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Nutritional Situation in the Americas

The nutritional situation of the countries of the Americas is influenced by various social, economic, and political factors that affect the availability and consumption of food. The economic crisis that began in the 1980s has reduced the population's real income and the purchasing power in most of the countries.

A population's nutritional status is assessed mainly on the basis of anthropometric indicators or by analyzing data collected by the countries' food and nutrition surveillance systems (FNSS). The information presented here in comes partly from reports on the food and nutrition situation supplied by the countries of the Region in preparation for the International Conference on Nutrition, organized by the United Nations Food and griculture Organization (FAO) and WHO and held in Rome in December 1992. In some cases, recent studies or surveys have been used, and in others, information has been drawn from World Bank, (1, 2), UNICEF, (3, 4), and PAHO, (5, 6) publications. The lack of uniformity in the information available, which stems from the different sources available, the time periods studied, the different criteria employed, and the different .assification reference values, hinders comparison and makes it difficult to obtain a cohesive picture of the nutrition situation in the Region.

The food and nutrition surveillance systems (FNSS) have helped considerably in updating information in the countries in which they have been implemented; however, countries there are still in which only limited use has been made of them. The present document uses the reference values and classification recommended by WHO, based on the tables of the National Center for Health Statistics (NCHS) of the United States of America. The classification of moderate or severe malnutrition is assigned to every value lower than -2 standard deviations to the left of the median of the weight or height for a given age. This criterion is also employed for the weight/height indicator.

Table 1 presents the information available on underweight for children aged 0 to 4 years in some countries of Latin America and the Caribbean. According to this data, the prevalence of malnutrition in the Region ranges from 0.8% in Chile (Sempé classification) to 38.5% in Guatemala (WHO classification). In addition to Chile, values lower than 10% were registered in Costa Rica, the United States, Paraguay, Uruguay, Jamaica, Brazil, Venezuela, and Trinidad and Tobago, while in Honduras, Guyana, and Guatemala values higher than 20% were observed. This information, however, should be interpreted with caution for the reasons noted above.

Table 2 shows the prevalence of low height-for-age among children age 0-4 years in 15 countries. The prevalence was highest in Bolivia, Ecuador, Guatemala, and Peru, where at least one out of every three children in this age group showed significant growth retardation. While the height-for-age indicator does not reflect the present nutritional status of the population, it is a good indicator of a country's overall health conditions and of its nutritional and socioeconomic history.

Height surveys conducted at schools offer the advantage of broad coverage, since they involve an entire school system; in most countries, the coverage of the school system is greater than that of the health services. In some countries, schoolteachers themselves, after receiving training, take the measurements and carry out the initial analysis of the data. Nevertheless, given the existence of factors that may led to errors and biases, it is wise to exercise caution in interpreting these findings on the nutritional situation of the countries.

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Table 1

Prevalence of low weight-for-age among preschool children[a]
(WHO classification)

Country	Year	Sample size	Source of data	Undernutrition (%)
Bolivia	1991	536,952	N.S.	11.7
Brazil	1989	7,314	N.S.	7.0
Chile	1989	1,251,217	H.C.	[b]0.8
Colombia	1989	1,973	N.S.	10.1
Costa Rica	1990	189,814	H.C.	2.8
Dominican Republic	1987	1,843	N.S.	12.5
Ecuador	1986	7,798	N.S.	16.5
El Salvador	1988	2	N.S.	15.2
Guatemala	1990	90	N.S.	38.5
Guyana	1987	...	H.C.	24.3
Honduras	1987	3,338	N.S.	20.6
Jamaica	1990	...	H.C.	6.9
Mexico	1988	7,426	N.S.	13.9
Nicaragua	1987-88	2,702	R-III S.	10.9
Paraguay	1990	3,389	N.S.	4.2
Peru	1991	7,036	N.S.	10.8
Trinidad and Tobago	1985	...	H.C.	9.9
Uruguay	1989	9,070	H.C.	6.5
United States	1992	1,726,799	[c]P.N.M.S.	2.9
Venezuela	1992	307,698	H.C.	[d] 8.2

Sources: International Conference on Nutrition, Caribbean Food and Nutrition Institute, and sources cited in notes 3-6.

(a) 0-4 years of age, except where other ages are specified.
(b) Sempé Classification. Cut-off point: approximately 75% of the median.
(c) Data are submitted by participating states (approximately 70% of all the states in the country) to the Pediatric Nutrition Surveillance System (PNSS) administred by the Centers for Disease Control and Prevention. These data are based on measurements of children taking part in aid programs funded by the United States Government, such as the Supplemental Food Program for Women, Infants and Children under the Departmentof Agriculture. The information is not representative of the entire preschool population, since these programs serve low-income groups at high risk of malnutrition.
(d) Cut-off point: 3rd percentile; 0-72 months. Information from the national food and nutrition monitoring system.

N.S. National survey
H.C. Health centers
R.H.C. Rural health centers
R-III S. Region III survey
P.N.M.S. Pediatric Nutrition Monitoring System

Table 2

Prevalence of low height-for-age among preschool children(a)

(WHO classification)

Country	Year	Sample size	Source of data	Undernutrition %
Bolivia (b)	1989	2,537	N.S.	38.3
Brazil	1989	7,314	N.S.	15.4
Colombia	1989	...	N.S.	16.6
Dominican Republic(c)	1987	1,843	N.S.	20.8
Ecuador	1986	7,798	N.S.	34.0
El Salvador	1988	2,000	N.S.	29.9
Guatemala	1987	2,229	N.S.	57.9
Honduras	1987	3,338	N.S.	25.1
Mexico	1988	7,426	N.S.	22.3
Nicaragua	1987	2,702	R-III S.	21.9
Paraguay	1990	3,389	N.S.	20.3
Peru	1991	743	R.H.C.	35.2
Uruguay	1989	9,070	C.S.	14.6
United States	1992	1,726,799	P.N.M.S.	(d)4.7
Venezuela (e)	1992	307,698	H.C.	17.0

Sources: International Conference on Nutrition and sources cited in notes 3-6.

(a) Children 0 a 4 years of age, except where other ages are specified.
(b) Children 3-36 months.
(c) Chiledren 6-36 months.
(d) Data are submitted by participating states (approximately 70% of allthe states in the country) to the Pediatric Nutritional Surveillance System (PNSS) administred by the Centers for Disease Control. These dataare based on measurements of children taking part in aid programs funded by the United States Government, such as the Supplemental Food Program for Women, and Children under the Department of Agriculture. The information is not representative of the entire population, since programs serve low-income groups at high risk of malnutrition.
(e) Cut-off point: 3rd percentile; 0-72 months.

N.S. National survey
H.C. Health centers
R.H.C. Rural health centers
R-III S. Region III survey
P.N.M.S. Pediatric Nutrition Monitoring System

Table 3 shows the results of the latest height surveys carried out among schoolchildren in Latin America. The countries in which low height-for-age was most prevalent were Honduras (39.8%), Guatemala (37.4%), and Ecuador (37.1%). The prevalence was lowest in Uruguay (4.0%), Chile (8.5%), and Costa Rica (9.2%). In general, the prevalence rates registered are relatively low, ranging from 0.4% to 6.3%. The values were below 2% in Cuba, Ecuador, Guatemala, Paraguay, Peru, United States, and Uruguay, and over 5% in Mexico and Venezuela.

The rates of prevalence registered of underweight for height are relatively low, ranging between 0.4% and 6.3% The values are lower than 2% in Paraguay, the United States, Guatemala, Peru, Ecuador, and Uruguay, and higher than 5% in Venezuela and Mexico.

Data available to the Food and Nutrition Program of PAHO indicates that for Latin America and the Caribbean the prevalence of deficit of weight for age is 11,0%, weight for age 21,9% and weight 3,1% in children less than 5 years of age. These figures are somewhat different to those found by UNICEF in 1993 (13,8%, 27,7% and 1,8%) (4).

Table 3
Prevalence of low height-for-age among schoolchildren

Country	Year	Number Examined	% < -2 D. E.
Bolivia	1988-90	...	35.0
Costa Rica	1989	...	9.2
Chile	1985	55,716	8.5
Ecuador	1990	251,240	37.1
El Salvador	1988	...	30.0
Guatemala	1986	206,014	37.4
Honduras	1986	170,299	39.8
Mexico	1991	...	9.5
Nicaragua	1989	...	18.7
Panama	1988	60,812	24.4
Uruguay	1987	47,160	4.0
Venezuela (a)	1992	46,377	22.8

Sources: International Conference on Nutrition and sources cited in notes 5 and 6.

(a) Cut-off point: 3rd percentile; 7-14 years of age.

Trends of Nutritional Status

The variations in the prevalence of undernutrition in the Region have been observed in 16 countries studied at two points in time. The interval between observation varied from 22 years in Honduras to 3 or 4 years in Nicaragua and Panama. Given the diversity of indicators employed and the differences in the time intervals between figures, this table provides only a broad overview and is not suitable for making comparisons between countries.The countries examined show an overall downward trend undernutrition rates, although this trend was not even. Only two countries, Guatemala an Panama, showed an increase in their percentages. Brazil and the Dominican Republic, on the other hand, registered substantial reductions.

The successes achieved in some countries can be attributed largely to the implementation of strategies such as breast-feeding, adequate weaning practices, appropriate feeding during acute episodes of disease, nutrition education, and programs for immunization and control of diarrhea and respiratory diseases.

It should be noted that in many countries in which malnutrition has been reduced to moderate levels, there continue to be wide gaps between geographic regions and population strata that are not shown in the overall figures. The implementation of effective nutrition surveillance systems should facilitate the collection of disaggregated data, which will serve to identify lagging areas so that they can then be targeted by appropria interventions.

Micronutrient Deficiencies

This section discusses only iron, iodine, and vitamin A deficiencies. In general, these deficiencies are localized in certain geographic areas and affect the most vulnerable segments of the population.

Iron Deficiency. Information on the prevalence of iron deficiency in the Region is limited. In most cases, the available data come from fairly limited studies that were not representative of the national situation, or from information provided by health services, which have variable coverage.

According to WHO, the cut-off point below which anemia is considered to exist is 11 grams of hemoglobin per deciliter of blood in children under the age of 5 and pregnant women, who are the most affected groups. The cut-off point for population groups living at high altitudes has not yet been satisfactorily defined.

At a meeting held in Buenos Aires, Argentina, in 1992 ,(7) information was presented from several studies carried out in eight South America countries. These data indicated that the prevalence of anemia in pregnant women ranged from 61% in Misiones, Argentina, to 13% in Asunción, Paraguay. The rates of anemia amon preschoolers were between 22% and 45% in Brazil, 18% in Chile, and between 27% and 53% in Peru.

In Costa Rica the figure was 27.6%, in Cuba it ranged between 20% and 25%, and in El Salvador it was 12.3%. Among children under 5 years old, according to the information submitted, the prevalence of anemia ranged from 29.6% in Costa Rica and 23% in El Salvador to 8% in Venezuela. The sizable disparities observed suggest the existence of significant biases in many of these figures, probably resulting from the use of inappropriate sampling procedures or information sources.

Iodine deficiency. Goiter is the best known manifestation of iodine deficiency, but in reality this deficiency produces a broad spectrum of disorders that may affect individuals from the earliest stages of fetal and neonatal development, through childhood, and into adolescence, and adulthood.

Endemic goiter is considered a public health problem when it affects more than 10% of an examined population. Low urinary excretion of iodine is an indicator of deficiency of this micronutrient. When the median of the excretion values for a community is below 5 micrograms of iodine per deciliter of urine, that community is considered to be at moderate or high risk of suffering iodine deficiency disorders.

The results of several studies on the prevalence of goiter and urinary excretion of iodine carried out in 17 countries in the Region between 1983 and 1991 show a prevalence of goiter over 50% in Venezuela (Mérida) and Colombia (Chameza). In Bolivia, Brazil (four regions), Ecuador, El Salvador, Guatemala, Panama (Azuero), Paraguay and Peru (in the highlands and jungle), a prevalence ranging between 20% and 50% was observed. L Low ioduria was found among a high percentages of the population in Mexico (Hidalgo), Paraguay, and Peru. It should be bore in mind, however, that the prevalence varies considerably in different areas within the same country, which indicates that in many cases the problem is restricted to certain regions (8).

The most effective and economical method for preventing endemic goiter is salt iodization (iodine concentration between 25 and 50 parts per million is generally considered adequate) (9). In order for the iodization process to be effective, it is essential to maintain a consistent iodine concentration and to ensure that salt reaches those who need it and that they consume it regularly.

The establishment of effective salt iodization programs calls for several steps, including the enactment of appropriate legislation and regulations, mobilization of adequate funding, adoption of policies at the highest levels of government, and adequate technical and administrative support. At the same time, health education in the community is necessary to discourage consumption of uniodized salt (8).

Most of the countries in the Region have established legal provisions that require iodization of all salt intended for human consumption. Argentina, Bolivia, Colombia, Guatemala, Honduras, Nicaragua, Paraguay, Peru, Uruguay, and Venezuela also require the iodization of salt for animal consumption. Among Latin American countries, salt iodization began in Brazil, Colombia, and Guatemala in the 1950s; in Mexico, Paraguay, Uruguay, and Venezuela in the 1960s; and in Argentina, Bolivia, Costa Rica, Ecuador, El Salvador, Honduras, and Panama in the 1970s. Chile enacted a law on salt iodization in 1959, which was overturned in 1982 but reestablished in 1990. Cuba and the Dominican Republic do not have such a law. It should be noted, however, that the enactment of legislation does not guarantee that salt will be iodized, for even where laws are in place, violations are frequent.

Vitamin A Deficiency. This deficiency is considered a public health problem when 10% or more of the population under the age of 5 shows low serum retinol levels (under 20μg /dl) or when 5% or has deficient levels (under 10μg/dl). Vitamin A deficiency constitutes a public health problem in certain geographical areas of the Region, generally in economically deprived rural localities.

Recent data about prevalence of low levels of serum retinol in different countries suggest that there is no problem of vitamin A deficiency at national level in Costa Rica, Bolivia, Ecuador and Panama. However, vitamin A deficiency is found in same geographic areas of these countries (such Bolivia and Ecuador), usually in rural areas, economically depressed. The data available from the last decade shown a prevalence of low levels of serum retinol varying between 5% and 48,8% in different areas of the countries of the Region.

Studies conducted by the Institute of Nutrition of Central America and Panama (INCAP) during the 1970s found that between 18% to 43% of the children under 5 years of age in the subregion suffered from Vitamin A deficiency. In light of those figures, several countries of the subregion initiated programs for the enrichment of sugar with retinol palmitate, which significantly improved the situation. Many of these programs were suspended during the 1980s but are now being reestablished, and other countries are considering the possibility of launching similar initiatives.

Chronic Diseases Related to Nutrition

Almost all the Region's countries have experienced a rise in the prevalence of noncommunicable chronic diseases associated with diet and nutrition. During the 1970s, mortality from these diseases showed a relative increase of 105% in South America, 56% in Central America, Mexico, and Panama, and 21% in the Caribbean (6).

This shift int he nutritional and epidemiologic profile of the Region occurred during a period characterized by rapid changes in eating and in health care patterns that have affected both the most affluent segments of the population and those in the low-and middle-income strata. The problem has not been limited to adults, but has also affected children. A WHO report (10), for example, indicates that the prevalence of obesity among children aged 0-6–taking as a criterion body weight of more than two standard deviations above the median weight-for-height reference value, ranged from 2.2% in Nicaragua and Brazil to, 2.5% in Argentina, 3.4% in Venezuela, 3.8% in Panama, 4.1% in Peru, 4.6% in Honduras, 5.2% in Bolivia, and 10.7% in Chile.

Few studies have been conducted on the prevalence of obesity in Latin America. Recently, the network of food and nutrition surveillance systems in Latin America and the Caribbean reviewed the nutritional status of adults in 15 countries of the Region based on the body mass index (BMI=weight (kg)/[stature (m)]2). The study revealed a high prevalence of obesity in most of the countries,– sometimes as high as 50% of the population studied. The highest prevalence was found in Uruguay, where 50.7% of the female population studied and 49.9% of the male population were obese, based on the criteria applied. The prevalence of obesity observed among males and females, respectively, in the various countries was 49.7% and 39.5% in Chile, 50.0% and 30.1% in Colombia, 39.8% and 28.8% in Brazil, 39.6% and 22.1% in Costa Rica, 39.4% and 31.5% in Cuba, 36.7% and 28.2% in Peru, and 28.3% and 39.9% in Argentina. In Mexico the prevalence among females was 35.8%.

Generally speaking, obesity is more prevalent among females than males and tends to become more prevalent with age. The highest obesity rates among young women (20-29 years) were found in Chile,Costa Rica, Cuba, and Peru. *It is to be noteworthy that as the socioeconomic* level diminishes the prevalence of obesity among both the general population and females increases. The phenomenon has been observed in Chile (12, 13) and among persons of Latin American origin living in the United States (14).

In the United States of America, the prevalence of grade II-III obesity (BMI>30.0 kg/m^2) is 12% among both males and females. Among Latina American women, a prevalence of obesity similar to that found among women in the United Sates is seen in Costa Rica (12%), Cuba (12.2%), and Brazil (12.4%); it is slighter lower in Peru (10.9%) and Mexico (10.4%), but higher in Uruguay (16.9%), Chile (18.6%), and Colombia (23.3%). The prevalence of obesity among Latin American males is similar to that among U.S. males only in Uruguay (11.2%); in the rest of the countries, the values range from 8.1% in Chile to 5.3% in Colombia, 5.2% in Peru, 5.1% in Brazil and Cuba, and 2.8% in Costa Rica.

Obesity is a public health problem that requires speciai attention. Not only it is associated with lowered life expectancy, but it also constitutes a risk factor for diseases such as type-II diabetes, arterial hypertension, and other cardiovascular and chronic respiratory disorders. The physical, functional, social, and emotional problems linked to obesity and overweight can also be allevieted through the reduction of excess body fat (15).

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Source: Division of Health Promotion and Protection, Food and Nutrition Program, HPN/HPP, PAHO.

Cuban Epidemic Neuropathy

An update

An international conference was held in Havana, Cuba, from 12 to 15 July 1994, to review the most significant findings of the latest studies on cuban epidemic neuropathy (CEN).

By 31 May 1994 the total number of cases had risen to 50,945, with a prevalence rate of 462 per 100,000. Of that total 23,073 (45.3%) were of the optic form and 27,872 (54.7%) of the peripheral form. Among patients who had the optic form, 49% experienced full recovery with one of the various forms of treatment. However, 28.6% show some improvement but still have visual deficiencies, while 22.4% re still experiencing visual problems. Of those who had the peripheral form, 42% recovered fully , 29.3% show partial improvement, symptoms persisted in 24.6% and the situation has worsened in 4.1%.

Until the 10th of July of this year, there were only 102 new cases, basically of the peripheral form. The highest number of cases continues to be reported in Pinar del Río and Cienfuegos, and there are provinces that have had no cases this year. Of these new cases, 27.5% are of the optic form and 72.5%, of the peripheral form.

Over 300 people attended the Conference, where general reports were presented in plenary session. The participants were then divided into working groups in related areas such as virology, clinical medicine (neurology and ophthalmology), nutrition and toxicology, and the general management of CEN. Each research group presented its respective findings. The principal research projects discussed were:

Clinical pathology: The clinical characterization of CEN; multicenter clinical trials with 11 treatment groups in patients with CEN; sural nerve biopsies in 33 patients with CEN; hematological and immunological assessment of the acute phase in cases and controls.

Epidemiology: Descriptive study in children under 15 years of age; nationwide descriptive study in young people aged 15 to 24; nationwide case-control study in the adult population; case-control study on Isla de la Juventud; descriptive study of CEN patients in Pinar del Río; case and control study in the province of Pinar del Río; case-control study in selected municipalities; joint case-control study with the CDC (Atlanta, GA, United States) in the province of Pinar del Río.

Nutrition: Study of food availability and distribution in Cuba in the period 1989-1992; dietary factors in CEN on Isla de la Juventud; anthropometric and biochemical study of CEN.

Biological agents: Analysis of blood and cerebrospinal fluid in cases and controls; isolation of virus in lactating mice (intracerebral and subcutaneous method); isolation of virus in rabbits inoculated retro-orbitally and intravitreously; electron-microscopy of supernatants from VERO cell cultures and human fibroblasts infected with Cerebro-Spinal Fluid (CSF) samples from patients; nucleic acid study of viruses isolated from the CSF of patients; ascertainment of viral proteins in the sera of both the sick and the healthy; computer study of sequence homology and protein engineering; serological studies of neutralizing antibodies and immunoglobulin M in cases and controls; seroprevalence study of viral antibodies in the population; study of the interferon systems against the viruses isolated; study of HTLV-I and II in the sera of patients; studies of enterovirus ribonucleic acid in biopsies of nerve tissue from patients with CEN.

Toxicology: Case-control studies of potentially toxic substances in biological samples; studies of potentially toxic substances in food, tobacco, and alcoholic beverages; studies of genotoxicity in cases and controls.

The main findings of this research lead to the following conclusions:

1. CEN is a clinical syndrome with two basic forms, the predominantly optic and the peripheral. It has a variable latent period, with clinical manifestations that have been described previously. Biopsies have revealed primarily axonal lesions related to the nerves that consume large amounts of energy. No alterations were found in terms of humoral and cellular immunity, specific acute response, coagulation, or other blood parameters. There was evidence of reduced levels of iron and B-complex components.
2. There have been no fatalities attributable to CEN.
3. The risk to children, adolescents, the elderly, and pregnant women was very low. Both sexes were affected.
4. Greater risk of CEN was associated with diminished frequency, quality, and quantity of food consumption. The proportion of carbohydrate intake had risen, while consumption of proteins of animal origin had fallen. Moderate deficiency in some vitamins (A, B1, B2) was found.
5. Alcohol consumption and smoking were the factors associated with highest relatively risk in the case-control studies. No association with exposure to pesticides was found. The frequency of occurrence of cases within the same household was very low, and no temporal-spatial case groupings were observed.
6. Coxsackie virus was found in the CSF of patients. Viral ribonucleic acid was identified in the CSF of patients, as in inoculated mice. The possible presence of the Inoue-Melnick virus should also be mentioned.
7. The study of zinc, manganese, iron, calcium, magnesium, iodine, and sodium content in food and phosphates in plants yielded normal values. Some foods that are routinely consumed (beans, rice, potatoes, and cassava) have selenium values below the recommended levels. Low levels of carotenoids (alpha and beta carotene, lycopene) were found in the cases, compared with the controls.

A comprehensive explanation of the etiology and behavior of CEN is still not in the offing. The Ministry of Public Health of Cuba has responded to the problem in an integrated, multisectoral, and interdisciplinary manner. PAHO has served as a catalyst for the support of the international scientific community and has been recognized by the Government of Cuba for this action.

Source: Division of Health Promotion and Protection, Program for Health Promotion and Social Communication, HPP/HPS, PAHO.

Leishmaniasis in the Americas

This parasitic zoonosis is occurring with increasing frequency in several countries of the region. Its pathological manifestations vary both in clinical form and degree of severity depending on the geographical area in which the disease occurs, the parasite species that causes it, and the type of vector involved in transmission. Because multiple vectors and reservoirs exist for each of the various parasite species, prevention and control of leishmaniasis represents a growing challenge. This is true especially where new human settlements have been established in enzootic areas as part of essential—though not necessarily well-planned—development projects.

In the last ten years several serious outbreaks of cutaneous leishmaniasis have occurred, including major ones in Cidade Nova, Manaus, Brazil, and one among settlers in Rondônia. The number of cases that go unreported or are never diagnosed is so large that official statistics are of little value for estimating the true incidence of the disease. The results of studies carried out to ascertain the incidence among humans are also of limited value.

In 1993 the World Health Organization estimated the overall prevalence of leishmaniasis at 12 million and the population at risk at about 350 million people. Ninety percent of all the reported cases of visceral leishmaniasis have occurred in Bangladesh, India, Nepal, and Sudan, while 90% of all cases of cutaneous leishmaniasis have occurred in Afghanistan, Iran, Saudi Arabia, Syria, Brazil, and Peru. The annual incidence of cutaneous leishmaniasis is 1-1.5 million cases, and that of visceral leishmaniasis is 500,000 new cases per year.

In the Americas it is estimated that for each reported case, four to five more actually occur. In 1993 around 1,000 new cases were reported in Costa Rica, Guatemala, Honduras, Nicaragua, and Panama, and in Brazil 20,000 new cases were reported. Based on these figures, the annual number of new cases in the region is estimated to be at least 100,000.

The data presented below concern mainly Brazil, Mexico, and the countries of the Andean area and Central America, which are reporting increasing numbers of leishmaniasis cases in human.

Visceral Leishmaniasis

Human cases of visceral leishmaniasis (VL) have been reported from Mexico to northern Argentina. This clinical form is associated with malnutrition. **VL** is primarily a rural disease of either domestic or peridomestic, although there are some periurban foci. Recently an increase in the disease has been observed in suburban areas, and urban transmission is occurring in some large cities. The etiologic agent is *Leishmania chagasi* and in most cases the principal vector is *Lutzomyia longipalpis*. Domestic dogs are the primary reservoir, although foxes and opossums may harbor and spread the disease in special situations.

The incidence is highest in northeastern Brazil, but the disease has been detected in almost all semiarid areas of the region. No cases of **VL** have been reported in Belize, Costa Rica, Panama, or Peru. However, the vector *Lu. longipalpis* exists in Costa Rica and Panama (with distribution restricted to one island in the gulf of Panama) and *L. chagasi* has been found in Costa Rica in atypical cutaneous cases, generally in children with nodular lesions (non-ulcerative) but without signs or symptoms of visceral infection. The disease is suspected to exist in western Ecuador, but *Lu. longipalpis* has not been found in the country. No cases of **VL** have been reported in the Caribbean, with the exception of one apparently indigenous case reported on Guadeloupe.

In the **United States**, the parasite is found among dogs in a single focus in the state of Oklahoma, from which 14 indigenous cases have been reported. To date, no indigenous human cases have been reported. In 1993 eight cases of atypical **VL** were reported among veterans of Operation Desert Storm who had served in eastern Saudi Arabia, where **VL** does not occur frequently. The parasite isolated was identified as *L. tropica*, which generally causes only cutaneous lesions.

In **Mexico**, during the period 1951-1989 only nine cases of **VL** were reported, eight of them in an area located southwest of Mexico City (in the Balsas river basin) in the states of Guerrero and Puebla and one case in the state of Oaxaca in the southeast. In 1990 one case was diagnosed in the state of Chiapas, where in the last two years seven more cases have been reported in the *municipios* of Berriozábal, Ocozocoautla, Jiquipilas, Villa de Acala, Villa Corzo, and Margaritas, as well as in the state capital, Tuxtla Gutiérrez. Six of the cases were detected in children under the age of 5 (one of whom died) and the other in an individual aged 22 years.

In **Brazil**, **VL** is widespread. Cases have been reported in at least 17 of the 26 states, and over the last ten years some 15,000 cases have been detected. Of these, 1,300 occurred in the states of Piauí and Maranhão in 1993. The endemic foci (which account for 70% of the cases) are located in the northeastern portion of the country in the states of Bahia, Ceará, Maranhão, Pernambuco, Piauí, and Rio Grande do Norte, where there are semiarid areas with sparse xerophilous vegetation. In Jacobina, Bahia, the prevalence of VL among children under 15 is 3.1%, and the annual incidence is 4.3 cases per 1,000 population in this age group. Sixty percent of the cases are detected in children under 5 years of age, and 60% of these cases are in males. In the state of Rorâima there is a particularly large focus which extends into Venezuela and Guyana. Another focus in the state of Pará (around the city of Santarém) is noteworthy because it is located in the Amazon region, where the climate is not as dry as the places in which **VL** is normally found.

Canine visceral leishmaniasis is also very widespread, with the infection rate generally fluctuating between 3% and 13%.

In **Bolivia** sporadic cases of **VL** have been reported in the warm valleys and in the department of La Paz. Canine visceral leishmaniasis cases have been reported in the same area.

VL has been endemic in **Colombia** since 1944. The disease is found most commonly in an area encompassing the valley of the Magdalena river and its tributaries and extending north and south in dry, rocky places at altitudes of less than 900 meters above sea level. Between 1944 and 1980 a total of 107 cases were reported, 80% in children under 5 years of age. In 1988, 53 cases were reported and in 1990, a total of 150. At present, the disease is found in 6 of the country's 31 districts (Bolívar, Córdoba, Chocó, Huila, Sucre, and Tolima). During the biennium 1991-1992 a total of 121 cases were reported. In 1993, as of September, the number of reported cases stood at 28.

In some areas seropositivity among dogs can reach 20%. The first infected dog was diagnosed in 1969. A high level of infection was detected among opossums, and parasitological testing carried out in one focus found 32% of the animals examined to be positive. Strains from dogs, opossums, and phlebotomines (*Lu. longipalpis*) were identified as *L. chagasi*. Recently, natural infection of *Lu. evansi* has been verified in a **VL** focus in the department of Córdoba.

In **Venezuela** approximately 500 cases of **VL** have been reported to date (300 of them during the five-year period 1988-1992), most of them in children under 10 years of age. An examination of 2,276 dogs found 52 to be infected with leishmanial parasites. **VL** is believed to occur sporadically in almost every state in the country.

In **El Salvador** the first imported case of **VL** was detected in 1947. Between 1974 and 1984 only 31 cases were reported (27 indigenous and 4 imported from Honduras). Most were found in children under 5. Subsequent studies identified 20 additional indigenous cases that had occurred between 1952 and 1984. The sole focus of the disease is located in western El Salvador, along the border with Honduras and Guatemala. In 1993 active case-finding identified six cases, yielding a rate of 1.7 per 100,000 population.

In **Guatemala** only seven cases of VL have been diagnosed since 1949, when the first case was reported. Between 1949 and 1962 five cases were detected, and one new case was diagnosed in June 1991. The endemic area is located in the arid valley of the Motagua river (Guastatoya) in southeastern Guatemala. Between 1991 and December 1993 four additional cases were confirmed, one each in Jacaltenango and Huehuetenango and the other two in the aforementioned area in the southeast of the country.

In **Honduras**, 53 microscopically confirmed cases and 16 suspected cases of VL were reported between 1975 and 1983. Of these, 95% occurred in children under three years of age. The principal focus is in southern Honduras, in the departments of Choluteca, Valle, and El Paraíso. Cases have also been reported in the departments of La Paz, Morazán, Intibucá, and Lempira. During 1990 and 1991 more than 200 cases were reported. The first cases of **diffuse cutaneous leishmaniasis (DCL)** were found on the island of El Tigre in the gulf of Fonseca in the Pacific Ocean. This clinical form is associated with cases of visceral leishmaniasis and the presence of phlebotomines infected with *L. chagasi*. Eighteen percent of the dogs on El Tigre are seropositive. Currently there are more than 400 cases on record.

In **Nicaragua** the first indigenous case was reported in 1988 in a female child aged 3 who resided on the island of Zapatera in Nicaragua lake (Cocilboca). That child died. Cases of **cutaneous leishmaniasis (CL)** probably caused by *L. chagasi* have also been diagnosed; the biotype in these cases has been the same as that found across the border in Honduras, where **VL** is common.

Cutaneous Leishmaniasis (CL)

Cutaneous leishmaniasis is present from the southern United States (Texas) to northern Argentina. Canada, Chile, Uruguay, and most of the Caribbean islands are free of the disease.

In the Americas there are 13 species of *Leishmania* that affect man, each of which may take three different forms. This tremendous diversity of forms of the parasite, each with its own epidemiology, complicates **CL** control efforts enormously.

The etiologic agents of **simple cutaneous leishmaniasis (CL)** include all the varieties of *Leishmania* that have been isolated from human beings, including *L. chagasi* (with the possible exception of the species present in the Dominican Republic, which causes only diffuse cutaneous leishmaniasis (**DCL**) or subclinical infection).

The etiologic agents isolated from patients with mucocutaneous leishmaniasis (**MCL**), or espundia, are *L. braziliensis* and *L. panamensis*, but in the case of *L. braziliensis* the frequency and severity are greater.

Diffuse cutaneous leishmaniasis (DCL) is the clinical form seen in persons with abnormal immune response. This may be a consequence of the existence of a specific immunological deficiency in combination with the presence of a relatively non-immunogenic parasite. The incidence of **DCL** is low, but cases are detected from the United States to Brazil. The etiologic agents associated with this form are *L. mexicana*, *L. amazonensis*, and a new, as-yet-unnamed species identified in the Dominican Republic.

In the **United States**, **CL** is found only in the state of Texas in an area that is an extension of the focus encompassing the Mexican states of Tamaulipas, Nuevo León, and Coahuila. Since 1940 a total of 23 cases have been officially recorded (including one case of (**DCL**), but there is evidence that other cases have occurred. In 1989 an outbreak of at least eight cases occurred around the city of San Antonio. A number of cases have occurred in the vicinity of the city of Uvalde, where an infected domestic cat was also found; the animal presented a clinical picture similar to that of **DCL** in humans. The parasite isolated was identified as *L. mexicana*. In 1993 it was reported that 58 human cases of **CL** had occurred during the period 1985-1990. It was established that 58% of the patients had possibly been infected in Mexico or Central America. Of these, 39% had been tourists and 46% had been persons carrying out field studies. Many of the patients developed lesions within a month after their return to the United States. In general, between 13 and 1,022 days elapsed before they sought treatment (the average was 112 days), and they consulted 1-7 physicians before the diagnosis was confirmed. *Neotoma micropus* has been found to be naturally infected and are now assumed to be the reservoir. Although the vector in Texas is unknown, *L. mexicana* has been isolated from *Lu. anthophora* under experimental conditions. The predominant anthropophilic phlebotomine in the area is *Lu. diabolica*.

In **Mexico**, *L. mexicana*, which causes the chiclero ulcer form of cutaneous leishmaniasis, exists primarily in the southeastern states of Veracruz, Tabasco, Oaxaca, Chiapas, and especially in Yucatán, Quintana Roo, and Campeche on the Yucatán peninsula. During the period 1987-1989 Tabasco recorded 397 cases, including 7 cases of **DCL**. Since 1989 the number of cases has been rising in Chiapas, where rodents, especially arboreal varieties, are presumed to be the reservoir, as is the case in Belize. In addition, amastigotes have been detected in cutaneous lesions in dogs. The proven vector in Quintana Roo is *Lu. olmeca olmeca*. *L. mexicana* has been isolated in the states of Michoacán, Jalisco, Nayarit, Quintana Roo, Yucatán, Coahuila, Tamaulipas, Tabasco, and Veracruz. In northern Mexico, close to the border with Texas (United States), there is a focus encompassing the states of Coahuila, Nuevo León, and Tamaulipas. Diffuse cutaneous leishmaniasis has been reported in 43% of the cases (7 out of 16) in Coahuila, and this clinical form is also seen in Veracruz, Tabasco, and Michoacán. The parasite has not been completely characterized, but it is quite similar to *L. mexicana*, although it does not grow rapidly or abundantly in culture medium. *Lu. diabolica* is the suspected vector in the northeastern Mexico. One case of CL caused by *L. braziliensis* was reported in Santo Domingo de Petapa, Oaxaca, in 1989. Since then, cases of **DCL** have been found in the states of Chiapas, Oaxaca, Veracruz, and Guerrero.

In **Brazil**, the cutaneous and mucocutaneous forms of leishmaniasis are quite widespread. Cases of CL have been reported in 24 of the 26 states. The other two states, Rio Grande do Sul and Santa Catarina, report cases sporadically. The greatest number of **CL** cases in the past five years have been reported in Ceará, Maranhão, Pará, Bahia, Rondônia, Mato Grosso, and Amazonas, all of which reported more than 1,000 cases per year. During the 1980s a total of 119,683 cases were reported. Case-reporting peaked in 1987 at 26,611 cases. Since 1987 more than 20,000 new cases have been reported each year. This increase can be attributed to various factors, including better case detection, "explosive" economic development, urbanization in endemic areas, establishment of settlements and construction of hydroelectric dams close to or in the midst of virgin forests where the disease is endemic, mining for gold and other minerals, and road-building activities. The principal etiologic agents are *L. guyanensis*, *L. braziliensis*, *L. amazonensis*, and the new species *L. lainsoni*, *L. naiffi*, and *L. shawi*.

Human disease caused by *L. amazonensis* is not common. Only 3% of all human cases seen at the "Evandro Chagas" Institute in Belén are due to *L. amazonensis*. Most of these cases are found in patients who seek medical care (passive detection). Cases caused by this parasite have been reported mainly in the Amazon basin (states of Pará, Amazonas, Mato Grosso), in the northeastern portion of the country (Maranhão, Ceará, Bahia) and in the southeast (Minas Gerais, Espírito Santo). The principal vector is *Lu. flaviscutellata*. Naturally infected *Lu. olmeca nociva* and *Lu. reducta* have been found in the states of Amazonas and Rondônia. The confirmed reservoirs are mainly terrestrial mammals (rodents).

L. braziliensis in Brazil produces large and chronic ulcers which tend to metastasize, involving nasopharyngeal tissues in 4%-5% of cases. It is found throughout the area south of the Amazon River, but especially in the states of Mato Grosso, Minas Gerais, Pará, Rondônia, Acre, and São Paulo. Few cases have been reported north of the Amazon River. This species normal habitat is the forest, although it is also found in secondary vegetation in rural areas. Its significant incidence among children suggests that some transmission occurs in the peridomiciliary environment. The vector in part of the state of Pará (Serra dos Carajás) is the aggressive and anthropophilic *Lu. wellcomei*. On cacao plantations in tropical forests in the state of Bahia and in the hills of the *municipio* of Baturité in the state of Ceará, *Lu. whitmani* has been found to be naturally infected with *L. braziliensis*. It is suspected that *Lu. intermedia* is the vector in the southern part of the country. To date, no jungle reservoirs have been identified. *L. braziliensis* has been isolated from dogs in at least six Brazilian states and from equines in Ceará, Rio de Janeiro, and Bahia. Rodents and marsupials have also been found to be infected with *L. braziliensis*.

Infections with *L. guyanensis* are found in the northern Amazon region (states of Amazonas, Amapá, Pará, and Roraima, north of the Amazon River). Thousands of cases have been reported around the city of Manaus, mainly in the suburbs. Among a group of soldiers participating in a course on jungle warfare, 80% developed a cutaneous lesion within three months. Some human cases produced by *L. guyanensis* occur south of the Amazon River, but are not indigenous to those regions. The principal confirmed reservoirs are *Choloepus didactylus, Tamandua tetradactyla, Didelphis marsupialis and Proechimys guyanensis*.

Twenty-three human cases of cutaneous leishmaniasis caused by *L. lainsoni* have been reported in the state of Pará. The natural reservoir is the paca (*Cuniculus paca*) in the area surrounding the Tucuruí hydroelectric generating station (state of Pará). The suspected vector is *Lu. ubiquitalis*.

Human cases of cutaneous leishmaniasis caused by *L. naiffi* have been reported in the state of Amazonas. The parasite has been isolated from edentates in the states of Amazonas, Pará, and Rondônia. The vectors from which this parasite has been isolated are *Lu. ayrozai, Lu. paraensis*, and *Lu. squamiventris*. All these phletobotomine species are anthropophilic.

Human cases of cutaneous leishmaniasis have also been reported in the states of Acre and Pará. The parasite identified in these cases, *L. shawi*, has been isolated from the two-toed sloth. The vector is *Lu. whitmani* in the Brazilian Amazon region (state of Pará, south of the Amazon River).

In **Bolivia** the cutaneous, mucocutaneous, and diffuse cutaneous forms of leishmaniasis are all common. The old foci, in which transmission rates are low but the mucocutaneous form is frequent, are located at medium altitudes (1,200-1,500 meters above sea level) in the warm valleys of the Andes mountain range. The new foci, which are much more active, are in low-lying tropical areas (newly settled areas), in which humans come into close contact with virgin forests. Transmission occurs mainly within dwellings and at night. Most cases are detected in children (of both sexes), who generally show multiple facial lesions. The suspected vector is *Lu. nuñeztovari anglesi*. The parasite that has been isolated from human lesions and from phlebotomines is *L. braziliensis*. In the Yapacani region (department of Santa Cruz), transmission appears to be less intensive. The strains isolated in this region have generally been *L. braziliensis* or, less frequently, *L. amazonensis*. Three cases of diffuse cutaneous leishmaniasis have been reported in the department of La Paz, but the parasite was not identified. During the period 1975-1991 a total of 4,058 cases were reported, 739 of which were **MCL.**

In **Colombia,** cases of cutaneous and mucocutaneous leishmaniasis are presently being reported in all districts. The number of cases has risen, which is attributed to increased detection and the establishment of new human settlements in enzootic areas. **CL** primarily affects the populations living in the Atlantic coastal region, the Amazon region, the eastern plains, the Magdalena river valley, the Cauca river valley, and the Pacific coastal region. During the period 1981-1986 more than 9,300 cases were reported, including 600 cases of **MCL.** In 1988 there were 3,322 cases, of which 139 were **MCL.** During 1991-1992 the number of reported cases totaled 10,313, with rates of 13.05 and 17.33 cases per 100,000 population for those two years, respectively. As of September 1993, a total of 3,082 cases had been reported, 30 of which were **MCL.** The mucocutaneous form of the disease occurs principally in the departments of Antioquia, Arauca, Bolívar, Boyacá, Caldas, Caquetá, Casanare, César, Córdoba, Cundinamarca, Chocó, Guaviare, Meta, Nariño, Norte de Santander, Putumayo, Santander, and Sucre. *L. braziliense* is the most widespread species. Two strains from human cases in Pueblo Rico and Tolima were identified as *L. mexicana* and one strain from the Amazon region (Pueblo Santander) was determined to be *L. amazonensis*. The vectors present in Colombia are *Lu. olmeca bicolor* and *Lu. flaviscutellata*.

Four cases of **DCL** linked to *L. amazonensis* and *L. mexicana* were reported in the departments of César, Meta, Cauca, and Nariño.

Through the identification of 151 isolates from cases in the Pacific Coast region, varieties of the species *L. panamensis* (82%) and *L. braziliensis* (14.5%) were detected, as were reservoirs infected with intermediate phenotypes between *L. panamensis* and *L. guyanensis* (3.5%). In the region of Antioquia, four different zymodemes of *L. panamensis* have been reported.

Several species of anthropophilic phlebotomines and some animal reservoirs were identified. *Lu. trapidoi*, a confirmed vector, has been found to be naturally infected with *L. panamensis* in two areas (Tolima and along the Pacific Coast). It is suspected that *Lu. panamensis* is a secondary vector. *L. panamensis* has been isolated from dogs in Bajo Calima (Buenaventura), from *Akodon sp.*, and from marsupials. The two-toed sloth has been identified as an important reservoir of *L. panamensis*. *Lu. spinicrassa* was recently found to be infected with *L. braziliensis* in Arboledas, north of Santander. *L. braziliensis* had previously been isolated from dogs and equines. *L. guyanensis* has been isolated from *Lu. umbratilis* near the city of Leticia in the Amazon region of southern Colombia. A recently identified parasite, *Leishmania colombiensis*, has been isolated from patients, *Lu. hartmani*, and two-toed sloths.

In **Ecuador**, cutaneous leishmaniasis is endemic in 17 of the 21 provinces. Foci of cutaneous leishmaniasis are located on both the Pacific and Amazon sides of the Andes range, up to an altitude of 2,400 meters above sea level. Cases of mucocutaneous leishmaniasis have been detected in the Amazon region of Ecuador, but there is little information on the current prevalence and incidence of this form of the disease. In 1982 the annual prevalence was estimated at 16% in a community which had been established five years earlier in a dense tropical forest, close to Guayaquil. The Ministry of Health recorded 4,100 cases between 1983 and 1986, 1,650 in 1988, and 3,000 in 1990. During the last year, 26 strains isolated from cutaneous lesions in humans from three different areas in Ecuador were identified as *L. panamensis* (12), *L. guyanensis?* (7), *L. brasiliensis* (4), *L. amazonensis* (2) and *L. mexicana*? (1). One case of diffuse cutaneous leishmaniasis has been detected. A retrospective study carried out in the province of Esmeraldas determined that 3,220 cases had occurred over a seven-year period (1987-1993).

Forty-seven species of phlebotomines have been identified in Ecuador. The anthropophilic species naturally infected with leishmanias in the province of Cañar are *Lu. trapidoi* (7%), *Lu. hartmani* (1.9%), and *Lu. gomezi* (0.7%).

In a study on potential reservoirs, leishmania organisms were isolated from macerated liver and spleen tissues taken from night monkeys, anteaters, and rodents, and all were identified as *L. amazonensis*.

The clinical form known as uta, characterized by lesions on the face, occurs mainly in children under the age of 10 who live on the western slopes of the Andes and in Andean mountain valleys situated at between 900 and 3,000 meters above sea level. Fewer than 10 phlebotomine species have been identified in these regions, including *Lu. peruensis* and *Lu. verrucarum*, which are considered potential vectors. *Lu. ayacuchensis* and *Lu. osornoi* are another two anthropophilic phlebotomine species found in the region.

In **Peru**, there are two principal forms of cutaneous leishmaniasis defined mainly according to geographic distribution and clinical characteristics: Andean leishmaniasis (uta) and jungle leishmaniasis. The total number of cases reported by the Ministry of Public Health in 1990 was 5,500, of which 1,500 were Andean leishmaniasis and 4,000 were jungle leishmaniasis. In 1992 cases were reported in 18 of the country's 25 departments. The rate per 100,000 population varies considerably, ranging from 0.19 to 126.6. The department that reported the most cases was Cuzco (1,362), followed by Ancash (523), Cajamarca (338), and Junín (293), which together accounted for 63% of the total number of cases (3,940).

Uta occurs on the western slopes of the Andes and in Andean mountain valleys, at between 800 and 3,000 meters above sea level. The incidence varies with latitude; no cases of uta have been reported south of 13°S. In these areas the population is primarily engaged in agriculture, and uta is associated with rural activities. The prevalence is extremely high. Most cases are detected in children, and more than 80% of the adult population shows scars. The proven vector is *Lu. peruensis*. Four of 613 specimens of *Lu. peruensis* examined in the Ancash area were found to be naturally infected with *L. peruviana*. In some areas of the department of Ancash, 51% of the phlebotomines captured in dwellings and 85% of the total captured with human bait are *Lu. peruensis*. In other areas of Peru, *Lu. verrucarum* and *Lu. ayacuchensis* were also considered vectors, but in a recent study it was demonstrated that the altitudinal distribution of these species does not coincide with the distribution of human cases of CL, as occurs with *Lu. peruensis*.

Canine cutaneous leishmaniasis has long been known to exist in the areas in which uta is endemic (in some places 25%-32% of the dog population is infected), but the parasite has never been clearly identified. In the Trujillo area three different rodents have been found to be infected. In 1990 one opossum and two *Phyllotis andinum* infected with *L. peruviana* were found in the Huaillacayán district of the department of Ancash.

Jungle leishmaniasis is a sylvan enzootic. Human transmission is directly associated with occupational activities carried out in virgin forests, in which there is frequent contact between man and vector. The number of cases is increasing rapidly owing to the establishment of new settlements in lowlands. Mucocutaneous forms are common. The parasite is *L. braziliensis* (identified in material isolated from humans), which is indistinguishable from the WHO reference strain but slightly different from the etiologic agent of uta. To date, the vector and reservoirs are unknown.

L. guyanensis has recently been isolated from a human case but the infection is not believed to have been acquired locally since the vectors and reservoirs of this *Leishmania* species are not found in Peru. Intense migration, particularly among miners and illegal migrants in the Amazon region, could lead to the isolation of many *Leishmania* species from humans in areas where these species are not endemic. For this reason, special care should be taken in the countries with regard to the distribution of each parasite, especially when cases of leishmaniasis caused by various parasites are found. The presence of **DCL**, probably due to *L. amazonensis*, has been reported in northwestern Peru.

In **Venezuela, CL** is an occupational disease occurring among farmers, cattle breeders, hunters, and members of the armed forces. It is present in 21 of the 23 states. Cases are reported from small towns, new human settlements located in forest areas, and suburbs of cities and towns. Of the 37,000 cases reported between 1955 and 1990, 70% occurred in four states in the Andean area. Old endemic foci exist in western, central, and southwestern Venezuela. New foci are located mainly in the lowlands of the Amazon basin.

Since 1985 dermatology centers have reported 2,500 cases a year to health authorities. According to data provided by these centers, 10,484 cases of cutaneous leishmaniasis were reported during the five-year period 1988-1992.

Several parasite species coexist in the country, and there are 100 known leishmaniasis vector species, 30 of which are anthropophilic. Material isolated from patients with cutaneous leishmaniasis and diffuse cutaneous leishmaniasis in the states of Carabobo, Guarico, and Mérida have been identified as *L. amazonensis*. The suspected vector is *Lu. flaviscutellata*. The epidemiology of this parasite in Venezuela is not fully known, but it is assumed to be similar to that observed in the neighboring countries of Brazil and Colombia.

L. garnhami is present in the Andean mountain range between 800 and 1,800 meters above sea level in the rural and suburban regions of the state of Mérida. Most of the lesions caused by this parasite heal spontaneously within a period of six months. *Lu. youngi* is considered the probable vector. The reservoir is unknown. There are some problems with regard to the differentiation of *L. garnhami*, which not all authors consider a separate species.

L. pifanoi, which was originally associated with the diffuse cutaneous form (**DCL**), is not always considered a different species, there being some controversy with regard to the differentiation of this species from *L. amazonensis*. *L. pifanoi* is found in the states of Yaracuy, Lara, and Miranda. No naturally infected wild animals or phlebotomines have been found.

The first human case of leishmaniasis caused by *L. venezuelensis* was diagnosed in 1974 in a "pocket focus" located in a dense forest near Barquisimeto in the state of Lara. To date, approximately 90 cases have been reported in the area of Barquisimeto. More than 90% of the organisms isolated have been identified as *L. venezuelensis*. *Lu. olmeca bicolor* has been captured in the same focus and is the suspected vector. The reservoirs are not known. *L. braziliensis* infection is widespread in at least five Venezuelan states and seems to be very common, especially in foci located in the Andean area and in the foothills along the Venezuelan coast. Biochemical and molecular characterization of 99 strains of *Leishmania* from different endemic areas found 55 to be *L. braziliensis*. The foci may be periurban (city of Barquisimeto) or rural (with periurban or jungle transmission). In these foci, domestic animals (dogs and donkeys) have been found to be infected by *L. braziliensis*. Of 116 donkeys examined, 28 exhibited ulcerative lesions and 17 were found through microscopic examination to be infected with leishmanial parasites; 5 strains were identified as *L. braziliensis*. In Las Rosas, a community situated in a hilly wooded area in the state of Cojedes, 16 of 124 inhabitants examined (12.9%), 3 out of 43 dogs (7%), and 6 out of 29 donkeys (21.9%) were found to be infected with *L. braziliensis*. The vector may be *Lu. spinicrassa* in the state of Táchira.

L. panamensis has been isolated from human cases. Its epidemiology is assumed to be similar to that observed in Colombia.

L. colombiensis has been isolated from the bone marrow of a dog and that of a 12-year-old child.

Control

Mechanisms for standardizing leishmaniasis diagnosis, prevention, and control activities in the Region are currently under discussion. The strategic approaches being applied by the countries include: decentralization; optimal utilization of local health systems; strengthening of intersectoral, inter-agency, and multinational collaboration; improvement of health education and mass communication activities with a view to achieving committed, well-informed, and sustained community involvement; strengthening of managerial capacity and operational decision-making at the local level; promotion of training of human resources at all levels to support prevention and control activities.

Source: Division of Communicable Disease Prevention and Control, Communicable Disease Program, HPC/HCT, PAHO.

PUBLICATIONS

Health Conditions in the Americas, 1994 Edition.
Pan American Health Organization, Scientific Publication 549, 1994.
Volumes I and II. (ISBN 92 75 11549 4). Price: US$ 50.00

The 1994 edition of *Health Conditions in the Americas* is the eleventh in a series of quadrennial reports published since 1954 to document the changes and advances in health achieved by the Member and Participating Governments of the Pan American Health Organization. This document informs the XXIV Pan American Sanitary Conference about the health status of the peoples in the Region, as perceived by the Organization's Secretariat. It does not include a review of the technical cooperation activities between PAHO and the Governments, which are described for the Conference in the *Quadrennial Report of the Director 1990-1993, Annual Report 1993.*

The epidemiologic situation in the Region has undergone major changes in recent decades as a result of a complex set of processes that have altered the age structure of the population, the rate and extent of urbanization, the labor market, educational levels, the ecological situation, and the organization of health services. More than any other factor, however, the situation is influenced by the existence of deep social inequities and the growth of the population living in poverty.

The 1994 edition describes the changes that have occurred, emphasizing the period 1989-1992, to the extent allowed by the available information. It consists of two volumes. The first presents a profile of the health situation in the Region as a whole, in six chapters plus an annex of health and development indicators. The first two chapters depict the health situation and living conditions, as well as demographic characteristics, and provide an overview of mortality. The third and fourth chapters describe the health situation from two perspectives: by analyzing the health of different population groups and by reporting the status of specific diseases and health impairments. The fifth discusses the health impacts of environmental problems, including lack of basic sanitation, atmospheric pollution, chemical pollution, and disasters. The sixth chapter is an the responses societies have made to health problems; it incorporates information on the economic, political, and social settings in which they have taken place, current levels and trends in health expenditures and investments, the training of human resources and the health labor market, and changes that have come about in the organization and operation of health services. The annex is a compilation of the latest available figures on 54 health, economic, and social indicators for each of the countries. The second volume is made up of country reports that summarize the salient processes and problems in each country. The structure of the reports is similar to that of the first volume, but more specific detail is given.

This edition is based on information from many official and semiofficial sources. Despite efforts to do so, it has not been possible to eliminate every discrepancy among them.

Like earlier editions, this one responds to the needs and interests of a wide range of users. For governments, it will be a source of reliable data on leading health trends in the Region and countries. For national and international agencies, as well as students, researchers, and workers in the health field, it will be a useful reference for consultation. It is expected that the relevance of this information, will assist in decision making and stimulate continued improvement of the generation, processing, and analysis of increasingly relevant and timely data for the framing of health policies, the reorganization of services, the prevention and control of diseases, and attentionto priority problems.

This publication will be available in spanish and english as of october 1994 and can be obtained from the Publications Program (HBI), Pan American Health Organization, 525-Twenty-Third Street, NW, Washington DC 20037.

Epidemiology Congresses

III Brazilian Congress - II Ibero-American Congress - I Latin-American Congress
I Exhibit of Technology in Epidemiology - EPITEC

From 24 to 28 of April, 1995 the III Brazilian Congress, the II Ibero-American Congress and the I Latin-American Congress of Epidemiology will be held jointly in Salvador, Bahia, Brazil. This event is sponsored by the Brazilian Association of Graduate in Public Health (ABRASCO), by the Ibero-American Society of Epidemiology (SIAE), and by the Latin-American Association of Social Medicine (ALAMES).

The main theme of the meeting will be: **Epidemiology and the search for equity in health.** The event will assemble epidemiologists and other health professionals to promote the interchange of knowledge, experiences and practices to foster the scientific development of the discipline and to define strategies aimed at transforming the living conditions of our populations.

Concurrently there will be an exhibit on technology in e pidemiology - EPITEC- to show the development and use of technologies in collective health.

The program of the Congress includes conferences, round tables, as well as panels, coordinated communications and poster sessions. The conferences will be planned on: Epidemiology and equity in Health; living conditions and health in the context of current socio-economic changes in Latin America; violence and citizenship - towards a new life ethic; life and health in the cities.

The round tables will be on: The impact of social and economical policies on the epidemiologic profiles; inequalities in health; methodological advances in epidemiology, epidemiology and health services management; epidemiologic research in Ibero-America.

On April 24 and 25, prior to the Congress, mini-courses will be offered on: Survival analysis; confounding in epidemiology and statistics; sampling techniques; geoprocessing in epidemiological research; epidemiology in the evaluation of health services; qualitative methods in epidemiology; case-control studies; intervention studies; occupational epidemiology; work and the health-disease process; bases of social epidemiology; rapid assessment techniques; molecular biology techniques for epidemiologic research; epidemiologic methods in reproductive health; epidemiologic methods in nutrition; epidemiologic methods in oral health; epidemiologic methods in the study of drug use and consumption; epidemiologic surveillance methods.

Workshops: Epidemiological Information for decision making at the local level; national training programs in epidemiology health services; Use of epidemiologic criteria for allocation of health resources; health surveillance: legislation and organizational models; perspective in the use of epidemiologic methods in occupational health research.

Product lines and services to be presented at EPITEC:

- *Knowing the health conditions.* Products and services for screening or studies aimed at assessing community health profiles. Data management and analysis. Resources (hardware, software, field data management techniques, etc.) for data management, processing and analysis in epidemiological research and surveillance.
- *Quality and management in the health services.* Health information and informatic studies on quality of health care; information systems applied to financial and administrative and health planning; development of human resources in epidemiology.
- *Drugs and therapies.* Drugs and therapies used in the fight against endemic infectious and chronic-degenerative diseases.
- *Hunger.* Studies and actions conducted by non-governmental organizations; products used in supplementary nutrition programs, studies and actions by federal, state, provincial and municipal goverments
- *Teaching health.* Videos and other audiovisual resources; software; Institutional offering (courses, training, etc.)
- *Institutional Marketing.* Space reserved for the use of teaching and research institutions in promoting their institutional marketing.

For further information:

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AIDS Surveillance in the Americas

TABLE 1. NUMBER OF REPORTED CASES OF AIDS BY YEAR, AND CUMULATIVE CASES AND DEATHS, BY COUNTRY AND BY SUBREGION.

As of 10 September, 1994

SUBREGION Country	Number of cases: Through 1988	1989	1990	1991	1992	1993	1994	Cumulative total(a)	Total deaths	Date of last report
REGIONAL TOTAL	125,345	53,505	62,717	74,286	90,265	58,127	15,616	480,138	274,182	
LATIN AMERICA b)	15,297	9,804	14,502	17,165	20,169	10,049	15,040	102,303	42,487	
ANDEAN AREA	1,550	1,025	1,567	1,741	1,974	1,452	282	9,809	5,131	
Bolivia	16	2	9	17	18	20	5	87	65	31/Mar/94
Colombia	706	453	771	857	921	519	147	4,583	2,312	31/Mar/94
Ecuador	68	27	44	55	66	85	35	381	258	31/Mar/94
Peru	135	116	167	163	249	226	4	1,068	380	31/Mar/94
Venezuela	625	427	576	649	720	602	91	3,690	2,116	30/Jun/94
SOUTHERN CONE	551	411	688	973	1,315	1,543	616	6,120	2,717	
Argentina	355	286	472	690	1,018	1,232	474	4,527	1,792	30/Jun/94
Chile	142	84	134	192	190	178	73	1,016	623	30/Jun/94
Paraguay	9	3	6	5	17	30	7	77	48	30/Jun/94
Uruguay	45	38	76	86	90	103	62	500	254	30/Jun/94
BRAZIL	8,103	5,322	7,238	9,540	11,245	---->	11,878 *	53,326	20,736	02/Jul/94
CENTRAL AMERICAN ISTHMUS	648	495	918	935	1,216	1,586	464	6,298	2,125	
Belize	11	0	19	11	12	29	0	82	46	31/Dec/93
Costa Rica	98	57	86	91	125	113	65	635	382	30/Jun/94
El Salvador	57	72	54	132	114	177	24	630	144	31/Mar/94
Guatemala	49	31	92	96	94	118	19	499	188	31/Mar/94
Honduras	309	253	591	505	744	955	294	3,671	903	30/Jun/94
Nicaragua	2	2	7	13	6	17	3	66	48	31/Mar/94
Panama	122	80	69	87	121	177	59	715	414	30/Jun/94
MEXICO	1,710	1,607	2,588	3,167	3,220	5,095	1,703	19,090	10,814	30/Jun/94
LATIN CARIBBEAN c)	2,735	944	1,503	809	1,199	373	97	7,660	964	
Cuba	30	14	29	37	68	78	31	287	183	30/Jun/94
Dominican Republic	703	479	258	280	325	295	66	2,406	484	30/Jun/94
Haiti	2,002	451	1,216	492	806	...	...	4,967	297	31/Dec/92
CARIBBEAN c)	1,323	727	780	989	1,089	1,195	328	6,431	3,867	
Anguilla	1	2	1	1	0	0	0	5	3	31/Mar/94
Antigua	5	0	3	6	13	7	...	34	5	31/Dec/93
Bahamas	270	170	168	230	254	297	88	1,477	788	31/Mar/94
Barbados	71	40	61	80	78	88	25	443	350	31/Mar/94
Cayman Islands	4	1	2	4	4	0	0	15	13	31/Mar/94
Dominica	7	3	2	0	0	14	7	33	11	31/Mar/94
French Guiana	117	53	59	46	67	17	...	359	144	31/Mar/93
Grenada	11	8	5	7	4	21	2	58	41	31/Mar/94
Guadaloupe	130	55	53	67	48	17	...	370	226	31/Mar/93
Guyana	44	40	61	85	160	106	23	519	115	31/Mar/94
Jamaica	73	66	62	133	99	237	93	763	490	31/Mar/94
Martinique	77	47	44	30	42	26	...	266	184	30/Sep/93
Montserrat	0	3	1	2	0	1	0	7	0	31/Mar/94
Netherlands Antilles	31	16	30	23	10	47	...	157	79	30/Jun/93
Saint Kitts and Nevis	19	5	8	1	4	3	1	41	27	31/Mar/94
Saint Lucia	15	8	4	6	8	12	4	57	45	30/Jun/94
St. Vincent and the Grenadines	14	7	6	14	5	8	5	59	57	30/Jun/94
Suriname	28	29	33	16	28	35	8	177	158	31/Mar/94
Trinidad and Tobago	394	167	174	235	260	243	72	1,545	1,100	31/Mar/94
Turks and Caicos Islands	11	7	1	2	4	14	...	39	30	30/Sep/93
Virgin Islands (UK)	1	0	2	1	1	2	0	7	1	31/Mar/94
NORTH AMERICA	108,725	42,974	47,435	56,132	69,007	46,883	248	371,404	227,828	
Bermuda	100	35	33	23	17	15	...	223	162	30/Jun/93
Canada	3,224	1,271	1,300	1,343	1,428	1,203	248	10,017	6,930	30/Jun/94
United States of America c)	105,401	41,668	46,102	54,766	67,562	45,665	...	361,164	220,736	31/Mar/94 **

* Includes cases diagnosed in 1993 and 1994, through 2 July. ** Data revised.

a) May include cases for year of diagnosis unknown.

b) French Guiana, Guyana, and Suriname are included in the Caribbean.

c) Puerto Rico and the U.S. Virgin Islands are included in the United States of America.

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