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Drug Use in Latin America and the Caribbean

Introduction

There is growing concern in many countries about the scope and effects of the abuse of chemical substances among their populations. The Thirty-seventh World Health Assembly (May 1984) voiced this concern in its fourteenth plenary session, and the last report issued by the International Narcotics Control Board (INCB) states that the menace of drug abuse has reached unprecedented dimensions. Both WHO and INCB as well as other international bodies have called for sustained and determined counteraction, particularly focused on adolescent substance abuse.

Epidemiological data are especially useful in the planning of both health care delivery to drug addicts and effective prevention programs, but research on the subject has shown considerable variance among the countries of the Americas. Canada and the United States have developed epidemiological surveillance systems with special emphasis on youth; few other countries have attempted to collect data in a systematic fashion. In view of its importance as a public health problem, it was considered pertinent to present the available evidence on illicit drug consumption in Latin America and the Caribbean.

Following is a review and methodological appraisal of major drug consumption studies carried out in countries of the Region, and a discussion of the nature and extent of drug-related problems. Patterns of consumption are described in relation to the main drugs subject to abuse: cocaine, marihuana, inhalants, tranquilizers, and stimulants. Finally, an overall comment is made on the basis of existing epidemiological evidence, including recommendations for further research as needed.

Review by Countries

Mexico

Since 1974 there have been many surveys of drug use among Mexico's general and student populations. The household surveys were all based on stratified random samples of households drawn from census data in a multistage selection procedure. The population of interest included all inhabitants aged 14 years and over. Response rates for those surveys are reported to be quite high, ranging from 83 to 93%; sample size ranged from 250 to 2,800 cases. Most of the Mexican studies were well designed, relying on interview schedules developed for trained personnel. This type of questionnaire contains complex branching questions which require well-selected and trained interviewers for proper administration.

The surveys show that the legal drugs most frequently used in Mexico are alcohol, tobacco, and medically prescribed tranquilizers, especially among women. Illegal, nonmedical drugs are used preferentially by young people. Drug abuse primarily involves the use of cannabis and psychotropic drugs by adolescents and youth and the use of inhalants among children. However, overall prevalence rates are far below

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those reported in Canada and the United States. A Mexico City survey, for example, showed that none of the illegal drugs had been recently used by over 5% of the population sampled and the proportion of users fell mostly under 1%. One of the few cross-cultural studies available shows that Canadian high school students use all types of drugs more frequently than their Mexican counterparts, and concludes that illicit drug use is not nearly as widespread in the Mexican population as it is in some neighboring countries.

The Mexican experience demonstrates the validity of survey methodology as an approach to the development of national data on drug abuse. By aggregating data collected from various local (city-wide) studies, it has been possible to envisage national trends. The Mexican surveys appear to be the most thorough among the studies made in Latin America and the Caribbean, and they should continue to be developed as they constitute good sources of epidemiological data on drug consumption.

Central America and the Caribbean

The majority of published studies about drug consumption in the countries of the Central American area point to the high prevalence of heavy alcohol use. One of them, performed by the Costa Rican National Institute on Alcoholism, evidences interesting and useful research in the wider area of drug dependence, with findings similar to those obtained in other parts of Latin America and the Caribbean. Marihuana appears to be the commonest illegal drug in use, especially among youth, followed by inhalants in the younger age brackets. Cocaine use has only been reported in Panama, and this relates to INCB data suggesting intense drug traffic activity in that country.

Most Central American countries remain transit points for the illicit traffic of cocaine and cannabis. After a successful eradication campaign in Mexico, illicit opium poppy and cannabis cultivation has been reported in Guatemala. In Belize, the ostensibly rapid expansion of illicit cannabis cultivation and traffic has led to aerial eradication undertaken with the assistance of Mexican authorities. Panama plays an important role as a transit country due to its geographical location across the major smuggling routes. Energetic enforcement action against drug traffic has resulted in extensive confiscation of cocaine, cannabis and methaqualone.

The use of small vessels for seaborne drug traffic in the Caribbean has added expediency to illegal transactions. Islands in the Netherlands Antilles have been reportedly used as refueling stations for vessels transporting cannabis from Colombia's north coast to other countries. Airdrops of cannabis to ships waiting in the proximity of the Bahamas have also been reported. Consequently, in March 1983 the Bahamas Government hosted a law enforcement seminar conducted by the United Nations Division of Narcotic Drugs.

There are no epidemiological data available on drug abuse in Caribbean countries, other than Jamaica, where the use of *ganja* (local name for cannabis) is very common, accepted among rural peasants, and dates back at least 130 years. Those studies were not available at the time this report was prepared. According to the INCB, Jamaica has become an important center for the production of high potency cannabis, illicitly cultivated on a commercial basis. The extent of cannabis traffic is shown by the large number of illegal airstrips on the island utilized by drug runners. In addition to the use of cannabis, cocaine abuse has been lately detected among the local population.

Venezuela

There are few published studies on the subject of drug use in Venezuela, and the quality of their methodology cannot be ascertained. In a random sample of 14,300 high school students of 24 major metropolitan areas an overall consumption rate of 2.2% was found; marihuana was the most commonly abused substance (1.7%). In a comparative study of 100 drug users, 32% of them used marihuana, 20% LSD and 16% cocaine.

The Permanent Secretariat of the South American Agreement on Narcotic Drugs and Psychotropic Substances reports that there is a tendency toward multidrug abuse in Venezuela. The most widely abused drugs, in decreasing order of frequency, are alcohol, marihuana, methaqualone and cocaine. Traffic in the latter substance has recently increased whereas the use of basic coca paste is limited.

Colombia

General population surveys of drug abuse in Colombia are few and very recent, such as the ones carried out in Medellín. Most published studies are of student populations (high school and graduate groups). Some show a fairly clear sampling methodology, while others have aggregated data from several cities (Bogotá, Barranquilla and Bucaramanga). There are also certain studies describing groups of hospital patients such as those treated in the Drug Addiction Unit of the Hospital Mental de Antioquia in Medellín.

Patterns emerging from the isolated data available show heavy use of alcohol (4.7% of the population over 15 years of age drink more than one bottle of distilled spirits one to three times a week) and tobacco (43.2% of adults smoke). Even if there are no national data on drug consumption, the studies based on large

city populations (especially Bogotá and Medellín) show that marihuana and coca paste or *basuco* (mixture of cocaine sulfate, alcohol and other chemicals, used in cigarette form) are the most frequently abused substances. Marihuana use increased during the 1960s and 1970s, and coca paste smoking has become a health concern in the 1980s. According to one study, hospitalizations due to *basuco* in Medellín have increased threefold from 1981 to 1983. The situation seems to be similar in Bogotá and Cali.

Ecuador

In Ecuador threre is no published information regarding drug abuse. A recent report from a PAHO consultant states that Ecuador does not have the minimum amount of information in the field of mental health and drug addiction to allow a diagnosis to be made which would enable the designing of adequate programs. However, the recently created National Directorate of Mental Health seems to have the technical expertise required to gather the necessary information in the future.

Peru

It has been noted that the most important drug dependence problems in Peru are related to the use of alcohol and coca. In 1979 a household interview survey of the city of Lima was jointly sponsored by the United Nations Fund for Drug Abuse Control (UNFDAC) and PAHO. The study covered the 12-45 age group in a probability sample of 2,167 households. The investigators had access to sound information and trained sampling statisticians from the Ministry of Labor; the response rate was quite high (94%). Although the idea was to cover the younger population, thinking that the prevalence of coca paste use would be high in that group, contrary to expectations inhalants turned out to be the most used compounds, and tobacco, alcohol, and tranquilizers, the preferred drugs among adults.

Other Peruvian studies have centered on special populations. One carried out in northern Peru documents the frequency of coca leaf chewing, or *coqueo*, especially among indigenous Andean immigrants. Studies of student groups tended to show again that alcohol and tobacco are the drugs of choice, with marihuana and amphetamines next in line. Cocaine and coca paste are used far more frequently than in non-Andean countries.

Bolivia

There are only a few studies that provide statistically reliable data on Bolivia. The main drug problems in this Andean country are the growth, production, and consumption of coca (in the form of coca leaf chewing and coca paste smoking), and the use of marihuana. The situation is similar in its ethnic and cultural features to that of Peru, since coca bush cultivation is also traditional in Bolivia. Most of the research done on coca refers to legal and illegal plantations, procedures, confiscation of drugs, and arrests, and the figures are now outdated.

Chile

There have been no general population surveys of Chile, and only a few studies of high school populations. The method usually relied on has been self-administered questionnaires, applied either to the total or to a random stratified sample of the population under study.

The overall rates of consumption are high for legal substances (alcohol and tobacco) and much lower for illegal ones. Of these, marihuana is the most common. From 4 to 7% of the population admits to having used it, and 1.0 to 3.5% are frequent users. Tranquilizers and stimulants are much less widespread. Use of inhalants has been on the rise for the last five years, especially among children of lower socioeconomic strata. The documentation reviewed does not refer to the use of coca and its derivatives, although there are frequent reports of cocaine confiscation, usually from traffickers.

Another area of concern in Chile is the control of medically prescribed drugs. The Ministry of Health and the Institute of Public Health have recently organized a completely computerized drug monitoring system for that purpose.

Paraguay

According to a recent PAHO report, there is no centralized system for collecting information on the use and abuse of drugs in Paraguay. However, a well-designed study of a representative sample of students from the Paraguayan National University and Asunción high schools showed that alcohol and tobacco are the most frequently used legal drugs. The students polled said that marihuana, stimulants, and cocaine are the most frequently abused illegal substances. Recently, the inhalation of volatile solvents has become an upsurging issue. Secondary data from clinical and police sources confirm that the availability of alcohol and marihuana constitutes the main problem.

Argentina

Reports of data from Argentina are very scanty. There are a few descriptions of groups treated for drug dependence, especially at CENARESO (Centro Na-

cional de Rehabilitación Social). Other studies document the subjective impressions of clinicians in provincial cities such as Tucumán, and there are also some accessible police data.

At any rate, according to the information available, the most generally used illicit drug is marihuana, followed by stimulants and tranquilizers. Cocaine and LSD are next, but their consumption is fairly limited. Nevertheless, the quality of data, issuing from special groups, does not allow generalizations to be made with regard to the general population.

Uruguay

No published epidemiological studies on drug abuse in Uruguay were found. Reportedly, the problem of coca and its derivatives is practically nonexistent in this country. Cocaine in the form of salts is in circulation in very small quantities and the number of users is small.

Brazil

The only published studies are two student population surveys in Belo Horizonte, which show an overall drug consumption rate of 16% for high school students and 24.1% for university students. Drugs most often used by these two groups were amphetamines (37% and 39.6%, respectively) and marihuana (29% and 30.6%, respectively). No reported data are available on the general population.

Large coca plantations have been found in the area of Alto Rio Negro, in the countryside surrounding Manaus, along the banks of the Solimões, Wampes, and Papuri rivers, and in dozens of other towns bordering those rivers. Although the *epodú* (of the Erythroxylaceae family) was traditionally grown from earliest times by Tucano and Macú-speaking natives, new and large-scale cultivation has been introduced recently for illicit commercial purposes.

Cannabis seeds were brought to Brazil by African slaves, mainly from Angola, in the first half of the 17th century. As a result, nearly all the traditional synonyms for marihuana in Brazil *(maconha, doamba, liamba, moconha)* originate from the Angolan language. During the colonial period, it was common for plantation owners to allow their slaves to plant cannabis amid the sugar cane, especially in the Northeast. A proclamation dating from the 19th century forbade the use of marihuana in urban areas, including the capital city of Rio de Janeiro, where imprisonment was the penalty for offenders. At present, according to the police, the chronic use of marihuana is rare and imprisoned offenders are nearly always multiple drug users.

Drugs Subject to Abuse

Cocaine

In South America, coca leaf chewing is a cultural tradition long accepted in the Andean highlands, very much like alcohol or tobacco elsewhere. However, this traditional custom has given way to cocaine use in urban settings. Peru and Bolivia are the main growers of the coca bush *(Erythroxylon coca)*, whose leaves are processed to yield cocaine hydrochloride. The product is sold in those countries or, more often, smuggled to North America and Europe.

A different variety of coca is grown in Colombia where it is most commonly prepared, as mentioned earlier, in the form of *basuco*. The much greater absorption rate (90-95%) of the sulfate makes it a more dangerous substance than the hydrochloride, which when sniffed is absorbed to a lesser extent. There have been several recent reports indicating the adverse health consequences not only of cocaine hydrochloride, but of coca paste and even of coca leaf chewing. Evidence summarized in one of those reports points to this very traditional and accepted habit as the cause of lasting brain function changes which can result in a cognitive deficit.

A fair amount of research has been devoted to the subject in countries such as Peru and Bolivia, in an effort to distinguish the direct damaging effects of coca paste from the effects of malnutrition, a consequence of the overuse of this substance. The use of cocaine sulfate and its consequences have been studied in Bolivia. There is a clear-cut anorectic effect that seems to mediate the extreme degree of malnutrition apparent among chronic users of this drug. The reinforcing effect of cocaine leads its abusers to continue using it in spite of their physical emaciation, and also to procure it through illegal means. Death can ensue due to accidental overdoses, or to *empacados* (body packing, that is, the transportation of drugs packed inside the body), a fact reported more or less frequently. Intravenous administration can trigger the usual complications associated with that practice, such as hepatitis, thrombophlebitis, and a variety of infections. Cocaine abuse is frequently combined with that of alcohol and other drugs, with the consequent health hazards common to polydrug abuse.

In spite of frequent reports from several South American countries about increased use of coca and its derivatives, there are no general population surveys documenting this fact. Most of the studies undertaken have been directed at special groups, usually of high school and university students. Cocaine consumption among them is high in Andean countries such as Colombia and Bolivia. There are few data for Ecuador, where coca chewing has been reportedly suppressed since

1938. Cocaine sniffing seems to be an elitist practice of the upper middle and upper class groups, which very rarely get into trouble with the police. Most of the data available come from treatment centers reporting on the relative frequency of drug use among patients, and from police statistics concerning drug offenders, or drug raids. Cocaine abuse seems to be concentrated in the aforementioned Andean countries. The rest of Latin American and Caribbean countries have not reported an abuse problem, although there is drug traffic in many countries.

Cannabis

The illicit drug most commonly used in Latin America is cannabis, usually smoked as marihuana (or marijuana). *Cannabis sativa* as a botanical species originates in Central Asia, but it has been grown in Spanish America since the early XVII century. It was also introduced in Brazil from Africa under the name *maconha,* a term coined in Angola. Another variety, *Cannabis indica,* was introduced in Jamaica by Hindustani immigrants in the XIX century. The use of cannabis as an intoxicant was uncommon until the 1950s, but it had reached epidemic proportions by the 1960s, when it was adopted as a symbol or rebellion against the Establishment by the hippie counterculture. Rates of increase in Latin America and the Caribbean are not as high as those shown in the United States and Canada, but they are important enough to be of concern in almost all countries in those areas.

It is now clear that chronic heavy use provokes both psychological dependence and tolerance, but this condition reverts rapidly back to normal after drug use is discontinued. There have been reports of withdrawal symptoms and reversed tolerance, as well as flashback reactions. The lethargic or motivational syndrome manifested as a withdrawal from school or work activities is characteristic of chronic cannabis intoxication. There have been reports of brain damage, and a residual deficit in cognitive intellectual functions has also been documented. Cannabis can also trigger different kinds of psychiatric disorders, some of a psychotic nature. The available evidence, therefore, substantiates the fact that marihuana is a dangerous substance, and not as innocuous as heralded in the heyday of its popularity.

The picture of marihuana use in Latin America and the Caribbean is as incomplete as that of other psychotropic substances. There are no general population studies, except those of Mexico and Peru, and most available data are based on youth (mainly student) surveys. These show that marihuana is the most frequently used illicit chemical in countries such as Argentina, Brazil, Chile, Colombia, Mexico, Paraguay, Peru, Venezuela, and in Central America. This fact is further substantiated by studies of the relative distribution of the use of chemicals by patients treated in drug dependence units in Chile, Colombia, and Paraguay.

The problem is related to the relative difficulty of controlling the production and traffic of cannabis. Colombia still seems to be the main supplier in the Region. Although the full extent of cannabis cultivation is unknown, there are indications of new plantations in the northwestern part of that country. Jamaica has also become an important production center of high-potency cannabis, illicitly cultivated on a commercial basis. There is no firm epidemiological evidence as to the extent and trend of marihuana use in Latin America and the Caribbean. Most of the studies are single ones, and no trend studies have been carried out in any of the countries. Nevertheless, most of the nations have launched primary prevention campaigns, some of them on a national level, as in Mexico and Venezuela. Systematic evaluation of the impact of these efforts is necessary, and good epidemiological data bases are sorely needed in order to control marihuana use.

Tranquilizers

The nonmedical use of psychotropic substances is less widely publicized than that of illicit narcotics and other drugs, but this does not make it any less of an issue. In most Latin American countries benzodiazepine and its derivatives are among the leading profit-making compounds prepared by the pharmaceutical industries. However, no solid data are available on national patterns of nonmedical use of psychopharmacological drugs. Youth surveys show it is lower than that of marihuana, but on a par with the use of stimulants. At least two countries (Colombia and Chile) have recently designed drug control monitoring systems that will become operative shortly. Useful data should soon be forthcoming from these systems.

Clinical experience and anecdotal data show different patterns of abuse between tranquilizers and other psychotropic drugs. They seem to be predominantly abused by adults rather than young people, and by women rather than by men.

Stimulants

Cocaine use has been already described as an emerging trend in the Region. In addition, there are other kinds of stimulants—mostly amphetamines and their derivatives—commonly abused by two different groups: students, who use them occasionally to reduce fatigue during examinations, or for other reasons; and women, who take them to lose weight (amphetamines are medically used as an appetite suppressant). Polydrug users

also take stimulants as part of their mixed consumption of drugs. The use of these drugs is as difficult to assess as the use of tranquilizers, and it is hoped that the drug control and surveillance systems now in preparation in Colombia and Chile will shed light on the subject.

The use of amphetamines seems to be more extensive in large towns with sizable high school and university student populations. Argentina, Brazil, Mexico and Peru have communicated high rates of consumption among such groups. During the early 1970s there was an upsurge in the use of methyl-dextro-amphetamines (MDA) and other very potent substances, in North America. Its present decrease is perhaps due to the realization of the high toxicity of such chemicals, especially when used intravenously.

Solvent Inhalation

In the last decade, the sniffing of glue and other volatile solvents has increased throughout large cities in Latin America, especially among younger children in the lower socioeconomic strata. A group from the University of Chile studied the clinical background and psychopathology of solvent abusers in Santiago, finding a high percentage of social problems and family disfunction among them. Of the 33 children studied, most were slum dwellers, had sociopathic tendencies, and responded well to social rehabilitation techniques. Some had severe psychopathologies requiring specialized treatment. Systematic collection of data on solvent inhalation is very difficult because most of the consumers are outside the formal education system. However, it has been estimated that 7 to 10% of Santiago slum children abuse solvents occasionally and 1% use them frequently.

Comments and Conclusions

In the face of general concern about increased drug abuse in Latin America and the Caribbean, the present review highlights the lack of systematic evidence available to either substantiate or disprove that assumption. No general population surveys have been made except in two countries, and even those do not encompass representative population samples, since they focus only on large cities such as Mexico City and Lima.

Most available studies center on drug consumption among youth, and more specifically, among students. There have been many surveys of drug use in isolated schools and universities, and few of representative samples of school and university systems in particular cities or geographic locations. There are minimal, if any, data on drug consumption among adolescents outside the formal educational system.

Surveys of other special groups include patients treated for drug abuse, psychiatric populations, and children or young persons who have gotten into trouble with the law. The main problem with these group studies is the difficulty of generalizing their findings to more extensive populations. Often, however, they seem to be the only available source of data. In-depth descriptive studies on specific substances (coca paste abuse in Peru, Bolivia and Colombia, and solvent abuse in Chile) have provided useful information about clinical and anthropological aspects of emergent forms of drug abuse.

Cross-cultural studies are especially valuable because they facilitate comparative estimates of drug consumption between countries or subregions. Unfortunately, there are very few cross-cultural studies using common frameworks and data collection systems, and the majority are limited to Mexico and the United States, or Canada. These have shown that Mexico has a much lower consumption level of most chemicals than the rest of North America. It would be most valuable to have more comparisons of this kind, including other countries.

In spite of the different data-collection schedules, most results tend to cluster, showing that alcohol and tobacco are the most ordinarily used (and abused) legal and culturally accepted chemicals. The nonmedical use of psychotropic substances such as tranquilizers and stimulants appears to be next in frecuency. The use of these drugs seems to concentrate in large metropolitan areas. The four aforementioned substances are consumed mainly by adults, but their use is increasing among younger age groups. Marihuana is the most frequently abused illegal substance throughout the Region. Its use is typical of urban middle-class youth, except in countries such as Brazil and Jamaica, where it has a long tradition of use among the peasants and is therefore culturally accepted. In most countries, however, its use spread in the 1960s, becoming a worldwide epidemic.

Cocaine consumption is also very familiar within the confines of the Andean Subregion (Bolivia, Peru, northern Argentina and Chile, Ecuador, parts of Brazil and Colombia). Traditional coca growers and producers have attempted to discourage that practice; however, coca leaf chewing endures as a traditionally accepted habit and coca paste smoking has become an increasingly troublesome issue for them.

Polydrug, or multiple drug abuse is another poorly researched subject. Anecdotal reports point to the concentration of that habit in small, well-identified groups with clearly distinguishable social and psychological characteristics. Such reports have been ascertained in regard to heavy alcohol and solvent use in Chile and this knowledge may lead to the development of ap-

proaches for the identification of high risk individuals in different populations.

The literature reviewed has permitted a clear differentiation of the following subgroups among drug users:

- Traditional drug users in rural areas, who consume coca leaf, *maconha* and hallucinogenic fungi for culturally accepted reasons. Nutritional and native religious practices have been important factors reinforcing these habits.
- Middle and upper-class individuals, usually young adults, of large metropolitan areas, who follow international trends and fashions in drug use. These were the typical users of LSD in the 1960s, MDA in the 1970s, and cocaine in the 1980s.
- Poorly educated slum dwellers, for whom chemical stimulants are part of their "poverty life-style." They inhale solvents as children and drink alcohol heavily later in life.

The technology needed to conduct methodologically adequate studies, which can further illuminate some of these areas, is available and has been systematically disseminated by the World Health Organization. The United States National Institute on Drug Abuse (NIDA) has also devoted several publications to the methodology of international drug abuse and trend studies. There are several research groups in Latin America and the Caribbean that could collaborate in a joint effort to study this area. WHO has outlined projects and activities on prevention and other drug dependence aspects. However, their effectiveness depends on an accurate assessment of the extent of specific drug consumption in each country and a realistic awareness of the local situation.

Some research groups have published adequately designed studies in Brazil, Chile, Colombia, Costa Rica, Mexico, and Peru. There may be others, not mentioned in this review, that could participate in the challenge of improving the amount and quality of information on drug use in the countries of the Americas.

Bibliographic references on this topic may be requested from the Health of Adults Program (HPA), PAHO.

(Source: Abstracted from: Epidemiology of Drug Use in Central and South America, by Ramon U. Florenzano, School of Medicine, University of Chile, Santiago, Chile.)

AIDS Surveillance in the Americas: Report through 31 December 1985

Overview

Acquired immune deficiency syndrome (AIDS) cases in the Region of the Americas continue to increase, with the vast majority of cases (93.1%) reported from North America. Excluding the United States of America and Canada, 1,250 cases have been notified from all other countries combined. The Caribbean Area (Latin American and non-Latin American) has confirmed a total of 538 cases or 17.5 cases per million population. Latin American countries, including the Central American Isthmus, Brazil, and Mexico have reported a total of 685 cases, or 2.1 cases per million population. The countries with the greatest number of cases include the United States (16,130), Brazil (540), Canada (435), and Haiti (377), which together account for 17,482 cases or 98.1%, of the Region's total. Table 1 shows the number of AIDS cases and deaths reported in the Region through 31 December 1985.

For the first time since 1983, when PAHO initiated its current surveillance system, many countries failed to report the new cases diagnosed during the second semester (1 July through 31 December 1985) in time for inclusion in the year's report. These countries include Anguilla, Argentina, Cayman Islands, Costa Rica, Grenada, Haiti, Jamaica, Trinidad and Tobago, Saint Vincent and the Grenadines, and Turks and Caicos Islands. Thus this report may underestimate the actual total of AIDS cases in the Region.

As of 31 December 1985, no AIDS cases had been diagnosed in the following countries: Antigua, Belize, British Virgin Islands, Cuba, Dominica, Guyana, Montserrat, Nicaragua, and Paraguay.

Table 1. Number of AIDS cases and deaths reported in the Americas through 31 December 1985.

Subregion and country	No. of confirmed cases	No. of deaths
Latin America, Andean Group		
Bolivia	1	1
Colombia	5	3
Ecuador	4	3
Peru	9	4
Venezuela	32	22
Subtotal	*51*	*33*
Latin America, Southern Cone		
Argentina	26[a]	13[a]
Chile	7	4
Uruguay	10	4
Subtotal	*43*	*21*
Brazil	540	252
Central American Isthmus		
Costa Rica	6[a]	2[a]
El Salvador	1	1
Guatemala	2	2
Honduras	1	1
Panama	8	3
Subtotal	*18*	*9*
Mexico	33	11
Dominican Republic	39	22
Haiti	377[a]	88[a]
Subtotal	*416*	*110*
Non-Latin Caribbean		
Bahamas	38	7
Barbados	4	4
French Guiana	31	15
Grenada	2[a]	0[a]
Guadeloupe, St. Martin and St. Bartholomew	12[b]	0[b]
Jamaica	2[a]	1[a]
Martinique	2[b]	0[b]
St. Christopher and Nevis	1	0
Saint Lucia	10	2
Saint Vincent and the Grenadines	1[a]	1[a]
Suriname	3	1
Trinidad and Tobago	16[a]	0[a]
Subtotal	*122*	*31*
North America		
Bermuda	27[c]	17[c]
Canada	435	207
United States of America	16,130	8,216
Subtotal	*16,592*	*8,440*
Total	17,815	8,907

[a]Did not report for the final semester of 1985 (1 July through 31 December).

[b]Includes data through April 1985 only.

[c]Includes data through 31 October 1985 only.

Discussion

The AIDS problem keeps on growing in magnitude and importance, while the list of countries which have yet to report this disease shrinks dramatically. Much remains to be learned about the epidemiology of the disease in individual countries, inasmuch as different population groups may be at risk. In Brazil, for instance, over 85% of AIDS patients are homosexual males, and very few (less than 2%) are drug addicts. In the Bahamas, however, the reverse is true. The increasing availability of the ELISA serological test in the Region should contribute to a better knowledge of the epidemiology of AIDS and its modes of transmission.

PAHO has distributed Guidelines for AIDS to all its Member Governments, Country Officers, and Centers. Individual copies may be obtained by writing to PAHO's Health Situation and Trend Assessment Program. In addition to discussing many aspects of AIDS, the Guidelines recommend that more detailed, more frequent surveillance information be collected. As of 1 July 1986, PAHO initiated quarterly surveillance by requesting minimum data which will include age, sex, and overall characteristics of patients or risk groups (e.g., homosexual, drug addict, hemophiliac, transfusion recipient, etc.). From this same date on, PAHO's Caribbean Epidemiology Center will coordinate all surveillance for the non-Latin Caribbean countries. Country collaboration will be important for rapid feedback regarding the AIDS situation in the Americas.

(Source: Health Situation and Trend Assessment Program, PAHO.)

Report of the Second Meeting of the WHO Collaborating Centers for AIDS

On December 16-18 1985 representatives from the WHO collaborating centers for AIDS met in Geneva to review the global status of AIDS. The following actions were recommended:

- Surveillance for AIDS must be strengthened and standardized as far as possible. Countries should report AIDS cases to their Regional Offices for forwarding to WHO according to regional guidelines. More detailed information should be developed with special emphasis on patient risk groups.
- Guidelines for the protection of certain occupations (health workers, for example), and for the prevention and control of AIDS through health education programs directed at a wide variety of persons (patients and their families and sexual contacts, laboratory workers, infected but asymptomatic persons with special emphasis on reproductive age women, and others) must be developed and disseminated widely.
- No restrictions on international travel are warranted and Member States were requested not to implement such measures.
- Reference sera should be provided to appropriate laboratories. They are available in limited quantities from WHO's collaborating center at the Centers for Disease Control, Atlanta, Georgia 30333, USA. A larger, more permanent set of sera for general distribution has been prepared by the German Association against Viral Diseases, Institute of Clinical and Experimental Virology, Berlin, West Germany. These sera are being characterized by WHO's collaborating center for AIDS, the National Institute for Biological Standards and Control, London, UK. An additional panel of sera representing a spectrum of reactions to individual antigens is being prepared by the WHO collaborating center for AIDS, Centro Nacional de Microbiología, Virología e Inmunología Sanitaria, Madrid, Spain, and will be provided to other collaborating centers.
- WHO should assist in the organization of laboratory workshops on techniques for AIDS diagnosis and screening, and proficiency testing programs.
- WHO should promote further laboratory standardization and research on possible control measures, and continue to provide technical collaboration to member countries.

In addition, the participants approved the following disinfectants and disinfection procedures to prevent transmission of the AIDS virus (LAV/HTLV-III):

Chlorine-sodium hypochlorite. A general all-purpose disinfectant solution should have a concentration of 1 g/l (1,000 ppm) as available chlorine. A stronger solution containing 10 g/l (10,000 ppm) of available chlorine is recommended for disinfection involving blood spillage and/or presence of gross organic matter. A solution of 5 g/l (5,000 ppm) as available chlorine is recommended for use in virus diagnosis and research laboratories.

Formaldehyde as formalin: 50 g/l (5%).

Ethanol: 700 g/l (70%).

Glutaraldehyde: 20 g/l (2%). Ideally, all non-disposable patient care equipment and instruments should be sterilized by steam under pressure (autoclaving) or by recognized gaseous sterilization techniques if the equipment is heat-labile. The use of ethylene oxide (ETO) in gaseous sterilization is not universally recognized. It thus becomes necessary to subject heat-labile equipment and instruments to a high level of disinfection. The technique requires scrupulous cleaning of the materials prior to disinfection. The disinfectant of choice is 2% glutaraldehyde with a 30 minute contact time. Following this, the equipment should be thoroughly rinsed with sterile water. Other disinfectants may be used but are not of choice because of various adverse properties such as corrosion. If they are used, the final rinse with sterile water is most important.

(*Source:* Report of the Second Meeting of the WHO Collaborating Centers for AIDS, WHO, Geneva, 16-18 December 1985.)

Beyond Lalonde: Creating Health

Editor's note:

In 1974, Lalonde's document "A New Perspective on the Health of Canadians" (1) *also known as the Lalonde Report, provided a conceptual framework for analyzing health problems, determining health needs, and choosing the means by which those needs can be met, based on the subdivision of the health field into four broad elements: human biology, environment, lifestyle, and health care organization. The chapter of the Report dealing with the description of this approach and its principal characteristics was reprinted in the* Epidemiological Bulletin, *Vol. 4, No. 3, 1983, under the title "The Health Field Concept—A Canadian Perspective."*

In the article that follows, Professor Carol Buck, from the University of Western Ontario, Canada, discusses the recommendations and policy decisions based on Lalonde's concepts. Her article was selected for publication because it deals with one of the new and controversial approaches to the use of epidemiology in the solution of health problems and because the dissemination of these approaches constitutes one of the central objectives of the PAHO Epidemiological Bulletin.

It is ten years since the Lalonde Report was published *(1)*. Were its recommendations sound and have we implemented the best recommendations? The answer is no. Both the Report and subsequent policy decisions have failed to deal adequately with the Environment. I shall argue that this is the most important of the four elements in Lalonde's Health Field Concept. If the Environment is wrong, the elements of Human Biology, Lifestyle and Health Care Organization will be wrong also.

It is instructive to observe what people worry about, because this gives one a sense of whether they understand the nature of their problems. What are people in this country worried about today? They are worried about nuclear war, pollution, unemployment, poverty and crime. Are they worried about health? Yes, and in particular about cancer, Alzheimer's disease, AIDS and the shortage of transplant organs. Since their worries about health are highly specific, they fail to see how closely health is connected with some of their other concerns. Until this connection is made, the actions necessary to create health will not be taken.

I shall review the factors which must be changed if health is to be improved. My choice of factors is influenced by Antonovsky's concept of coherence as a basis for health. He defined coherence as: "A global orientation that expresses the extent to which one has a pervasive, enduring, but dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected" *(2)*. This is not a utopian concept. In our society, a number of factors can be recognized as serious obstacles to health.

1. Dangerous Environments

Violence continues to be one of the major causes of mortality. For each death, there are many permanently handicapped survivors. Most violent deaths are termed accidents because they are not the result of a deliberate action, but in a broader sense they are not accidental; they are caused by dangerous conditions that society tolerates. Our roads, cars, railways, planes and buildings could be much less accident-provoking. Most disasters in mines, construction, and other industries are the result of negligence, rather than acts of God. The sinking of the Ocean Ranger oil rig off the coast of Newfoundland is a clear-cut example. In many instances workers are induced by fear of unemployment to accept conditions of manifest danger. Particularly is this true in the depressed areas of Canada. Miners in Nova Scotia have expressed the opinion that a dangerous job is better than no job. How can a person who reaches such a conclusion have a sense of coherence?

In the cores of large cities, violent assaults have become so frequent that people are no longer able to move freely in their environment. Such an environment has no coherence. Although this problem has reached a peak in some American cities, we must see that it is on Canada's horizon. Some of the perpetrators of urban violence are themselves victims of the incoherence of their environment.

Environments are made dangerous in a less dramatic way by pollution. Even if we do not understand all the health effects of air and water pollution, we can surely deal with the hazards that are clear, mercury and lead pollution being cases in point. The problem of pollution

demands anticipatory study since pollution, once it has occurred, cannot be turned off like a tap. It is particularly important to remember this at a time when we are faced with the disposal of nuclear waste.

2. Lack of Necessities and Amenities

The basic necessities of life are said to be food, clothing and shelter. Actually, clothing is an aspect of shelter and beyond that an art form. The lack of necessities is sometimes thought to be restricted to the third world. It is more common by a hundred fold in the third world but not restricted thereto. In our country there are significant numbers of people whose intake of food is inadequate and whose housing is deplorable. This was true even before the recent economic recession. The recession has brought into public view the new wave of unemployed who no longer can afford adequate food and shelter. Hostels and public kitchens have been set up to relieve their distress. But it is obvious that these hostels and kitchens are frequented by substantial numbers of people whose wages or social assistance payments have long been inadequate to provide them with the necessities of life.

What are the effects of inadequate nutrition upon health? It is well known that a diet which fails to supply sufficient calories, vitamins and minerals impairs physical growth and resistance to infection. What is less well known is that such a diet in infancy and early childhood causes irremediable retardation of intellectual development *(3)*. It is unfortunate that we hear so much about the effects of the affluent diet upon heart disease and so little about the effects of the deprived diet upon one of the most important of human attributes. The other basic necessity, shelter, needs little comment. The problems of the homeless are obvious to everyone. Slightly less obvious are the effects upon health of living in a place that is too cold in winter and too hot in summer, that has insufficient space for its inhabitants and is deficient in refrigeration and cooking facilities. These are the characteristics of a slum. Because slum housing is not obviously related to cancer, AIDS, Alzheimer's disease and other newsworthy ailments, we tend to forget that it causes and perpetuates many more important but less fashionable health problems.

I have talked about the lack of necessities. Now I turn to the lack of amenities. An amenity is something that adds to the ease and pleasantness of life. We need such amenities as transportation, recreation, beauty, and stimulation in order to fulfill the human potential. Physiological and psychological evidence suggests that pleasing activities, sights and sounds are conducive to the optimal function of body and mind. For example, a recent study of surgical patients found that those who had a view of nature from their hospital window recovered more rapidly *(4)*.

The need for transportation was less in an era when most of us lived in small communities. A walk of a mile or so provided the walker with recreation and beauty. Transportation became an important amenity when humans congregated in large urban centers where the walk was no longer feasible nor idyllic. Transportation has become expensive and time-consuming for everyone, particularly for the working poor who have to punch a time clock, take children to day-care, search for cheap groceries, wash their clothes in a coin laundry and visit medical facilities often far from where they live. For the unemployed who are required to make a specified number of daily job searches, transportation costs are prohibitive. They have the time but not the money.

Recreation is an amenity not easily acquired in the modern urban setting. Tennis, golf, squash and health clubs are expensive and beyond the reach of most people. Furthermore, it is difficult for the manual worker who has been slugging away all day to see the need for further exercise, however salubrious it might be. For children, hockey and baseball have become equipment-oriented sports rather than pleasant pastimes on pond or field. In fact, hockey has become a blood sport. As a consequence, many people turn to viewing sports on television rather than actually taking part in them.

Some of the forces that make physical recreation difficult apply also to intellectual recreation. Television has become the principal means of access to literature, art and music. The goal of commercial TV is the sale of products. Therefore the content of programs is directed toward the consuming potential of the viewer rather than toward his intellectual and emotional enrichment.

As far as beauty is concerned, industrialized urbanization has deprived us. What beauty remains is concentrated in central showplaces that are seen more by tourists than by the resident population. Large numbers of people live in drab surroundings, and work in windowless environments where the feel of a breeze or the sound of a bird is a rare occurrence. In the biggest cities they travel between these two environments in a tunnel. Replacing beauty is an abundance of noise, harmful to the ear and distracting to the mind.

3. Stressful, Unrewarding and Depersonalizing Work

The industrial revolution eliminated some of the most back-breaking work of mankind, but brought with it a different problem. For many, work no longer offers creative satisfaction. The worker's contribution to the

finished product is circumscribed and carried out by processes that are repetitive to the point of boredom. Relief from the monotony may come only at the risk of being replaced by a robot. In the interest of efficiency, shiftwork has become widely prevalent, especially the sequential weekly rotation that continually disrupts the natural circadian rhythms of the body *(5)*. A study of factory workers showed that shiftwork and piecework, in particular, had unfavorable effects on physical and mental health *(6)*. The work problem is compounded by the recurrent threat of unemployment. There can be little coherence in a life that oscillates between unrewarding work and unemployment.

Samuel Butler said that a chicken was just an egg's way of making another egg. The philosophy of our economic system is that a person is just a dollar's way of making another dollar.

4. Isolation and Alienation

Man is by nature gregarious and needs the opportunity to give and receive affection, help and information. The term social support has been created to describe the fulfillment of these needs. Evidence accumulates that isolated people with inadequate social support are more likely to become ill *(7)*. There are many isolated people, and one thinks especially of the aged, the widowed, the single parent and the uprooted worker in search of a job.

Even more distressing than isolation is the experience of living on the fringe of society where one's opportunites, values, expectations and customs are not those of the mainstream. This is the situation of alienation. It befalls ethnic minorities, recent immigrants, migrant workers and all who are rejected or dislocated by cultural change. Cassel's famous study of the coming of industry to an Appalachian mountain population showed that the effect of alienation upon health was profound *(8)*.

5. Poverty

I have put poverty last because it brings in its wake all the obstacles to health that I have described. It is the poor, above all others, who live in dangerous environments, who lack necessities and amenities, whose work, if they have any, is stressful and unfulfilling, and who are isolated from sources of information and encouragement. On top of all this, poverty is intrinsically debasing and alienating. Particularly is this true when the poor are aware that poverty is not the natural lot of man, as they cannot help but be when the media constantly display the life of the affluent majority. Rollo Walter Brown described the phenomenon eloquently: "...poverty stultifies a human being as inevitably as a continued injection of poison into the blood. By a slow numbing it renders them incapable of any sharp awareness of their own best qualities of character, it robs them of their sense of high enterprise, it undermines their confidence and prevents them from extending the essential parts of themselves into the life of the world about them. It unbalances them in the wrong direction by crowding their lives full of inescapable considerations of the scant, the petty and the under-dog point of view" *(9)*. Brown was referring to chronic poverty, not the temporary poverty of the student and other upwardly mobile people. It is the ex-poor who are vocal about the character-building aspects of austerity. The chronically poor are silent on this topic.

Elevated rates of death and disability among the poor have been found in every country where the relationship between social class and ill-health has been examined. This is true even in countries with publicly financed health care *(10-12)*.

So far, I have described the effects of bad environments upon health. The other elements of Lalonde's Health Field cannot be improved if the environment is wrong because they are inextricably related to the environment.

The Environment and Human Biology

The cells, tissues and organs of the human body are responsive to the environment. If the environment is dangerous they can be destroyed by injury. If the environment fails to provide adequate nutrition they will not develop properly. More subtle, however, is the effect of environmental stressors upon the principal regulators of the human body—the central nervous system and the endocrine glands. Cassel reviewed the compelling evidence that environmental stressors act upon the regulators to increase susceptibility to all diseases, both physical and mental *(13)*.

The Environment and Lifestyle

A healthy lifestyle can be adopted only if people have the knowledge, the opportunity and the will. In an impoverished environment there are barriers to knowledge and opportunity. But perhaps more important is the erosion of will. It is not easy to engage in the positive pursuit of health when great energy is required just to deal with the hassles of day to day existence. Rather, the temptation is strong to seek solace in unhealthy habits. House found that factory employees on shiftwork and piecework were the heaviest users of alcohol and tobacco *(6)*.

The Environment and Health Care

Even when health care is financed from the public purse, environmentally induced inequalities in access and quality persist. In the United States, average Medicaid payments per recipient are significantly greater for whites than for blacks *(14)*. In Britain there are substantial variations in the kind of health care provided to rich and poor. For children of the lowest social class, a higher proportion of hospital admissions were for emergency care than for planned diagnostic and therapeutic actions *(15)*.

Rundle and Wheeler reject the view that the poor receive inadequate health care because they are unsophisticated *(16)*. They found that the poor were often directed toward providers who did not encourage preventive medicine.

Finally, it must be emphasized that the damage done to health by the bad environment is cumulative. There is a formidable multiplier effect. The infant of an underweight lower class mother is more likely to be of low birthweight. Low birthweight increases the risk of a whole range of brain damage from cerebral palsy to mental retardation. But low birthweight increases the risk *much more* when the infant belongs to an impoverished family *(17)*. As Blaxter says, the social environment creates potential disadvantage and then reinforces its effects *(18)*. The most pernicious aspect of accumulation is that it continues over generations. Poverty in one generation reduces the chance of a healthy birth and impairs the environment of the children who are born. The children of the second generation, being further handicapped in health, education and employment, create an even more unfavorable environment for the third generation. Finally we end up with people whose conditions seem so hopeless that we despair of helping them.

Solutions

I have dealt at length with the problems. Now I turn to the solutions. It will not come as a surprise that I have more confidence in remedies that are directed toward the environment than toward the other elements of Lalonde's Health Field. My objection to the Lalonde Report is that its recommendations for improving the environment were weak. The Lalonde Report is not alone in this fault. Draper and his colleagues found a similar defect in the report of the Merrison Royal Commission in England, which failed to emphasize that the unhealthy environment must be continually and constructively challenged rather than passively accepted *(19)*. Most official pronouncements on health take the environment as given, as a series of problems to be adapted to. The onus for change is put on the individual, often with the expressed conviction that millions of health care dollars could be saved if people would abandon their perverse behavior. There is no doubt that some habits, smoking and heavy drinking in particular, are causes of serious health problems that entail large expenditures for medical care. But the correction of these habits would not prevent all our ills. Nor can we expect these habits to be corrected purely by the effort of individuals. As Draper *et al.* point out, there is a need to tackle the wider environmental issues that shape individual choices, but are beyond the individual's control *(20)*. Individuals must be brought to better health by providing them with a milieu that does not damage them physically and psychologically. In such an environment both the desire and the opportunity to indulge in unhealthy habits would be reduced.

Excessive emphasis on the individual's responsibility for health has the effect of increasing the sense of alienation among people who already are suffering from a fringe position in society. This, literally, is adding insult to injury. One cannot expect welfare recipients to be inspired by the exhortation to increase the protein and vitamin content of their diet when their most pressing problem is to stave off hunger. Now of course it is possible, by ingenious shopping and clever cooking, to maximize the nutritional value of a cheap diet. This can be done by a person with culinary knowledge, persistence, spare time and good cooking facilities, characteristics which are not enjoyed by the majority of welfare recipients. Some of the health promotional activities in accident prevention are similarly unrealistic. Accidents in the home and on the street are an important cause of death and disability among young children. Yet what sense does it make to focus on the coping abilities of mothers who are raising their children in accident-producing environments? As Blaxter says: "...Cures are sought in general safety education or in more specific education and supervision offered to families by public health nurses. Yet it seems obvious that remedies lie rather in public policies regarding the environment of poor families: the provision of safe play space, the control of traffic through housing estates, the elimination of fire-trap housing, policies to ensure that poor families do not have to resort to dangerous forms of cheap heating, and the design of public housing for young families so that it is possible for mothers to supervise children of different ages at the same time. There is no doubt that behavior is implicated, but it is behavior which is inevitable in certain environments" *(18)*.

Let us also remember that it is far less efficient to operate on the individual than on the environment. Can you imagine trying to prevent typhoid fever by urging people to boil their water? As Syme has said, changing people is a never-ending task whereas changes in the

environment are more durable *(21)*. We see this clearly in the prevention of dental decay. The fluoridation of water surpasses by far the efficiency of programs for dietary change and tooth-brushing.

The Lalonde Report was a political document, whose titular author was a cabinet minister in the federal government of Canada. Not surprisingly it recommended very little that would embarrass the government financially, yet it professed concern with all aspects of health. The widespread acclamation of the Lalonde Report reflects the prevalence elsewhere in the world of an unwillingness to tackle the full range of obstacles to health.

In the minds of some, the solution to ill health is still to be found through better health care. By "better" is meant wider access to the kind of care now available, and an enhancement of the technological capacities of medicine. If hands and arms are lost in accidental injuries, the answer is better microsurgery to sew them back on. If an accumulation of personal and environmental factors leads to vascular disease, the answer is better transplant surgery. But the technological remedies already are approaching economic and logistic limitations. Therefore it is almost inconceivable that wider access to health care and the provision of ever more technologically advanced care can coexist.

Some opponents of the technological solution propose instead a greater emphasis on the caring aspects of medicine, with more attention paid to strengthening the social supports of the vulnerable. Appealing as this approach may be, it contains an element of danger. Social supports are important but the danger lies in letting them become a substitute for basic reform. Slum dwellers could indeed be treated more lovingly by doctors and social workers and could be helped to support one another more fully. Although this might mitigate the harsh effects of their living conditions, it would not remove the causes. To be truly effective, social support must be based upon such a degree of respect for human beings that they are not allowed to enter into conditions that predispose to illness and injury. The fundamental issue is a moral one, as was clearly recognized in the 1983 New Year's statement of the Canadian Catholic Bishops.

Finally, we must consider the barriers to achieving an environment that will create health. They are large and deeply entrenched. But if we understand what they are and begin a relentless attack upon them, we have hope of ultimate success.

Possibly the most entrenched barrier of all is a philosophical one, the belief that an element of misery is part of the human condition. To some extent this is a justifiable belief, because pain, grief and loneliness can never be totally eliminated. But to believe that a substantial amount of misery is inevitable is quite another matter. The biblical quotation "for the poor always ye have with you" must not be offered as an excuse for tolerating chronic poverty. The idea that there are winners and losers closes the door to reform. The door is closed firmly if the idea is buttressed by the mistaken argument that the losers are those to whom fate has dealt a bad set of genes. Although a single gene can play awful tricks, such genes are rare. Most human qualities are influenced by multiple genes that determine one's potential for physical and mental development. The potential of some is lower than that of others, but in a good environment at least the full potential of everyone can be realized. A good environment can shrink the gap between winners and losers. Furthermore the improvement of some aspects of the environment helps everyone, whatever their genetic endowment. Water purification prevents typhoid and cholera, irrespective of the intelligence of the person who drinks the water.

Inertia is the next barrier to consider. The sheer effort of introducing basic reform is an intrinsic deterrent to action. Our humane impulses are more conveniently satisfied by easy remedies. Unfortunately, these usually come too late in the chain of events to be effective. Giving hand-outs to the poor when they can prove by submitting to a means test that they are poor, is an example of what I mean. We may think that this approach disappeared when the Poor Laws of the Victorian era were replaced in the 20th Century by social insurance. It did to a degree. But the trouble with our income support programs is their discontinuity. A sharp and inhumane line is drawn between the working poor and the welfare poor. There is a chasm between the two, where there should be a bridge.

Inertia occurs in a different way when we embark upon a program of reform that is too small in scope or too brief in duration for a full effect to be achieved. This happened with the Headstart program in the United States. It was intended to give intellectual and emotional enrichment to culturally deprived pre-school children. The hope was that even a few months of enrichment might be sufficient. The consensus of those who have evaluated the Headstart programs is that the gains were proportional to the time that the child spent in the program *(22)*. This is not wholly surprising. The results of Headstart show that lesser effort is a form of inertia.

Another barrier to reform is the fragmented structure of the political and bureaucratic apparatus. Health, education, labor, environment, social insurance and welfare come under different jurisdictions. This restricts the opportunity for coordinated action. As a result no one has a comprehensive view of what is wrong and what must be done by way of remedy. I doubt that the solution to this problem lies in the creation of ever

more omnibus departments of government. The solution to fragmentation should be sought in better modes of communication among government departments which share responsibility for the human environment. Better communication must occur at the central level where policies are formed, and also at the peripheral levels where government officials deal with the complex problems of a single human being. Theoretical studies of organization and communication have advanced greatly in recent decades. It is time for this knowledge to be applied to the barrier of fragmentation. The impediment of fragmentation might be reduced in another way. When many unrelated groups are making plans, each should ask itself: how will our plan affect the health of the people to whom it is directed? Health should be on every policy agenda.

I have left to the last the powerful barrier of vested interest. To employers, landlords, investors, and taxpayers in general, the cost of reform is a strong deterrent to action. Our hearts may be warm, but they are cooled by an examination of our purse. Nevertheless, it is conceivable that much of the money we spend on "safety nets" could profitably be transferred to more basic reforms. What is more effective is not always more costly. But even when it is more costly, a substantial transfer of money could take place in our society without anyone losing an immense amount of happiness. The accumulation of money for its own sake is a burden, from which some might be glad to be relieved ere they not indoctrinated in the belief that acquisition of wealth is the ultimate human goal.

It is salutary to realize that reform may be the safety net for all of us whose vested interests oppose reform. The existence of a deprived group has dangers for the comfortable majority. In this context, the remarks of Geoffrey Vickers are worth pondering. "Some trigger is needed to convince the busy, cushioned comfortable west of the instabilities which are visible enough to the destitute, the impotent, the disillusioned and the desperate, even in their own countries" *(23)*.

In the process of improving the human environment, two ideas will be helpful. The first is that highly innovative reforms should be carried out on an experimental basis *(24)*. Introducing a reform on a small scale, with careful arrangements for determining both its positive and negative effects, is the prudent way to learn from experience. Applying the scientific method to reform is not cold-hearted. It protects us from doing harm when we mean to do good. However, the experimental approach can lead one down the slippery path of inertia if a successful experiment is regarded as the final achievement. A success must be built upon with all possible speed.

The other idea is the setting of goals against which the progress of reform can be measured. Measurement of progress is an antidote to inertia. Terris emphasizes the importance of establishing goals that specify not only what is to be achieved but when it is to be achieved *(25)*.

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(*Source:* Carol Buck, Department of Epidemiology and Biostatistics, The University of Western Ontario, London, Canada. Reprinted by permission from the author.
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Diseases Subject to the International Health Regulations

Cholera, yellow fever, and plague cases and deaths reported in the Region of the Americas up to 30 June 1986.

Country and administrative subdivision	Cholera cases	Yellow fever		Plague cases
		Cases	Deaths	
BOLIVIA	–	*3*	*3*	*26*
La Paz	–	3	3	26
COLOMBIA	–	*2*	*2*	–
Arauca	–	1	1	–
Meta	–	1	1	–
PERU	–	*43*	*40*	–
Junín	–	6	6	–
Madre de Dios	–	9	9	–
San Martín	–	28	25	–

Note: Since the publication of the last issue of the *Epidemiological Bulletin* (Vol. 7, No. 1, 1986), *Bolivia* has reported two additional cases of yellow fever in the La Paz Department, for a partial total of 53 cases and 35 deaths in 1985. Additional plague cases have also been reported for 1985. *Brazil* has added 9 cases to the year's figures (2 in the State of Bahia and 7 in the State of Ceará) for a total of 71 cases and no deaths.

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