chronic cases or the length of hospitalization of acute cases.
- d) Studies on the work, and the advantages and drawbacks, of the so-called integrated (multidisciplinary) mental health teams.

4. Clinical psychiatry and psychopharmacology:

- a) Study of the cultural peculiarities of the main psychiatric syndromes.
- b) Study of the effects, benefits and advantages of the latest therapeutic techniques.
- c) Study of drugs and/or plants or products having a therapeutic effect.
- d) Studies on psychiatric education and the training of psychiatric specialists, professional and para-professional.
- e) Clinical studies.

Note that the emphasis is essentially on applied research. This implies a continued flow of information on basic research and the need for:

- a) Outlining national and multinational psychiatric research plans;
- b) Training multidisciplinary research team;
- c) Encouraging and giving economic support to research through suitable forums and competitions and channels for the diffusion, implementation or application of the practical findings of the research.

## II. ALCOHOL AND ALCOHOL ABUSE IN LATIN AMERICA

### 2.1. Extent of the Problem

Alcoholism is a serious public health problem in Latin America; however, the measure of its real impact on the health, economy and general level of societal functioning remains unknown. There is little need to reiterate here the fact that alcoholism and excessive drinking have caused tremendous losses--losses which are never measured adequately by simple mortality or morbidity statistics. The affected individual, his family, friends, employer and community all bear significant losses. If we were to put a monetary price tag on these costs, as was recently done by Dr. Morris Chafetz, Director of the National Institutes for Alcohol, Abuse and Alcoholism of the United States, the cost for the Region would be in the billions of dollars. Yet the resources we have available to combat this problem, especially in Latin America, are very limited in comparison.

In passing, it is important to note that prevalence rates for alcoholism and excessive drinking do not give a full assessment of the problem by themselves. The difference between a 5 per cent rate and an 8 per cent rate, for example, is difficult to discern. However, if we consider the direct and indirect results of alcohol abuse, these statistics take on a meaning and carry an ominous weight that can be more concretely observed in terms of: (1) deaths from cirrhosis of the liver; (2) psychiatric hospital admissions; (3) mortality and morbidity from traffic and other accidents; (4) deaths due to homicide and suicide associated with alcohol; (5) losses in industrial and agricultural productivity; (6) family disruptions, etc.

### 2.2. Existing Data on Alcoholism in Latin America

A comprehensive review of the research on the epidemiology of alcoholism by Saavedra and Mariátegui,<sup>1</sup> and the classic monograph by Horwitz *et al*<sup>2</sup> have discussed the current level of knowledge and the need for multinational, comparative epidemiological research in Latin America. Past studies in individual countries have used a variety of different indicators or measurements for the term "alcoholism," different methodologies, various techniques for sampling, a hodge-podge of population bases--all of which makes the comparability of data from country to

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<sup>1</sup>Saavedra, A., and Mariátegui, J. "The Epidemiology of Alcoholism in Latin America." in Popham, R. E., ed; Alcohol and Alcoholism. Toronto. U. of Toronto Press, 1970, pp. 307-318.

<sup>2</sup>Horwitz, J. *et al*, eds, "Epidemiología del Alcoholismo en América Latina" Buenos Aires. Fundación ACTA, 1967.

country extremely limited. Table I, taken from a recent WHO publication,<sup>3</sup> presents some current estimates of alcoholism and excessive drinking for a few Latin American countries; however, it should be noted that some of these estimates are based on actual surveys of the population, surveys of physicians and nurses, and others on "informed guesses."

TABLE I

ESTIMATES OF NUMBERS OF "ALCOHOLICS" AND "EXCESSIVE DRINKERS" PER 1000 TOTAL OR SPECIFIED POPULATION IN 16 COUNTRIES, FROM RESPONSES TO THE WHO OUTLINE FOR NATIONAL INQUIRY, 1971 AND 1972

Country	Population Base	RATE/1000		Basis of estimate
		Alcoholics	Excessive drinkers	
Argentina	Total population	10-30		Informed guess
Chile	Those over 15 years	50	150	Data from several epidemiological studies
Colombia	Total population	22		Informed guess
Costa Rica	Those aged 15-59 years		80	Survey of representative samples, all Regions
Mexico	Total population	5.5 7.0		1960 Census and questionnaire to doctors. Inquiry by visiting nurses. Minimum figures.

<sup>3</sup>Moser, Joy. "Problems and Programmes Related to Alcohol and Drug Dependence in 33 Countries." World Health Organization. Geneva, 1974.



### 2.3 The Need for Additional Data

It is apparent to anyone who has tried to amass accurate data on the epidemiology of alcoholism in Latin America that there are no reliable estimates for the area as a whole. In most countries, previous studies have focused on urban populations. Sometimes the population bases of the studies have been so limited (for example, males between the ages of 15-59 living in a particular suburb of a large city) that it is impossible to extrapolate the findings.

It can be argued that we know enough about the extent and distribution of alcoholism to know that it is a much bigger problem than we can manage with the available resources. Such an argument, however, is self-defeating. In a situation where there are limited funds and personnel, we must be more devoted to the task of understanding the problem, for we must know, with some certainty, where to invest these resources and how to maximize the effectiveness of our treatment, rehabilitation, and prevention programs.

### 2.4 Current Research by PAHO

With a grant from the United States National Institutes of Alcohol Abuse and Alcoholism, PAHO is now conducting a large-scale epidemiological study of alcoholism in six Latin American cities. It is anticipated that this research will be supplemented by studies in several rural areas. Since customs of drinking are inexorably tied to other social factors and cultural definitions of normative behavior, the study also seeks to describe and analyze the drinking patterns and attitudes of the general public.

The first phase of this research is now under way in Bogota, Lima, San José, Santo Domingo, Caracas and São Paulo. Some 1,200-1,500 adults, selected by random sampling techniques, will be interviewed in each city during the next several months. Data from each city will be detailed enough to permit analysis within subgroups of the city populations and between individual cities. A preliminary report of this phase of the research should be available within the next year. It will summarize the data on patterns of drinking and estimates of alcoholism, and it will also analyze the public's attitude toward drinking, alcoholics, treatment for alcoholics, and normative drinking behavior.

The next phases of this research will involve similar household interview surveys of selected rural areas, the compilation of statistics on mortality and morbidity associated with alcohol, the collection of data on hospital and other treatment admissions, and current data on per capita consumption of alcohol. These various pieces of information will be synthesized to produce the first comprehensive report on the subject of alcohol abuse in Latin America. The report will contain an analysis of the current situation and specific guidelines for program development.

In addition to the epidemiological study, the NIAAA grant makes provision for the operation of two centers for the study of alcoholism in Central and South America. The first of these centers, developed in co-operation with the Government of Costa Rica, is now in full operation in San José. Within the center there are 10 on-going research projects dealing with a variety of topics, including a study of contraband liquor production and distribution, an analysis of the communication patterns in families of alcoholics, an evaluation of treatment programs, an analysis of a rural town's collective response to alcohol problems, etc. In addition, the center has a small library and a publication department. This library will serve researchers in Costa Rica and other neighboring countries. Finally, the center provides short courses for interested professionals from other countries. A second center is planned for Brazil and should be operational within the next year.

## 2.5 Treatment, Rehabilitation, and Preventive Programs in the Region

Costa Rica and Chile have been pioneers in providing for the study and treatment of alcoholism through government agencies. A total of only 10 countries in the Region have alcoholism programs, and many of these are understaffed and underfinanced. In some countries the only treatment or rehabilitative services available are those provided through Alcoholics Anonymous or through physicians in private practice. In several large metropolitan areas in Latin America, the number of hospital beds for alcoholics is very inadequate.

Without comprehensive planning and the allocation of adequate funds for alcoholism programs at the national level it will indeed be impossible to make any advances in this area. Today there is a wealth of information available to aid in the development of sound, effective programs. More of the countries of the Region should be taking active steps toward building up such programs. To be sure, one need not start with a great deal of money, as can be seen in the great strides made in Costa Rica with very limited funds. For example, starting with a small center and a small staff, a great deal can be accomplished, and perhaps the extra burden that these persons would put on the supply of available hospital beds can be alleviated. To be sure, it would be more economical in the long run to treat alcoholic patients through some sort of comprehensive facility with an outpatient capability than to treat them using general or psychiatric hospital beds.

## 2.6 Future Plans

During the next few years it is to be hoped that more of the countries of the Region would reach an awareness of the need for programs in alcoholism. The research PAHO is carrying out and the centers being established for the study of alcoholism should provide a starting-point. Judging by the correspondence received by the Costa Rica center and the number of requests for short courses on alcoholism, one would have to say that the future looks very hopeful.

### III. DRUG ABUSE IN THE REGION

In recent years, problems related to drug abuse have had a tremendous impact on most of the nations of the world. Although these nations share a common problem, the type and magnitude of the problem varies from place to place and from time to time. The WHO Expert Committee on Drug Dependence has described the situation as one of continual change, with no two countries ever exactly alike with respect to the drug abuse problem at any particular time.<sup>1</sup> Given the dynamism of the problem and the attendant difficulties in understanding it, the World Health Assembly in 1970 recommended "the development of improved preventive, treatment, and rehabilitation programs and the pursuit of needed knowledge in the field of drug dependence" and requested the Director-General to "develop means for the international collection and exchange of data on the prevalence and incidence of drug dependence, and on the human and environmental factors associated therewith."<sup>2</sup> The necessity for the collection of reliable data and their analysis and utilization in program planning has been emphasized both by WHO<sup>3</sup> and by other international agencies<sup>4</sup> involved in the drug abuse area.

#### 3.1 Extent of the Problem in Latin America

To date there has been little systematic collection of data on the epidemiology of drug abuse in Latin America. Impressionistic accounts by journalists, police, public health officials, and others have created an atmosphere of fearful and near-hysterical attempts to combat the problem. Preliminary efforts in several countries were directed at tightening up the laws concerning traffic and possession. Venezuela, Argentina, Brazil, and Paraguay were some of the first countries to take this type of action. During the last two years the number of countries taking similar steps has increased, but there is also some evidence that greater attention is being given to prevention, education, and treatment.

Existing data on drug abuse in Latin America are fragmentary and inadequate for program planning purposes. Although studies carried out on other populations (such as the United States of America and Canada) may provide a useful preliminary framework, research should be conducted in Latin America to serve the special needs of this culturally-diverse population.

<sup>1</sup>WHO Expert Committee on Drug Dependence (1970) Eighteenth Report, Geneva (Wld. Health Org. Tech. Rep. Ser. #460), p. 10.

<sup>2</sup>Off. Rec. WHO, 1970, #184, p. 22 (Resolution WHA23.42)

<sup>3</sup>Moser, J.: Problems and Programmes Related to Alcohol and Drug Dependence in 33 Countries. WHO, Geneva, 1974, pp. 8-9.

<sup>4</sup>Moore, J.: A Programme for Drug Use Research: Report of the Proceedings of a Workshop at Frascati, Italy. United Nations Social Defense Research Institute, Rome, July, 1973.

A review of scattered research efforts and data from police and public health agencies reveals that the use of marijuana, amphetamines, hallucinogenic plants, barbiturates, and cocaine is becoming widespread, particularly among adolescents and young adults in urban areas. Many of these drugs --particularly the plants possessing hallucinogenic compounds and coca leaves-- have a long history of use by Indian populations, in religious ritual, as medicinal agents, or in daily life to help relieve fatigue or hunger. Other drugs, such as marijuana, barbiturates, amphetamines, and cocaine, have only recently come into importance, but for more secular-social purposes.

Several countries have initiated some type of research on drug abuse in order to learn its extent and distribution in the population. However, many of the studies have serious methodological weaknesses, both in overall design and content, making their findings difficult to use as accurate estimates of drug abuse in the population. Furthermore, even if we were to rely upon these data, making comparisons from study to study or country to country would be highly unwarranted. In the report of a recent study by Morales et al.,<sup>5</sup> the authors state: "In earlier researches there has been a notoriously wide discrepancy in the figures, due perhaps to differences in the methodologies used, making it impossible to compare them so as to estimate the real prevalence of the problem in the population concerned."

Most of the studies have been of the survey type, administered to high school and college students or to groups of "key informants," such as police officials, teachers, etc. A 1972 study by Morales et al.<sup>6</sup> of a sample of 1,000 students in Bogotá high schools found that 54.6 per cent of the students had used some type of drug at least once, with tranquilizers, amphetamines and marijuana being the most frequently used drugs. Another study by Gomez et al.<sup>7</sup> took a sample of approximately 500 high school students in Medellín and found that 47 per cent of those interviewed had used some type of drug, including marijuana, tranquilizers, and amphetamines.

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<sup>5</sup>Morales, A. et al. Encuesta sobre el uso de sustancias que producen dependencia en la población escolar. Ministerio de Salud Pública, División de Salud Mental, Bogotá, 1973.

<sup>6</sup>Morales, A. et al. Farmacopendencia en alumnos de 23 colegios de Bogotá, 1972.

<sup>7</sup>Gomez, M. et al. Magnitud del consumo de drogas en estudiantes de VI de bachillerato del municipio de Medellín, Dept. de Med. Preventiva, Fac. de Medicina, Univ. de Antioquia, 1972.

Similar research in Venezuela carried out under the auspices of the Special Commission Appointed to Study the Drug Problem in 1972 shows that 85 per cent of all persons aged 15-25 in Caracas have used some drug at least once. However, the Commission warned that much more investigation and study is necessary to obtain reliable estimates of actual usage patterns. In Chile, a study in 1971 reported that 39 per cent of the youthful population of that country uses marijuana.<sup>8</sup> In Mexico, CEMEF has carried out an extensive study on drug use and the results of this study should be forthcoming this year.

### 3.2 Existing Treatment, Rehabilitation and Preventive Programs in Latin America

Several countries, including Venezuela and Mexico, have taken the lead in developing programs of treatment, rehabilitation, and prevention. Other countries have expressed an interest in developing such programs. However, for the most part, drug users in many Latin American countries are considered criminals rather than persons who need medical, psychological, and counseling assistance. The level of effort invested in the control of illicit drug traffic still far outweighs that devoted to the medico-social aspects of drug abuse. Comprehensive programs are needed in the area of drug abuse, but such programs must be formulated on the basis of accurate estimates of the patterns of drug usage by persons who are knowledgeable in the field. Thus, we would caution those Governments, which in response to growing public concern might rush headlong into programs without the necessary preliminary research and training of personnel.

### 3.3 Plans for a Multinational Project on Drug Abuse

It is clear that drug abuse is becoming a widespread social and public health problem in Latin America. At the XX Meeting of the PAHO Directing Council in October 1971 it was resolved that the Director be recommended to continue his efforts toward initiating in Latin America a research project on drug abuse.<sup>9</sup> Given the current situation, the Pan American Health Organization, with the assistance and cooperation of the Governments of Canada and Mexico, organized a working group on the epidemiology of drug dependence in Latin America in February, 1973. Specific guidelines were established for a multinational epidemiological study of drug dependence. Funds for such a study and a technical assistance program aimed at developing professional expertise on drug abuse were solicited from the United Nations Fund for Drug Abuse Control in 1972 and again

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<sup>8</sup>Richard, P. et al. El consumo de marijuana: un problema social en Chile, Univ. Católica de Chile, 1971.

<sup>9</sup>Pan American Health Organization (1972). Final Report, PAHO Directing Council, XX Meeting/WHO Regional Committee, XXIII Meeting, Washington, D.C. (Official Document 111), p. 66 (Resolution XXV).

in 1974. It is hoped that the project might receive financial support this year. However, other sources of support are also being explored rather aggressively.

The epidemiological study would involve the simultaneous collection of data in at least six countries. Included in the study would be a survey of the urban population and the collection of ancillary data from police, hospitals, public health agencies, and from institutional populations. The focus would be toward collecting data from a number of different urban areas within each country rather than from the capitals alone, allowing for a more representative picture of the country as a whole. Although the study would be conducted at one point in time, ideally it could be followed up by subsequent research using the same methods of data collection in an effort to gain an understanding of trends. Data analysis would be centralized in Washington, but in subsequent years each participating country would be expected to develop the manpower for carrying on the epidemiological research. Through the technical assistance program planned for this project, qualified professionals from the various participating countries would receive fellowships and participate in seminars on drug abuse. Thus the project would provide for a multinational epidemiological study and for the development of the requisite manpower to work in the drug abuse field in the future.

Annex

## PART II\*

### EPIDEMIOLOGICAL STUDY OF DRUG DEPENDENCE

#### 1. THE EPIDEMIOLOGICAL APPROACH

Bearing in mind the need to assess ways in which epidemiological approaches could be usefully applied to the study of problems of drug dependence, the Committee reiterated the statement contained in its eighteenth report that no single "cause" of drug dependence has been demonstrated (although many factors have been proposed as playing a part in beginning, continuing, and stopping the use of dependence-producing drugs) and that 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.<sup>1</sup> The major hypotheses about the causes of drug dependence<sup>2</sup> may be classified under three headings: those concerned with the personality characteristics of the drug taker, those concerned with overt mental and/or physical disorders of the persons involved, and those concerned with sociocultural and other environmental factors. Various combinations of such nonspecific factors are probably involved in differing situations and localities. More information is needed about the factors associated with the use of dependence-producing drugs, as well as about the patterns and extent of such use, in order to plan and implement reasonably effective programmes for the prevention and management of the related problems.

Epidemiological approaches and methods have been used in studying a wide variety of diseases, disorders, and pathogenic phenomena ranging from infectious diseases to cardiac and pulmonary disturbances and including hereditary disorders, mental illnesses, delinquency, and accidents. These approaches and methods have been used (1) to determine the prevalence, incidence, and distribution of a condition or disorder in a defined population, (2) to determine the natural history of a disorder, (3) to clarify the etiology and the nature of modifying or precipitating factors, (4) to estimate the group and/or individual risk of developing a disorder, (5) to serve as the basis for policy or programme formulation, (6) to evaluate the effec-

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<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460, p. 11 (section 3.1.1).

<sup>2</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1970, No. 460, p. 12 (section 3.1.1).

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\* From: "WHO Expert Committee on Drug Dependence: Nineteenth Report"  
WHO Technical Report Series No. 526, Geneva, 1973.

tiveness of such policies and programmes in achieving their stated aims, and (7) to identify new syndromes.<sup>1</sup>

Further information about most of the above aspects of the several types of drug dependence is a particularly urgent need in those localities and regions where the use of dependence-producing drugs results in individual, public health, and social problems. There are a number of considerations suggesting that epidemiological methods may be usefully applied to the study of drug dependence. For example, various types of drug dependence generally involve a minority of persons within most localities and age groups, suggesting that it should be possible to identify factors significantly associated with the development of these types of drug dependence. The existence of areas of high and low prevalence within a particular city offers similar possibilities. The social "contagiousness" of drug dependence and the importance of exposure and differences in vulnerability of those exposed are other features of drug-use phenomena that recommend the use of approaches initially adapted to the study of epidemics. Of perhaps greatest persuasiveness, however, is the undoubted multifactorial causation of drug dependence.<sup>2</sup>

Recognizing the potential value of epidemiological approaches to the study of drug use and dependence, the Committee considered that a review of such approaches and methods would be most appropriate and timely. Before embarking on the review, however, the Committee first considered the special problems presented by the application of epidemiological methods to the use of dependence-producing drugs and the extent to which these problems demand modifications in methodology and innovations in the approaches adopted.

## **2. SPECIAL PROBLEMS IN STUDIES OF DRUG DEPENDENCE**

All health disorders have their unique characteristics, which it is part of the epidemiologist's task to help clarify. Drug dependence, however, presents the administrator and researcher with a number of special problems that are, in large measure, peculiar to this field.

### **2.1 Diversity of drugs, users, and environments**

The epidemiologist views the specific profile of the drug-dependence phenomena in any community as involving interactions of drugs, users,

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<sup>1</sup> See, for example, Morris, J. N. (1964) *Uses of epidemiology*, Baltimore, Williams & Wilkins; Reid, D. D. (1960) *Epidemiological methods in the study of mental disorders*, Geneva, World Health Organization (*Publ. Hlth Pap.*, No. 2); *Wld Hlth Org. techn. Rep. Ser.*, 1967, No. 365; 1972, No. 510.

<sup>2</sup> Hawks, D. V. (1970) *Bull. Narcot.*, 22, No. 3, p. 15.



and environments. Each of these three factors presents extremely complex issues. For example, each drug has its particular profile of pharmacological effects, which vary with such factors as the amount, frequency, duration, and route of administration. Some of the conflicting findings in the literature regarding the adverse effects produced by a given drug can often be traced to differences in the pattern of use.

Not all users respond similarly to a given drug. These varied responses are due to the unique somatic and psychic make-up of different individuals and their particular reasons for taking dependence-producing drugs. For example, some persons may be more sensitive than others to a given drug, and the reactions of experienced adult users may be different from those of the novice. The reactions of a given person may also vary from time to time for a variety of reasons, such as changes in the level of tolerance and cross-tolerance, the degree of fatigue, and general mood. The increasing number of multiple drug users adds further complexity to the task of identifying the motives for and consequences of the use of different drugs.

The environmental factors are also complex. Various cultural and subcultural settings present differing social pressures relating to use of drugs. The identification and especially the quantification of these factors is a major task. The analysis and interpretation of their interactions is even more difficult.

## **2.2 Drug-seeking behaviour**

Unlike most individuals with health disorders, those with drug dependence actively seek out the agent or drugs associated with the disorder. Even after experiencing damaging effects associated with the use of certain dependence-producing drugs, users frequently persist in seeking and taking drugs. Only rarely (e.g., with smokers and persons who contract venereal diseases) does the epidemiologist encounter such seeking behaviour on the part of the host. The motivations for drug use are complex; initially there may be simply curiosity, a wish to experience pleasure, or a willingness to accede to peer pressures. Other motivations, such as a desire to relieve or avoid anxiety, fear, or pain, may also be present from the outset. As drug use continues and dependence develops, still other forces may be involved, such as drug seeking as a conditioned response or to avoid the discomfort associated with drug deprivation (including the abstinence syndrome, when present).

Seeking behaviour adds complexity to the epidemiologist's search for the basic causes of drug dependence and for means of preventing or controlling its spread. For many disorders, once the disease-producing agent is identified and its mode of transmission understood, reasonably

effective prevention and control strategies become obvious. Such is not the case with drug dependence, which requires further study of the motives for drug seeking and of the role of personality factors and sociocultural pressures.

### **2.3 Economic profit**

Drug dependence differs from other health disorders in the way that economic profit may operate to promote the spread and continued use of drugs. There may, for instance, be resistance on the part of producers, manufacturers and governments to relinquishing known sources of income. Economic profit in illicit drug trafficking needs no elaboration. This factor must be considered by the epidemiologist because it brings man's intelligence and technical skills to the task of promoting and maintaining this disorder against the best efforts of those who plan and implement programmes for the prevention and control of drug use. Profits from illegal drug trafficking may be used to corrupt law-enforcement officers and other personnel and thereby impair the effectiveness of control systems.

### **2.4 Emotional factors**

The use of dependence-producing drugs is frequently seen as socially unacceptable behaviour for many reasons, including perceived threats to the welfare and morality of youth and to existing value systems. Thus, it is inherently an emotionally charged and controversial subject, and emotional reactions may at times make it difficult for research workers to obtain cooperation for certain types of studies.

A related source of difficulty is the existence of different attitudes towards the use of dependence-producing drugs in different societies and often within the same society. Such use may be variously defined as a disease, a vice, a crime, or as sanctioned social practice, depending on the sociocultural setting. These differing, and often emotionally charged, social attitudes can affect the epidemiologist's objectivity because he may be influenced by his own society's views on drug use.

### **2.5 Involvement of numerous disciplines and agencies**

Epidemiology can proceed with one of its traditional tasks—that of describing the distribution of a disorder or behavioural trait within a population (and the variations in such distribution with time)—only if there is agreement on what constitutes a "case". Providing an answer to that seemingly simple question in the field of drug dependence often

requires the talents of a number of disciplines. Is a "case" to be defined simply in terms of the degree to which the quantity and frequency of an individual's drug use exceeds the norm? Or is it to be defined in terms of his dependence on the drug or in other ways? Once a case is defined, a variety of additional disciplines are necessary to provide treatment, including rehabilitation services.<sup>1</sup>

When one turns to more analytical studies intended to illuminate etiology or identify new syndromes, yet other disciplines are required, such as cultural anthropology, criminology, ecology, economics, education, general medicine, history, pharmacology, psychiatry, psychology, sociology, and statistics. Additionally, in collecting the data necessary for such studies, the research worker must enlist the cooperation of many other persons, such as representatives of the clergy, the courts, the law-enforcement agencies, and the welfare services.

## **2.6 Social disapproval and legal controls**

The nonmedical use of most types of dependence-producing drugs is regarded with some degree of disapproval in nearly all countries. Legal sanctions against behaviour associated with drug taking are almost universal. Thus, persons who take certain dependence-producing drugs often tend to conceal and deny such activity. This tendency on the part of drug users hinders the epidemiologist's efforts to identify cases and collect data. Indeed, case-finding activities may even expose the personnel involved to personal danger.

The responsibilities of various official agencies for different aspects of the management of problems associated with the use of dependence-producing drugs are ordinarily defined by laws and regulations. The assignment of responsibility is affected by social attitudes towards drug taking. In some countries, the responsibility both for controlling the availability of drugs and for managing drug users is assigned largely to enforcement and penal agencies. In other societies, health and welfare agencies are given the major responsibility for the treatment and management of most drug users. The nature of the information in an agency's case records varies with its basic orientation. In those societies in which health agencies are assigned major responsibility, the epidemiologist has an opportunity to function in the health setting for which his methods were originally designed. Congruent goals and traditions on the part of research workers and collaborating agencies facilitate data acquisition, access to subjects, and the opportunity to launch and evaluate intervention experiments.

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<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1967, No. 363, p. 12 (section 1.2).

### 3. TERMINOLOGY

The Committee accepted the following definitions and usages for the purposes of its report.<sup>1</sup>

*Drug dependence.* A state, psychic and sometimes also physical,<sup>2</sup> 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.

*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".<sup>3</sup>

*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".<sup>3</sup>

*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 drug abuse.

*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 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

<sup>1</sup> The explanations given for the terms "drug dependence" and "drug control" are taken from *Wld Hlth Org. techn. Rep. Ser.*, 1969, No. 407, p. 6. Those for the terms "dependence-producing drug" and "nonmedical use of drugs" are taken from *Wld Hlth Org. techn. Rep. Ser.*, 1973, No. 516, pp. 8 and 9.

<sup>2</sup> The Committee believes there are some situations in which physical dependence may occur in the absence of significant psychic dependence. This view was also noted in the fourteenth report of the WHO Expert Committee on Mental Health (*Wld Hlth Org. techn. Rep. Ser.*, 1967, No. 363, p. 8).

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

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:<sup>1</sup>

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

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

(3) cannabis type – preparations of *Cannabis sativa* L., such as marihuana (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 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 type – e.g., toluene, acetone, and carbon tetrachloride.

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

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

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

*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.

*Central case register.*<sup>2</sup> A formal record of defined "cases" maintained by a "central" agency. A "case" may be, for example, a patient with

<sup>1</sup> For a more complete discussion see Eddy, N. B., Halbach, H., Isbell, H. & Seevers, M. H. (1965) *Bull. Wld Hlth Org.*, 32, 721.

<sup>2</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1967, No. 365, p. 11 (section 3).

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

*Problem.* A phenomenon that is judged by some agent or agency as producing or being capable of producing harm to or difficulties for an individual or society, whether or not there is a scientific basis for the opinion. It may later be demonstrated that the phenomenon is or is not capable of producing the presumed harm or difficulties. Conversely, there are phenomena that are capable of producing harm or difficulties, although this has not yet been perceived (e.g., the heavy smoking of cigarettes before such activity was recognized as a health hazard).

#### 4. APPROACHES AND METHODS

##### 4.1 General

Epidemiological approaches and methods, as applied to problems associated with the nonmedical use of dependence-producing drugs, may be considered under three broad headings: those intended to describe the magnitude and extent of the problems, those intended to clarify etiology, and those intended to evaluate the effects of programmes for the prevention or control of such problems. In all these approaches, case definition and ascertainment are of crucial importance.

The Committee noted that when new data are to be gathered, the epidemiologist has an opportunity to establish the definitions, criteria, and means of measurement that he will use in making observations about the presence or absence of the phenomena in which he is interested. This makes it possible for a number of workers to agree in advance on the definitions and criteria that they will use in a collaborative effort and for an independent worker to adopt those used by a number of others when such a procedure will not only serve his purpose but enhance the usefulness of the data. On the other hand, the lack of common definitions and criteria often makes it difficult or impossible to compare one study with another.<sup>1</sup>

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<sup>1</sup> Berg., D. (1970) *Int. J. Addict.*, 5, 777.

In terms of precise and consistent definition, the concepts of "non-medical use of drugs" and "drug dependence" offer a particular challenge. While the definitions of these terms given in section 3 (Part II) cover a particular range of phenomena, they are not sufficiently specific to be useful in field surveys.<sup>1</sup> The Committee considered it desirable to obtain a wide variety of specified descriptive data relating to the use of dependence-producing drugs before deciding on the constellation of phenomena to be characterized by such terms as "drug dependence" or "excessive use of drugs". This procedure should ultimately lead to the development of empirically based, operational definitions.

Information on the following matters was considered important in this connexion.

#### 4.1.1 *Patterns of drug use*

A pattern of drug use is a description of the nonmedical use of drugs in terms of the types of drugs taken, the quantity, frequency, and duration of their use, the route of administration (e.g., ingestion, inhalation, or subcutaneous or intravenous injection), and the circumstances of their use. The pattern may relate to behaviour over a long or short time span, but the time base selected should be specified. It is proposed that this relatively straightforward descriptive method be utilized in an attempt to obtain objective and quantifiable information on the way in which drugs are being used rather than to decide whether a particular pattern is "use", "misuse", "abuse", or the consequence of drug dependence. It would be most desirable to develop a number of simple objective field or laboratory tests<sup>2</sup> (for example of urine or saliva samples) to supplement psychological and other assessment methods. Analyses of this kind, using multiple sources of information on the habits of persons under study, might provide a means of checking the validity of various assessment techniques.

#### 4.1.2 *Quantification of drug dependence*

Drug dependence, with its many sociocultural, personal, and drug variables, is an especially difficult concept to quantify. Physical dependence, in any of its forms, is easier to describe and measure than is psychic dependence. In view of these difficulties, it is suggested that the problem may be most usefully approached by assessing certain quantifiable aspects of drug use. These may conveniently be grouped under 5 headings that permit operational definition:

- (1) signs and symptoms associated with current drug use;

<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1967, No. 365, p. 16 (section 5).

<sup>2</sup> Such tests would indicate the recent use of certain drugs, but not necessarily "nonmedical use" or "drug dependence".

- (2) signs and symptoms associated with deprivation (withdrawal) of drugs, assessed by frequency and intensity of occurrence;
- (3) attitudes of users toward drug use and their perceptions of the worth of drugs;
- (4) degree of personal involvement in drug-taking behaviour;
- (5) degree of involvement with a drug-taking milieu.

Responses to questions on these 5 aspects may help to define the problems associated with drug taking and provide a basis for quantifying the presence and intensity of drug dependence.

#### 4.1.3 *Adverse consequences of drug use*

In the operational approach suggested, a simple listing of occurrences of adverse effects is required. As far as possible, the intensity of the phenomena should also be recorded, and it is often useful to tabulate the frequency of occurrence of specific consequences within specified time periods. The check-list of possible consequences will vary in different cultures, age groups, sex groups, and so on. Certainly, however, the causes of all hospital admissions of known drug users should be obtained. Conditions specifically inquired about might include drug overdose, septicaemia, hepatitis, abscesses, various types of toxic psychoses, and abstinence phenomena. Some indication of the severity of the condition treated may be obtained (depending on the system of medical care prevailing in a country) by differentiating between inpatients in a hospital<sup>1</sup> and outpatients in a clinic or general practice. It must be recognized, however, that some persons with quite severe conditions may be officially "untreated" if cared for in informal settings, e.g., by people sharing the user's accommodation. Additional inquiry might be directed toward problems in school or job (e.g., inefficiency, dropping out, or dismissal) and difficulties in interpersonal relationships.

#### 4.1.4 *Summary*

In sum, the approach to case definition suggested in this report consists in the collection of information on patterns of drug use, drug dependence, and adverse consequences of use. The latter may result from man-drug interaction (e.g., toxic psychoses) or man-society interaction (e.g., dismissal from job or school). While no one of these three sets of data can be used to identify drug dependence, the information acquired is relatively objective and quantifiable, and it is to be expected that studies on the relationship between the three areas will lead to the identification of further empirically based case syndromes.

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<sup>1</sup> With such cases it is useful to note the length of stay.



The problems of case definition and ascertainment also arise when the research worker tries to make use of existing data sources such as death certificates, clinic records, or central case registers and finds that they are incompatible with the precise definitions and systems of measurement that he has developed. Agency records are usually maintained to serve the needs of the organization and not necessarily to provide assistance to the epidemiologist. In view of this type of difficulty, the researcher must be ingenious and cautious in the use of existing records. Since these data sources can often be of great value, it is important to develop guidelines for the organization of record systems and for the retrieval of data from them. The work of WHO on the standardization of psychiatric diagnoses—a part of its broader activities in connexion with the international classification of diseases<sup>1</sup>—provides an illustration of the way in which developments may proceed. Recently, a proposal has been made to incorporate in the 9th revision of the *International Classification of Diseases* an expanded classification scheme for drug and alcohol dependence. The proposal also stresses the need for the multiple coding of diseases. This approach is a useful beginning, and it is to be hoped that similar classifications can be developed for other aspects of drug use.

#### 4.2 Magnitude and nature of the problem

It is difficult to describe the magnitude and nature of drug use and dependence in populations because of the complexities of case ascertainment and because of differences in the definition and classification of drug-taking behaviour. Nevertheless, it is useful to have some estimate of the nature and extent of drug use in a community, and several methods and data sources can be helpful in developing such estimates.

##### 4.2.1 Available sources of data<sup>2</sup>

Much epidemiological research is based on the use of available sources of data, e.g., death certificates, post mortem reports, and morbidity records. While these data are of established value in the study of many diseases, they are generally less useful in studies on the nonmedical use of drugs and drug dependence, primarily because of the special problems associated with drug use (Part II, section 2). There can be no assurance, without special studies, that any particular subgroup of drug users who come to the attention of investigators (e.g., those attending a clinic) is representative of all or a significant proportion of the total population of users (e.g.,

<sup>1</sup> World Health Organization (1967) *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, 1965 Revision*, Geneva.

<sup>2</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1967, No. 365.

those within the area served by the clinic). Such a self-selected sample may be quite atypical of the total. These difficulties, which are by no means unique to drug dependence, are compounded by the constantly changing nature of the drug scene. Particular drugs may become fashionable among a certain subgroup, while another may be more involved with other drugs. Regional variations in use may be considerable even within one country, partly reflecting the kind of drugs available and partly reflecting other subtle and as yet unknown influences.

The major sources of data on drug use and dependence may be classified under the following headings.

#### *Indicators of drug production and consumption*

The International Narcotics Control Board provides annual reports on the licit production, export, import, and medical consumption of drugs controlled under international instruments for most countries of the world. Comparable data on illicit production and consumption are, of course, not available. However, the United Nations does receive and compile governmental information on illicit production, drug traffic, and seizures, as well as on known users. Data from certain countries may be fragmentary or lacking, and the criteria used for recording such data often vary from country to country. Despite these shortcomings, the reports have some usefulness from the epidemiological viewpoint in indicating possible long-term trends in the volume of trade in legally produced drugs and in indicating the regional availability of certain drugs for nonmedical use. The usefulness of these data is enhanced when they are related to other information concerning the use of the drugs in question.

Quite apart from international and national records on production and consumption, inquiries at regular intervals among hospital patients and outpatients have given information on the habits of drug users and changing patterns of drug use and have helped to alert other medical services and nonmedical agencies to new situations. In countries where a national health service exists, continuing surveys of prescribing practices give information on the current use of psychotropic drugs in therapeutics. A comparison between the quantity of drugs available and the quantity used therapeutically may reveal discrepancies, suggesting the magnitude of the use of such drugs without medical prescription.

#### *Indicators of possible health effects<sup>1</sup>*

Studies of the morbidity and mortality associated with drug use afford an opportunity to estimate the magnitude of the problem associated

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<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1967, No. 365, p. 2 (section 2).

with this behaviour. Traditionally, the epidemiologist approaches the study of mortality by reference to death certificates and autopsy reports. However, death certificates are of limited usefulness in studying the prevalence and incidence of drug dependence because death is only occasionally a direct consequence of drug dependence. While drug users may show higher than average death rates from such associated causes of death as suicide, homicide, and accidents, these causes of death cannot necessarily be considered as direct results of drug use. Similarly, drug users may have higher than average death rates from hepatitis and other complications related to the mode of drug administration, but these diseases are associated with drug-use behaviour and are not a direct result of the drug *per se*. However, alcoholism or drug dependence should be given on the death certificate as a contributory cause of death.

Formal systems of death certification do not exist in many parts of the world, but where they do it is possible to take advantage of the records in several ways. They may be used to determine whether drug users have a higher mortality rate than non-users and whether they show a different pattern of causes of death. The usefulness of death certificate studies is well illustrated in the study of alcoholism, since deaths from liver cirrhosis may be used to provide an indirect estimate of the prevalence of alcoholism in the population.<sup>1</sup> While no similar estimates can yet be made for other forms of drug use, it is not inconceivable that methods of making them may be developed as death certificate research in this area goes forward. Studies of the recorded causes of death of known alcoholics have also yielded useful information; for example, alcoholics have a mortality rate 2 to 3 times the expected rate and deaths from violence (accidents and suicide) are about 20 to 30 times the expected rate. Comparable studies with respect to known users of other drugs might likewise be useful.

Coroners' reports also are of substantial assistance in this field. One such approach is illustrated by the report of Cherubin et al.<sup>2</sup> on deaths among narcotic users in New York City. The cause of death assigned the vast majority of decedents in this group was acute and/or chronic narcotism. However, the immediate cause of death was often considered to be the result of idiosyncratic reactions to the intravenous injection of foreign materials with which the drugs were mixed and not to a pharmacological overdose of drugs *per se*.

In addition to these studies of mortality, other data sources are available for the study of morbidity. Thus, admission to general and psychiatric and other specialized hospitals may provide some indication of the nature

<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1951, No. 42, Annex 2.

<sup>2</sup> Cherubin, C., McCusker, J., Baden, M., Kavalier, F. & Amsel, Z. (1972) *Amer. J. Epidem.*, 96, 11.

and magnitude of the morbidity associated with drug use. Clearly, these admissions data in no way yield a representative picture of the nature and extent of drug use in the community, since those admitted to hospitals are a highly selected subgroup drawn from the general drug-using population. Many factors may influence the admission of drug users to hospital. For example, it is quite possible that high rates of admission merely reflect such factors as a diminished supply of drugs in the community or changes in admission policy. Nevertheless, with care, admission data can provide useful information, especially when considered together with various other data drawn from the community. Other sources of morbidity data include records of drug clinics, registers of notifiable diseases (e.g., hepatitis), police records, central registers of drug users, and reports by selected physicians and student health services.

#### *Indicators of the social consequences of drug dependence*

A variety of data sources on the social consequences of drug dependence are available. For example, in the occupational sphere, records relative to absenteeism and payments of unemployment and sickness benefits are of interest. The school attendance patterns of young drug users and non-users can be examined by reviewing school records and interviewing teachers and school administrators. Records of welfare agencies providing care for dependent children or assistance with housing may also be useful. Police and court records may reveal trends in drug use. In utilizing all such records, particular attention must be given to the possible influence of announced or unannounced changes in the policies of the agency involved.

#### *Informal indicators*

There are other quite informal sources of information that may give exceptionally useful clues about actual or possible changes in local drug-use patterns. Among these are press reports (including the underground press), "street" rumours, information from active and former drug users, and changes in the nature, potency, and/or adulteration of "street" drugs.

None of the available indicators of production and consumption, morbidity and mortality, social consequences, or local happenings gives by itself an accurate measurement of the extent, distribution, or nature of the problem posed by drug use and dependence. Each of them, however, provides a part of the total picture. The challenge is to use as much ingenuity as possible to derive data from as many diverse and heterogeneous sources as possible and to integrate these various "bits and pieces" with great care.

#### 4.2.2 *Central case registers*

Central case registers (Part II, section 3) have proved to be very useful tools in determining epidemiological factors, such as the prevalence or incidence of a disease, condition, or behaviour or the outcome of a disorder, with and without intervention. They have also proved helpful in achieving more effective control programmes and in preventing such occurrences as the multiple prescribing of methadone or other drugs for narcotic-dependent persons enrolled in maintenance programmes.

In efforts to estimate the magnitude of drug dependence in the community, central case registers can be of considerable use. However, it is difficult to maintain reasonably complete registers related to the taking of dependence-producing drugs because of the social disapproval and secrecy often associated with drug-taking, which make it difficult to obtain reliable data, and because of diagnostic problems — if diagnosis of drug dependence is a criterion for including a name in the register. The maintenance of a central case register is further complicated by the need to ensure the confidentiality of the contents of the register and of the sources of information (unless, of course, the information is a matter of public record). The risk of intentional or accidental disclosure is always present whenever such records are maintained.

Many people believe that the actual and potential difficulties of keeping central case registers in the field of drug dependence can in some circumstances outweigh the benefits to be obtained. When central case registers are kept, those responsible for their maintenance must stipulate the data to be requested, and the information obtained must, if possible, cover the nonmedical use of all dependence-producing drugs.

The usefulness of data maintained in central case registers can often be enhanced by record linkage<sup>1</sup>—the bringing together of two or more separate documents or sets of information concerning a particular individual or family. Indeed, this process is often carried out to advantage even in the absence of a central case register. However, there are often difficulties in carrying out such procedures owing to lack of suitable identifying information, to problems of administration and definition, and to the fact that the problems associated with the confidentiality and security of records are compounded when record linkage is undertaken.

#### 4.2.3 *Surveys*<sup>2</sup>

The prevalence of drug use and dependence in the population may be estimated not only from existing records and case registers but also by means of a community survey. Since prevalence estimates are generally

<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1967, No. 365, p. 14 (section 4).

<sup>2</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1966, No. 336; 1967, No. 365; 1972, No. 510.

desired for large population groups in entire regions and countries, some form of sampling technique is usually needed. The basic strategy is to select a representative sample of the population and to count the number of persons using drugs of particular types in particular ways. This is a relatively expensive approach, but it offers the advantage of detecting cases in the general population that may never have come to the attention of official agencies or organizations. As previously noted, the major difficulties of this method are those of case definition and ascertainment. Also, in practice, it is rarely possible to select a representative sample<sup>1</sup> of the general population that will reflect the prevalence of drug dependence or the nonmedical use of drugs. Thus, a number of alternative, stratified samples may be necessary (e.g., of students, school-leavers, employed and unemployed persons, prisoners, and those involved in accidents).

Given the difficulty of identifying persons who take dependence-producing drugs, special case-finding approaches may be required to obtain reasonably accurate incidence and prevalence data. Several investigators<sup>2</sup> have developed casefinding strategies resembling those developed in connexion with venereal diseases, where initial case contacts are used to help the epidemiologist 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.

### 4.3 Etiology

A good deal of epidemiological research is directed towards the identification of etiological factors in disease and behaviour. Important research strategies in this connexion include cross-sectional, retrospective, and prospective studies.

#### 4.3.1 Cross-sectional studies

The cross-sectional survey is intended to provide information at a single point in time regarding the association between risk factors and a particular disease or condition. In this type of study, no attempt is made to test specific etiological hypotheses since the focus is on the relationship between the study variables and the prevalence of disease. In studying the nonmedical use of dependence-producing drugs, this approach has

<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1966, No. 336, p. 4 (section 2); 1972, No. 510, p. 11 (section 3).

<sup>2</sup> Alarcon, R. de, & Rathod, N. H. (1968) *Brit. med. J.*, 2, 549; Hughes, P. H., Senay, E. C. & Parker, R. (1972) *Arch. gen. Psychiat.*, 27, 585; Kosviner, A., Mitcheson, M., Myers, K., Ogborne, A., Stimson, G. V., Zacune, J. & Edwards, J. G. (1968) *Lancet*, 1, 1189.

several limitations. The condition may be relatively uncommon in the general population, so that the likelihood of uncovering enough cases for study is low, and many drug users are reluctant to be identified. Furthermore, when cross-sectional information is obtained regarding the characteristics of users, it is difficult to determine whether the characteristics observed preceded, followed, or developed concurrently with drug-using behaviour. These surveys can be conducted relatively quickly and inexpensively, however, and often provide very useful information on potentially significant associations. Moreover, when they are conducted in representative samples of the community, they may serve not only to provide estimates of the prevalence of conditions in the population but also as a basis for selecting subjects for prospective and retrospective studies.

A frequent problem in interpreting cross-sectional and other etiologically oriented studies is the finding of statistically significant associations between drug-using behaviour and a variety of factors postulated to be of etiological significance. Questions arise concerning the relative importance of the factors and of differing combinations of them. There are a number of multivariate statistical techniques that may help to resolve this problem. The automatic interaction detector computer programme of Sonquist & Morgan,<sup>1</sup> for example, was used by Lanese et al.<sup>2</sup> to assign major importance to 3 factors influencing adolescent smoking behaviour from among 12 factors significantly associated with such behaviour.

#### 4.3.2 Retrospective studies<sup>3</sup>

The retrospective approach is a particularly useful one in the study of diseases or conditions of low incidence. It involves the location of existing "cases", the selection of appropriate comparison groups, and the examination of past events or influences in relation to the present status of the subjects. Since cases are usually drawn from sources such as hospitals, clinics, prisons, or military groups, the degree to which they are representative of all the cases in the population is a matter of concern. The selection of appropriate comparison groups is essential but often difficult, since it is rarely possible to choose a control group that is entirely representative of the population from which the cases were chosen. The magnitude of this problem varies greatly according to the particular purposes of the study and other circumstances. When there is doubt regarding the choice of a control group, it is quite possible to select more than one control group from different sources.

<sup>1</sup> Sonquist, J. A. & Morgan, J. N. (1964) *The detection of interaction effects*, Ann Arbor, Survey Research Center, Institute for Social Research, University of Michigan (Monograph No. 35).

<sup>2</sup> Lanese, R. R., Banks, F. R. & Keller, M. D. (1972) *Amer. J. publ. Hlth.*, **62**, 807.

<sup>3</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1972, No. 510, p. 19 (section 5.1).

All retrospective studies are impaired by the inaccuracy of recall of past events, and these difficulties are especially severe in the field of drug dependence. However, the retrospective approach is less expensive and time-consuming than the prospective design. Like the cross-sectional approach, it does not permit the determination of time sequences among the factors being studied, since sample selection is made when the subjects are already affected. This is particularly troublesome in the study of drug use and dependence since the time sequence of associated factors is often of special interest. Thus, if it is found in a retrospective study that drug users have particular personality patterns, certain types of family relationships, specified job difficulties, and so on, it is impossible to tell whether these conditions or events preceded or followed the taking of drugs. Even if it could be determined that an observed characteristic developed after the subject began to use drugs, the assumption of a causal relationship would seldom be justified.

#### 4.3.3 *Prospective (cohort) studies*<sup>1</sup>

The classic prospective study involves the longitudinal study of a group or cohort initially free of the disorder in question. The potential etiological significance of factors initially studied can be assessed as disorders or events occur over a period of time among some members of the group. Since the characteristics of persons are studied prior to the occurrence of the disorder, the predictive usefulness of risk factors can be assessed in relation to the incidence of disease or other events. A distinction should be noted between the prospective (cohort) study, where those initially free of a disorder or particular behaviour are followed, and the follow-up or outcome study, where a group of affected persons is followed over a period of time. Certain aspects of the natural history of the use of dependence-producing drugs may be studied utilizing either method. While both approaches involve longitudinal study, the prospective study has traditionally been concerned with the study of risk and etiological factors and the incidence of disorders or events, while the follow-up study focuses on the consequences and course of disorders or events.

The prospective design has serious limitations in the study of conditions in which there is a relatively low incidence in the general population. In such circumstances, the researcher must either begin with an impractically large study group or follow a study group for an impractically long period of time. One way of increasing the yield of cases in this circumstance is to follow a population group known to be at relatively high risk. Thus, school drop-outs or persons from broken families might constitute groups in which the incidence of drug use might be expected to be higher

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<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1972, No. 510, p. 19 (section 5.1).



than in the general population. Findings from this type of study are not, of course, representative of the general population.

While dependence on such drugs as hallucinogens, amphetamines, and opiates has a relatively low incidence in the general population of most countries, the incidence of alcoholism is often substantial. Moreover, in some countries, the incidence of experimental and recreational use of other dependence-producing drugs, such as cannabis and certain sedatives, is also substantial. Since drug use is a necessary precursor to the development of drug dependence, since the problems associated with drug dependence are so costly in both human and economic terms, and since prospective studies may be expected to enlarge our knowledge about the etiology as well as the incidence of drug taking and drug dependence, it is essential that increasing attention and support be given to such studies and to quasi-prospective studies of the type noted in the next section.

Prospective studies are expensive, laborious, and time-consuming. Before initiating them it is well to have available a fairly clear set of hypotheses that have been generated by previous observations and that now require prospective confirmation.

#### 4.3.4 *Quasi-prospective (cohort) studies*<sup>1</sup>

An interesting variation of the prospective study design is the contemporary survey of a cohort of persons selected from a high-risk group on the basis of information available from an earlier time. Thus, Robins & Murphy<sup>2</sup> studied a group of Negro men whose names were selected from elementary school records dating from 26 to 30 years previously. When interviewed as adults these men were asked about their use of marijuana, barbiturates, amphetamines, and opiates. The answers they gave as adults could then be analysed in relation to data available in the original school record. In this study, subjects were selected for investigation prior to their first exposure to drugs, and the findings could thus be considered predictive. This research design avoids some of the expense and time-lag associated with the classic prospective design, but great care must be taken to locate as many members of the cohort as possible. Since many years may have elapsed since the original records were prepared, the tracing of subjects can prove difficult. Drug users in particular are more likely than others to be missed owing to migration, death, or imprisonment.

#### 4.4 Programme evaluation

Epidemiological approaches and methods have been useful in evaluating the effectiveness of health programmes, and it is to be hoped that they will

<sup>1</sup> Sometimes referred to as "retrospective longitudinal studies". See *Wld Hlth Org. techn. Rep. Ser.*, 1972, No. 510, p. 19 (section 19).

<sup>2</sup> Robins, L. N. & Murphy, G. E. (1967) *Amer. J. Publ. Hlth.*, 51, 1580.

also be helpful in evaluating policies and activities (interventions) intended to prevent or control problems associated with the nonmedical use of dependence-producing drugs and hence in facilitating the development of effective community and other intervention programmes. Some general approaches to intervention in drug dependence problems include (1) regulatory and enforcement practices to limit drug availability; (2) punitive measures and other sanctions against drug users; (3) treatment and rehabilitation of drug-dependent persons; (4) educational efforts to discourage drug use; and (5) the provision of attractive alternative activities to groups at high risk. The field trial<sup>1</sup> offers an opportunity to observe the effects of various intervention modalities in limited population groups prior to their more general application in the community. Such field trials or pilot studies can be of three general types: before-and-after studies, "natural experiments", and controlled field trials.

#### 4.4.1 *Before-and-after studies*

In a before-and-after study, a community group is surveyed to establish baseline observations prior to the initiation of a health or other intervention policy or activity. At some later time, a second survey is undertaken so that post-intervention findings can be compared with the baseline observations. In this type of study, the investigator is often uncertain whether post-intervention changes can be attributed to the effects of the programme or to the effects of other unrelated events that might normally have occurred in the community with the passage of time. Clearly, it would be desirable to have available a control or comparison community so that the effects of these extraneous influences might be estimated, but it is usually difficult to achieve this ideal. With appropriate caution and adequate effort, however, this relatively straightforward approach is of substantial use in the evaluation of various types of intervention programme.

#### 4.4.2 "Natural experiments"

A change of policy or programme often has observable consequences in the community and can therefore be regarded as a "natural experiment". Investigators taking advantage of these "natural experiments" can obtain useful information. An interesting example involving international comparisons is provided by the work of Terris,<sup>2</sup> which shows the divergent trends in the USA and the United Kingdom in mortality resulting from cirrhosis of the liver. Terris noted that these differences could be related to variations in drinking patterns, stemming from differences in national regulatory and tax policies.

<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1972, No. 510.

<sup>2</sup> Terris, M. (1967) *Amer. J. publ. Hlth*, 57, 2076.

#### 4.4.3 *Controlled field trials*<sup>1</sup>

In the controlled field trial, persons or groups are allocated either to "treatment" or to "control" status. The treatment group is exposed to a specified intervention and the results are compared with those observed among the control or comparison group. This approach provides a relatively sound basis for drawing inferences regarding the effects of the intervention. However, experiments of this kind are difficult to conduct in natural community settings and there is always the chance that control persons or communities may be accidentally exposed to the intervention. Although such exposure may not necessarily invalidate the comparison, it may diminish its sensitivity. A related problem associated with the field trial is that usually only motivated persons are willing to participate in it and the findings are therefore not necessarily applicable to the general population.

### 5. SOME PRIORITY RESEARCH AREAS

In reviewing epidemiological approaches to the study of drug dependence, the Expert Committee emphasized the urgent need for increased research effort in four areas—etiology, ascertainment methods, evaluation methods, and natural history studies.

#### 5.1 *Etiology*

Recognizing the limits of available knowledge and understanding of the causes of the nonmedical use of drugs and drug dependence, the Committee urged that further research be initiated to characterize those persons most vulnerable or susceptible to various forms of drug dependence. Such research should be broadly oriented and include work on (1) personality factors and coping skills, (2) responses to authority and control, (3) the personal and sociocultural contexts of attitudes and value-judgements relative to drugs, and (4) interpersonal relationships with special reference to peer, family, and friendship networks. It is to be hoped that the characterization of persons and groups at high risk of becoming drug dependent will lead to the development of increasingly effective strategies of prevention.

There should also be an increase in research on the ways in which sociocultural values and beliefs influence drug-taking behaviour. It is probable that the national and local cultural contexts within which dependence-producing drugs are used have an important bearing on the incidence, prevalence, severity, and consequences of drug dependence.

<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1972, No. 510.

## 5.2 Ascertainment methods

The Committee considered that further research was needed to develop reliable and valid methods of describing events related to the nonmedical use of dependence-producing drugs and of defining cases of drug dependence within acceptable limits of sensitivity and specificity. The problems involved have been extensively discussed elsewhere in this report (e.g., Part II, sections 4.1 and 4.2). The availability of such methods would be most useful in monitoring trends in different communities so that new outbreaks or changes in patterns of use could be detected quickly and possible etiological factors identified.

## 5.3 Evaluation methods

In developing effective intervention techniques, it is essential that the costs and benefits of alternative approaches be systematically evaluated.<sup>1</sup> The challenge in this area is not only to envisage new and potentially more effective means of intervention but also to devise ways of designing intervention trials for assessing the effectiveness of measures before applying them widely.

Because of both a marked increase in concern about the seriousness of public health and social problems associated with the nonmedical use of dependence-producing drugs and an apparent increase in drug-taking behaviour in many parts of the world, many communities and countries have launched, or are preparing to launch, extensive and often expensive programmes for prevention, treatment, and control without prior or simultaneous evaluation of their usefulness. Such communities understandably believe that "something must be done". However, this is no reason not to undertake evaluative studies of what is being done or of what may be done in the future. Particularly is this so since there is evidence to suggest that some past policies and programmes may have been counter-productive. Further, programmes that may be effective in one sociocultural setting may be ineffective in another. Improved methodology is needed to facilitate the studies urgently needed in this field.

## 5.4 Natural history studies

Research on the natural history of the nonmedical use of dependence-producing drugs and drug dependence is of prime importance. Longitudinal studies that start from the identification of an already affected indi-

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<sup>1</sup> 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., US Department of Justice (BNDD contract No. J-70-33, final report).

vidual rather than from an as yet unaffected group are useful in defining the natural history or evolution of the condition or behaviour once it has become established and the frequency of serious complications or death, but not necessarily the etiological factors involved (Part II, sections 4.3 and 5.1). One follow-up study of young people found to be dependent on drugs of the amphetamine type demonstrated the prognostic significance of specific aspects of their drug-taking behaviour. Similarly, follow-up studies of alcoholics have shown a high mortality among them from suicide and accidents as well as cirrhosis of the liver. In such mortality studies, the experience of the drug-dependent group can be compared either with that of a matched sample of persons not dependent on drugs or with the actuarial expectation based on national death rates for persons of the same age during the same period.

The natural history of drug dependence involves not only the man-drug interaction but also the man-society interaction, which stems largely from the drug user's being involved in socially unacceptable behaviour. For example, a drug user who is in the experimental, casual-use, or even dependent-use phase of drug taking may have experienced little, if any, personal harm from his pharmacodynamic interaction with a dependence-producing drug. However, if he is a student and is expelled from school for his behaviour and precluded from entering another school, his entire life may be adversely affected. This is not to say that he should or should not be expelled for drug-taking behaviour but that such expulsion is a significant event in the man-society sphere of interaction and is a part of the natural history of drug taking.

Studies on this subject will, it is to be hoped, enhance our understanding of such behaviour and yield insights leading to increasingly effective preventive and rehabilitation programmes.

## 6. COMPARABILITY

Comparability of research methodology is essential for the repeating of experiments, the accumulation of a systematic body of scientific knowledge, and the generalization of findings. That such comparability of method is urgently needed in the study of drug dependence is clearly revealed by the efforts of those attempting to summarize and synthesize available findings. One such review, prepared by Berg,<sup>1</sup> attempted to summarize and collate data on the nonmedical use of "dangerous drugs" from 69 surveys. This effort was severely hampered by the almost total lack of comparability among the studies at almost any level of abstraction. Thus, questionnaire items on drug use did not distinguish past from current

<sup>1</sup> Berg, D. F. (1970) *Int. J. Addict.*, 5, 777.

drug use; "users" variously included the experimenter, the current user, the drug-dependent user, and the ex-user; sampling designs were diverse and non-comparable; official agencies varied enormously in their definitions of drug use; and methods of data collection ranged from personal interviews to "secret ballots". If advances in understanding are to be made, it must be possible for workers to compare observations, share findings, and discern repetitive and consistent patterns when they are present. For these reasons, comparability between studies in this field is an urgent priority. It is to be hoped that the utilization of existing, and the development of new, means of fostering such comparability will increase the ease with which collaborative research projects can be mounted. Collaborative projects often make it possible to add the data from a study in one locality to those obtained in another and thus to establish significant findings with greater speed than would otherwise be the case.

The methods of increasing the number, comparability, and usefulness of studies relating to the nonmedical use of dependence-producing drugs and drug dependence involve a variety of interrelated activities, which are discussed in the following paragraphs.

#### **6.1 Development of comparable methods and systems of measurement**

The Expert Committee considered that even if a modest beginning were made on the development of comparable methods and systems of measurement, much would have been accomplished. Thus, it would be a great advantage if comparable data were available on such relatively straightforward matters as the amount, frequency, duration, and route of administration of particular drugs now used or used in the past. Some precedent for this is available from work on cigarette smoking, where standardized questionnaires have been developed on the number and type of cigarettes smoked, inhalation, spacing, and so on. A brief, simple questionnaire on drug use would at least provide a beginning in a field where comparability is obviously very important but difficult to achieve. Simple questions might also be developed regarding attitudes and perceptions. In addition, of course, the questionnaire would cover such basic data as birth-date, sex, race, residence, education, and occupation. Obviously, progress on this problem would increase the likelihood of mounting effective programmes of national, cross-cultural, and international research.

To help foster the development of reasonably standard questions and other means of gathering comparable data, the Committee suggested that WHO should consider inviting selected institutions and investigators to keep the Organization informed about the progress of their work and to submit copies of such instruments or individual questions as they believe

might be helpful in developing standard methods for use by future investigators and record-keepers. With such information at hand, WHO would be in a position to facilitate communication between investigators as they develop their respective studies and to facilitate the development of standard methods. Such activities might be undertaken by WHO on a pilot basis to determine their usefulness and feasibility.

## **6.2 Development of precise terminology**

The definitions offered in this and previous WHO reports will, it is hoped, provide a basis for the development of more precise terminology and more useful and uniform reporting systems. The need at present is to encourage the widespread use of more precise terminology in research work.

## **6.3 Collection and retrieval of data**

A large body of data on the nonmedical use of dependence-producing drugs and drug dependence has been accumulating over the years. The need to organize these data in order to facilitate their retrieval was noted by the WHO Expert Committee on Addiction-Producing Drugs in 1957<sup>1</sup> and has been referred to repeatedly by subsequent Expert Committees. A number of information storage and retrieval systems already exist, including the "Classified archives of the alcoholism literature", at the Rutgers University Center of Alcoholism Studies, New Brunswick, N. J., USA, and the index of *The pharmacology of the opium alkaloids*.<sup>2</sup> Other sophisticated systems are being developed at the United Nations Narcotics Laboratory and in Canada, the United Kingdom, and the USA. To ensure an effective coverage of information sources and to avoid the duplication of work, it is important to improve the coordination of these various efforts.

The Committee considered that the convening of meetings of persons actively interested in systems for the storage and retrieval of data in the field might be an important means of stimulating coordination and co-operation.

## **6.4 Collaborative research**

Another effective method of furthering comparability of work in this field is to use the well established mechanism of the collaborative project, in which investigators from different centres agree to participate in a joint

<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1957, No. 116, p. 11 (section 11).

<sup>2</sup> Krueger, H., Eddy, N. B. & Sumwalt, M. (1941) *The pharmacology of the opium alkaloids*, Washington, D.C., US Public Health Service (*US Public Health Reports*, Suppl. 165), 2 vols.

research venture. Identical, or at least comparable, definitions and methods are developed in advance and agreed upon by the investigators. Methods would be further shaped and refined in the course of the study.

One important use of collaborative studies is to combine data from a number of sources in order to get a sample of sufficient size to permit meaningful statistical analysis. The clinical or other resources of a given centre may be too meagre to permit the collection of an adequate sample within a reasonable period of time. Thus, studies of high-risk groups and of those already dependent on drugs would immediately benefit from collaborative efforts.

It is conceivable that collaborative research would yield new standards for the conduct of both national and international research, as well as urgently required information on the causes and consequences of drug dependence in various parts of the world.

#### **6.5 Promotion of research and training**

Although there is an urgent need to increase substantially the available fund of knowledge about the causes and consequences of the nonmedical use of dependence-producing drugs, relatively few research personnel and centres are devoting themselves primarily to such studies and many other researchers and centres that are qualified to make contributions are engaged in only a relatively minor way owing to lack of time and motivation. For these reasons it is essential (1) to foster the development of additional specialized research and training centres, particularly in areas of the world where they do not now exist, (2) to increase the support available to certain of the existing specialized centres, (3) to enlist the interest and enthusiasm of strong nonspecialized research centres in devoting more of their resources to studies and teaching in this field, and (4) to provide an increasing number of fellowships to promising professionals who wish to gain special competence in the subject. It is important that behavioural scientists, clinicians, epidemiologists, statisticians, and others be involved in relevant research and training programmes. The Committee was of the opinion that WHO was in an advantageous position to assist in furthering the development of research and training activities.

#### **6.6 Encouragement of working conferences**

The comparability of approaches and methods permitting more informative comparisons and cross-cultural analyses would be encouraged by the convening of task-oriented workshop conferences involving a relatively small number of professionals from differing disciplines, each of whom can make a contribution to specific phases of research on the non-medical use of drugs and drug dependence. The purpose of these meetings



would be to focus on common approaches, methods, and instruments, to share experiences, and to pool data from different geographic regions and fields of competence. When appropriate, such groups might be asked to prepare reports on the results of their technical deliberations and even to assist in planning and conducting specific collaborative or other research activities. Among the tasks that might be assigned to one or more working groups is the formulation of suggested "standard" questions and instruments of the type envisaged in section 6.1 (Part II).

## **7. COMMUNICATION WITH POLICY-MAKERS**

The ultimate purpose of carrying out epidemiological studies in the field of drug dependence is to develop knowledge that can serve as a basis for improved preventive, treatment, and control programmes. Existing and new knowledge about the epidemiology of drug dependence must be available to programme planners and policy-makers, and future research must address itself to pressing issues and questions faced by decision-makers. It is suggested that a series of small working conferences between epidemiologists, specialists in the field of drug dependence, and policy-makers might be convened to facilitate communication of the type noted above and to explore other ways of enhancing such communication.