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CHOLERA IN THE AMERICAS

For the first time in nearly a century, epidemic cholera struck the Americas in January 1991. During the past five months, over 220,000 cases occurred in Peru, Ecuador and Colombia, with additional cases in Chile, Brazil and the United States of America. Other countries can be expected to experience epidemics in future months and years, and cholera may become endemic in some areas of the Region. Therefore, it is essential that all countries be prepared for the possible introduction of cholera with the development of national plans for cholera control. National plans should include elements of surveillance, crisis management, financial planning, case management, epidemiological investigation, environmental sanitation, food safety, health education, laboratory studies, and information management. PAHO should support the development and implementation of national plans, develop a Regional plan and identify potential external resources for national and regional prevention and control efforts. The sharing of resources and information about cholera will greatly facilitate control of the disease in the Region. Ultimately, significant resources will have to be provided by the countries and obtained from international donors in order to correct deficiencies in the health and environmental infrastructures that have contributed to the spread of cholera.

Members of the Executive Committee are asked to review this document for the purposes of discussion and to decide on policy suggestions for the Directing Council and guidance for the Secretariat.

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CHOLERA IN THE AMERICAS

I. HISTORICAL BACKGROUND

Most countries of the Americas were affected by the second through the fifth pandemics of cholera that spread widely between the 1830s and the 1890s. Fortunately, the Americas were free of epidemic cholera for the first 90 years of this century, which has been attributed, at least in part, to the installation of water treatment in virtually all major cities of the Americas beginning at the turn of the century. Water filtration was widespread by 1870 and chlorination by 1910. The Americas succeeded in being the only region free of cholera during the first 30 years of the seventh pandemic, which began in Indonesia in 1961 and reached much of the world during its first 10 years, including West Africa in 1970. Cholera spread rapidly through Africa from 1970 to 1973 and has remained endemic in several countries since then. Epidemics also occurred in Italy, Portugal and Spain in the 1970's, but cholera was eliminated from these countries after appropriate control measures were implemented. Imported cases were reported by Canada and the United States of America, and since 1973, the United States has also reported occasional autochthonous cases related to the consumption of poorly-cooked seafood caught along the Gulf coast. However, the strains of Vibrio cholerae serogroup 01 isolated from autochthonous cases in the United States were distinct from the pandemic biotype, V. cholerae El Tor.

II. EPIDEMIOLOGICAL SITUATION

A. Peru

The first cases of cholera in Peru were reported on 23 January in Chancay, on the coast near Lima, and almost simultaneously in Chimbote, a major port 400 km to the north. V. cholerae, serogroup 01, biotype El Tor, serotype Inaba, was isolated and identified by the National Institute of Health in Peru and subsequently confirmed by the U.S. Centers for Disease Control. Over the next week, cases were reported in Lima, Piura and other communities along the 1,200 km coast north of the capital. Since then, the epidemic has spread south and to the interior departments, including Iquitos, which has a major port on the Amazon River. Cuzco was the final department to be affected during May. As of 1 June, a cumulative total of 209,546 probable cases and 1,802 deaths had been reported (Table 1), with the highest attack rates in the coastal departments (Figure 1). The weekly incidence of cases has declined since 15 April (Figure 2), at least in the most heavily affected departments. More than 80% of cholera cases have occurred in persons over 10 years of age, a pattern opposite to that of other diarrheal diseases in Peru. The case fatality ratio in Peru has been remarkably low throughout the epidemic, averaging 0.8% of all cases, in large part as a result of a well-organized diarrheal disease control program that has made oral rehydration salts readily available and has promoted the correct

management of diarrhea patients through continuous training activities. However, the case-fatality ratio has exceeded 2% in several interior departments where educational campaigns have been less effective and health care is less readily available (Figures 3 and 4).

Epidemiological investigations in Peru have revealed several mechanisms which are responsible for the spread of cholera. The major risk factor in the cities has been drinking untreated or unboiled water. Environmental studies in the earlier stages of the epidemic found high levels of fecal coliforms and no residual chlorine in several municipal water systems. Vibrio cholerae was isolated from at least three water systems, as well as from multiple environmental samples, including river and coastal waters. Other risk factors include consumption of food and beverages, especially ice, from street vendors, eating food left for more than three hours without refrigeration and without reheating, and placing hands directly into drinking water stored in household containers. Additional factors considered important in Peru have been raw seafood consumption, principally as ceviche, and the discharge of untreated waste into rivers and the ocean.

B. Ecuador

The first case of cholera in Ecuador was reported on 1 March, approximately one month after the epidemic's onset in Peru, and occurred in El Oro Province among a group of shrimp fishermen who worked in Peruvian waters. The community probably spread its infection through a well which was contaminated by a septic tank that overflowed at high tide. Since then, cholera has reached 19 provinces of Ecuador with 20,188 cases and 343 deaths (Table 2). The highest attack rates have been along the coast. While the incidence of cases nationally appears to be reaching a plateau (Figure 5), some areas continue to experience increased numbers of cases.

C. Colombia

Colombia reported its first case on 10 March, when an adult male living on the Mira River 20 km south of Tumaco, in Narino Province (located on the Pacific coast at the border with Ecuador), was confirmed to have V. cholerae infection. He had no history of travel or apparent connection with Ecuador or Peru. Subsequent cases were reported on and after 26 March from Tumaco and Salahonda. Since then, the infection has spread to five other provinces: Cauca and Valle on the coast and Meta, Amazonas and Guaviare in the interior. However, over 70% of the 1,780 probable cases reported by 31 May had occurred in Narino Province (Figure 6), while only eight cases were identified in the interior provinces. Colombia has had 28 deaths from cholera (Table 3).

D. Brazil

The first case in Brazil was detected on 10 April in an individual from the island of Santa Rosa in the Amazon River at the border with Colombia and Peru. Subsequently, 15 more cases have been confirmed, 13 of which have been in the same area of Amazonas State (Tabatinga and

Benjamin Constant); six of these cases were imported (Table 4). The most recent case in this area occurred on 28 May. Two additional cases were identified in Pontes-e-Lacerda in Mato Grosso State, but any association with the other cases is unclear.

E. Chile

Chile reported its first case on 12 April in an adult male living in the metropolitan area of Santiago. Since then, Chile has confirmed 40 cases and one death, all in persons 10 years of age and older (Figure 7). All but six cases were in the Santiago area, and 35 cases occurred in April (Figure 8). The last case occurred on 27 May (Figure 9). The most important risk factor has been the consumption of raw vegetables (Figure 10). Measures to restrict the distribution of vegetables irrigated with sewage-contaminated water have been implemented to control the cholera epidemic in Chile.

F. United States of America

The first case of cholera in the United States in 1991 occurred on 9 April in an individual who attended a medical conference in Lima. Subsequently, 13 additional cases have been confirmed in the United States, one in a person who travelled to South America and 12 in persons who ate meat from two different crabs brought in noncommercially by travelers returning from Ecuador. There has been no evidence of subsequent spread in the United States.

III. RESPONSE OF THE PAN AMERICAN HEALTH ORGANIZATION

A. Overall Response

When cholera cases were first detected, the PAHO/WHO Representative (PWR) Office in Peru and the Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS), located in Lima, immediately became involved in assisting Peru confront the epidemic. At PAHO Headquarters, a Cholera Task Force was formed to coordinate the international response, identify human and financial resources to address the emergency and provide essential information to Member Countries and other agencies. The Task Force, which meets several times each week, includes representatives from the PAHO Programs dealing with diarrheal diseases, laboratory, emergency preparedness and disaster relief, information, communicable diseases, environmental sanitation, food safety, research, and epidemiology. The focal point is the Health Situation and Trend Assessment Program.

One of the first concerns of the Organization was to assure that Peru had the means to provide the necessary medical attention for cholera cases. Shipments of additional oral rehydration salts (ORS), intravenous fluids, antibiotics and other essential medical supplies were arranged, and external resources to meet the disaster were sought. PAHO served as the focal point for the international response based on an initial

request for US$3.84 million, which was prepared by the Peruvian Ministry of Health. PAHO has processed $2.09 million in external assistance to Peru, of which about half has been for medical supplies and ORS.

Another immediate concern was the economic impact of the initial restrictions placed on the importation of Peruvian products by some Governments. A special effort was made to provide information about the low level of risk and to clarify the situation, in order to avoid or remove restrictive policies and ameliorate their impact. PAHO has continued to advise against restrictions on imported products as other countries have become infected.

As efforts to control the epidemic broadened, approximately $1 million of external funds has been used for environmental sanitation, health education, laboratory support and related interventions. The PWR Office has been extremely active in supporting the local purchase and distribution of supplies and acquiring needed technical expertise. All PAHO offices have been involved in dissemination of health information through television and newspapers, including special supplements on cholera prevention.

It should be mentioned that considerable assistance, both in material and personnel, has been provided to Peru by other Member Countries, and PAHO has regarded this as an excellent example of technical cooperation and collaboration. The PWR Office has actively coordinated much of the bilateral assistance to Peru.

In the other Latin American countries affected by cholera, the response of the PAHO/WHO Offices has been as prompt and comprehensive as in Peru. PAHO epidemiologists and other staff have been involved in field investigations and have assisted the governments to institute control measures. Headquarters-based staff have provided technical assistance in many areas, including case management, environmental santitation, food safety and others.

B. Emergency Response and Resource Mobilization

Crisis management is applicable to large-scale emergencies. In addition to the epidemiological information provided by PAHO to all member countries, information on emergency health needs has been channelled regularly to the Office of the United Nations Disaster Relief Coordinator (UNDRO). UNDRO's situation reports have been distributed worldwide among U.N. member countries and have been an effective mechanism for securing and coordinating international assistance. Funds were also sought and obtained from bilateral and multilateral agencies, including the European Community and the Governments of Canada, Germany, the Netherlands, the United Kingdom and Ireland. A grant for $1 million by the Inter-American Development Bank provided support for local production of oral rehydration salts, water quality improvement, laboratory supplies, health education, and essential field operations.

The strengthening of national capacities in rapid resource mobilization, intercountry and intersectoral cooperation, emergency logistics and communication have been promoted by PAHO as important components of the emergency phase of the cholera prevention and control strategy in the Region. At the country level, health disaster coordinators have been deeply involved in the daily management of the emergency, in cooperation with other agencies, such as the civil defence units, the Red Cross and various nongovernmental organizations.

C. Diarrheal Disease Control

Together with USAID and UNICEF, PAHO has assisted all Member Countries with and without cholera to develop a highly effective diarrheal disease control program. During the epidemic, support for this program has continued, and PAHO has sought to strengthen the local production of ORS. Emphasis also has been placed on appropriate case management, including vigorous rehydration and the preferential use of ORS rather than intravenous fluids whenever possible. Technical guidelines for cholera case management have been produced and distributed for adaptation at country level. A training module on cholera, describing the epidemiological and clinical characteristics and laboratory and control procedures, was also prepared and distributed to all countries.

D. Epidemiology

Investigations to document the distribution of cholera and factors involved in its transmission were begun as soon as the first cases were reported. Several of these studies were done by the Peruvian Field Epidemiology Training Program. Because of the size of the epidemic, epidemiological assistance was requested from the Centers for Disease Control, and several other countries sent epidemiologists. Eventually, the investigations broadened to include environmental and food contamination studies, also supported by expert consultants. As a result, a fairly complete picture of the epidemiology of cholera in Peru has been developed, allowing the implementation of specific control measures.

PAHO epidemiologists have provided technical assistance to Ecuador and Colombia and have been closely involved in several field investigations. In Chile, epidemiological information has permitted the successful implementation of specific interventions. Investigations in Brazil have defined the extent of disease, which up to this time has been limited.

It has been important to provide information about cholera prevention and control to all countries, so that they could take measures to prepare for the possible introduction of cholera. Within days of the first reports from Peru, the draft 1991 revision of the WHO Guidelines for Cholera Control was sent to all countries. The Guidelines were subsequently translated into Spanish and distributed again in that language.

A meeting attended by representatives from 17 Latin American countries was held at the end of April to review cholera prevention and control measures and assist the countries to prepare comprehensive national plans. Similar meetings were held at the Caribbean Epidemiology Center for the English-speaking Caribbean countries and in San José, Costa Rica, for Central America and Panama. All counties of the Region have initiated plans for cholera surveillance, prevention and control, and many have actively put their plans into effect.

E. Environmental Health

Considerable effort has been made to identify environmental factors that have contributed to the spread of cholera in Peru and, potentially, in other countries. Emergency measures have been implemented to improve drinking water quality, principally by assuring adequate chlorination where piped-water systems exist and by providing practical means of disinfection where systems do not exist or are inadequate. Emphasis has also been placed on intensified monitoring of water quantity and water quality control. Efforts are being made to improve human waste disposal in communities and hospitals.

F. Food Safety

The majority of cholera outbreaks worldwide have been associated with contaminated food products, such as raw molluscan shellfish harvested in waters contaminated with raw or poorly treated human sewage. Therefore, educational campaigns have sought to instruct people how to prepare and handle foods in order to avoid contamination with and transmission of V. cholerae.

The presence of cholera in one country has often generated fear in other countries, which have sometimes attempted to prevent the introduction of cholera by banning imports from infected countries. However, there has been no documented instance of the introduction of cholera from commercial food products, and such an introduction is unlikely to occur. Since all of affected countries in South America export food products to other countries within and outside the Region, PAHO has advised countries of the limited risk associated with these products and sought to insure that their importation is not unnecessarily restricted or banned. However, a few countries, including some in Latin America, continue to restrict imports from countries reporting cholera.

G. Laboratory

The ability to isolate and confirm V. cholerae is essential in all countries at risk of the disease, which at present we assume to be all countries of the Region. PAHO has attempted to improve the capability of laboratories throughout the Region to isolate and identify V. cholerae from human and environmental samples by providing guidelines, reagents and control samples. Training of some national staff has been accomplished with fellowship funds. Subregional courses in laboratory procedures are planned for the second half of 1991 in order to assure that at least central reference laboratories have the necessary skills and materials. In collaboration with the U.S. Food and Drug Administration, PAHO is developing courses on the detection of V. cholerae in foods.

H. Vaccines

PAHO and WHO have recommended that cholera vaccine should not be used for control of epidemics because the existing parenteral vaccine has limited protective efficacy and does not prevent transmission of V. cholerae. New cholera vaccines have been investigated in other Regions, and PAHO convened a meeting of cholera vaccine experts on 26 and 27 April to formulate recommendations on the approach to vaccines in this hemisphere. The experts reaffirmed that the existing parenteral vaccine should not be used for prevention or control. They did recommend that studies of both the oral whole cell, B subunit killed vaccine and the oral live attenuated vaccine be initiated in several Latin American countries during 1991 and that, should the results be promising, larger-scale field trials be conducted in 1992. PAHO/AMRO should coordinate these studies for Member Countries, in conjuction with the Diarrheal Disease Control Program at WHO Headquarters.

I. Information

The demand for information on cholera from the public, the press and health communities has grown exponentially since the outbreak in the Americas was first reported. PAHO has taken an active role in reponding to inquiries, believing it essential to provide information to all concerned communities and that a full understanding of the situation will lead to more rational and effective responses. Television and radio interviews have been arranged, and materials describing the cholera situation, history, environmental health measures, epidemiology and the limited risk of transmission through commercial food products have been distributed widely. PAHO has provided full support to country-level health education efforts, sending a video and photography crew to Peru to obtain materials for education and information campaigns. PAHO has also worked closely with PWR Offices to disseminate rapidly information on how to prevent cholera, especially to those at highest risk of infection. Because of the urgent need to inform people in all sectors, several elements of educational campaigns were developed simultaneously, while formulating a larger, long-term project and seeking funding to support the countries in their efforts to inform and educate the public. PAHO has already developed an information kit, to be disseminated through PWR Offices, containing instructional manuals on how to organize and operate a public health information campaign; videos of TV commercials supporting national campaigns and documentaries on cholera; radio spots; print materials for press releases; fact sheets on cholera and its prevention; and photographs and drawings.

IV. PLANNING FOR THE FUTURE

For planning and operational purposes, the response to the cholera epidemic can be divided into emergency and long-term phases. The emergency phase will include those measures which are needed to control the present epidemic, reduce the immediate threat of future epidemics and minimize the impact of cholera in the next 2 to 3 years. The long-term

phase is directed at improving the infrastructure of health, food safety and environmental services so that the threat of cholera is eliminated from the Region during the next 10 years.

A. Emergency Phase

A Regional Plan for Cholera Prevention and Control has been developed as the basis for Region-wide activities during the next 2 to 3 years, which will complement actions taken within the Member Countries. The Regional Plan has three general objectives:

i) Reduce the risk of the spread of cholera;

ii) Reduce morbidity and mortality associated with cholera; and

iii) Reduce the social and economic impact of cholera.

There are five components of the plan:

- The first component is support of national plans, which itself includes five priority areas for action: a) national cholera commissions should be established and strengthened to coordinate development and implementation of national plans and prepare operational procedures for obtaining and distributing materials and supplies; b) active surveillance for cholera should be implemented to promptly identify and report the epidemiologic characteristics of any cases that occur; c) proper case management should be taught to health care providers and sufficient supplies for treatment should be available in local health systems; d) interventions to improve water quality and food safety and to dispose safely of human waste from selected locations (e.g., hospitals) are priorities, with emphasis being placed on rapid, practical measures in the emergency phase; and, e) community participation must be strengthened if the proposed interventions are to be implemented successfully.

- The second component of the Regional Plan is the dissemination of information about effective prevention and control measures, financial and human resources, laboratory procedures, and other matters which will be important for effective action in the countries and regionally.

- The third component is the initiation and support of research on oral cholera vaccines (whole cell/B subunit and live-attenuated), evaluation of intervention strategies, and assessment of rapid diagnostic methods.

- The fourth component is the mobilization of technical and financial resources to complement national resources. Allocation of resources should be coordinated between governments, international agencies, universities, the private sector, nongovernmental organizations and other expert groups and individuals.

- The fifth component is the development of projects, including those for the emergency phase of preparedness and those directed at long-term infrastructure development. Subregional projects have been prepared for Central America and the Andean countries, and funding is being sought for them.

The objectives of emergency measures in the Member Countries are a) to limit the extent of the cholera epidemic and b) to reduce the impact from cholera where the disease is present. Measures to be instituted or continued in the countries include the purchase and distribution of additional materials and supplies, enhanced surveillance, proper case management, improved food safety, health education, improved water quality, monitoring of water quality and proper disposal of waste from selected locations (especially hospitals). All of these measures have been initiated by countries affected by cholera and have been included in national plans developed by other countries. The Organization has estimated that $600 million will be needed to put the measures into effect in all countries and continue them during the emergency phase. Half of this amount will have to come from external sources, with the remainder being provided by the countries themselves.

B. Long-Term Interventions: Strategies for the 1990s

The cholera epidemic is the most obvious and dramatic health consequence of the economic crisis of the 1980s. More than $200 billion has been transferred abroad since 1982 to pay the interest on private and public debt. The resulting gap between existing resources and needs has meant deteriorating capital stock in all sectors. Economies in the Region have been stifled by the absence of capital for new investment in every area of physical infrastructure. Studies undertaken by PAHO and by the Inter-American Development Bank (IDB) have shown a drastically reduced level of investment in health, water and sanitation in contrast to the level of need.

Beyond the emergency phase, a major investment program is needed to respond to three critical gaps in environment and health in the Americas:

- First, the repair and full protection of existing water and sanitation systems. Currently, water systems barely reach 79% of the population in Latin America and the Caribbean, and sanitation systems reach only 66% of the population. Many existing systems have not been properly maintained or operated;

- Second, the extension of potable water, sewage treatment and garbage disposal systems to those without services.

- Third, the strengthening of national and local health systems and the extension of the health services network, within the primary health care strategy, to the 40% of the Region's population which continues to be without access to adequate care.

These actions are essential long-term steps to prevent the spread of cholera and other diarrheal diseases as well as to reduce overall morbidity and mortality in the Americas from diseases which are preventable or readily treatable. Nearly 700,000 people die each year in the Americas from those diseases. These objectives must be realized if the health needs of the people of the Americas are to be met. They also represent the bare minimum for fulfilling the goals set during the 1980s for the International Water and Sanitation Decade.

PAHO, the World Bank, IDB and USAID participated in an evaluation of the Decade and found that approximately one third of the needed investment in water and sanitation had been made during that period, half of those funds coming from external sources. Thus, the countries were $20 billion short of the original $30 billion investment target (expressed in 1980 US dollars).

The fact that barely 5% of all municipal water systems in the Americas treat sewage before it is discharged into rivers, bays and ultimately the sea is another indicator of unmet need. The current PAHO and World Bank estimate of the costs for investment in water and sanitation infrastructure in the Americas to make up the shortfall remaining from the 1980s and to cover anticipated population growth through the year 2000 is approximately $77 billion (in 1985 US dollars).

It is estimated now that about US$140 billion will be necessary to achieve the goals in regard to environmental health during the next 12 years.

With respect to the third element in the long-term strategy for responding to the cholera crisis, the provision of health services, the countries in Latin America and the Caribbean currently are expending approximately US$40-$45 billion per year for health. To extend basic services to those lacking them and to improve the utilization of the existing capacity will mean increasing the level of investments by $5-6 billion per year during the next decade. With utilization of the primary health care strategy and full implementation of SILOS, adequate access to services would be achievable with the lower amount.

In summary, it is estimated that some $200 billion in investment over the next 12 years will be necessary to achieve the extension of health, water and sanitation services. Approximately 70% of the amount will be provided by the countries themselves, but 30% will be required from external sources.

Achieving those flows of resources to health is clearly within the capacity of the countries and the international community. It will mean:

- First, directing 1.5 to 2.0% of GNP annually from the countries of the Region to capital investment in water and sanitation systems as well as in health infrastructure.

- Second, the allocation at least of 20% of the official, external bilateral and multilateral financial assistance to health, water and environmental sanitation.

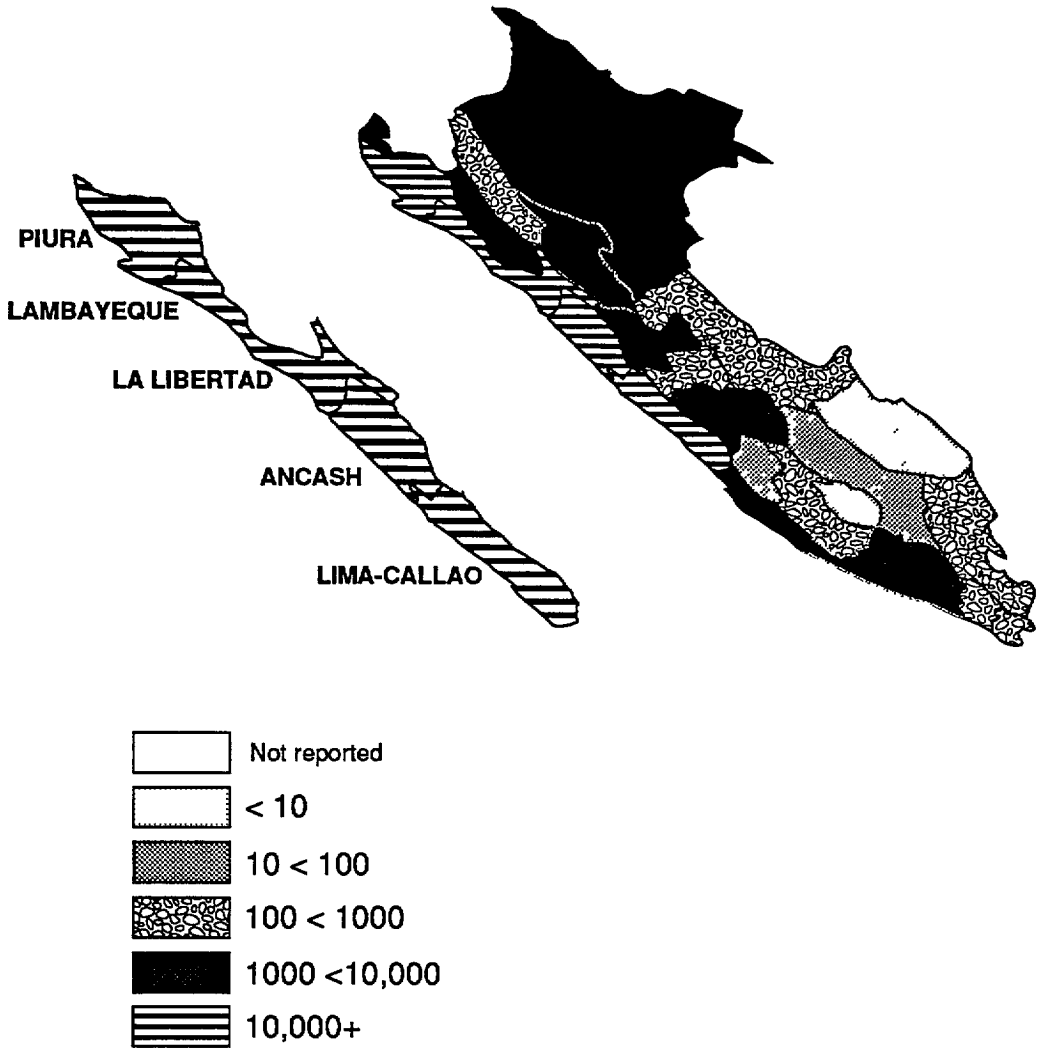
- Third, the use of debt swaps for increased investment in health, water and environmental sanitation.

- Finally, the increase in the allocation of grants from bilateral and multilateral cooperation agencies to health, water and environmental sanitation projects.

Such a long-term strategy will not only assure protection for the countries of the Region from extension of the current cholera epidemic and avoid similar outbreaks of such diseases in the future, but it also can begin to pay the accumulated social debt which has impoverished countless communities and endangered countless families throughout the Region.

Figure 1

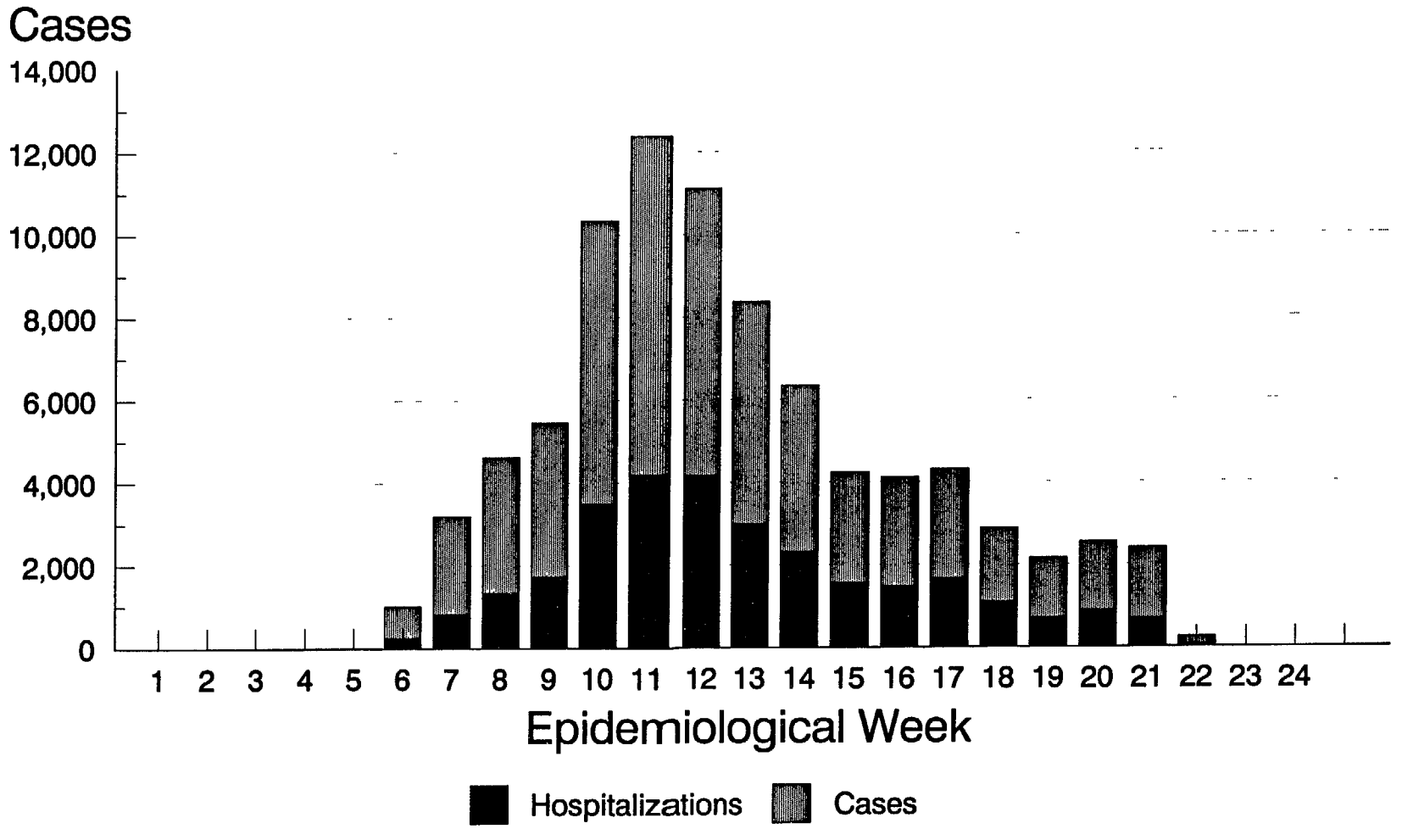
Cumulative Cases of Cholera in Peru, by Department 30 May 1991.



Source:
Ministry of Health, Department of Epidemiology.

Figure 2

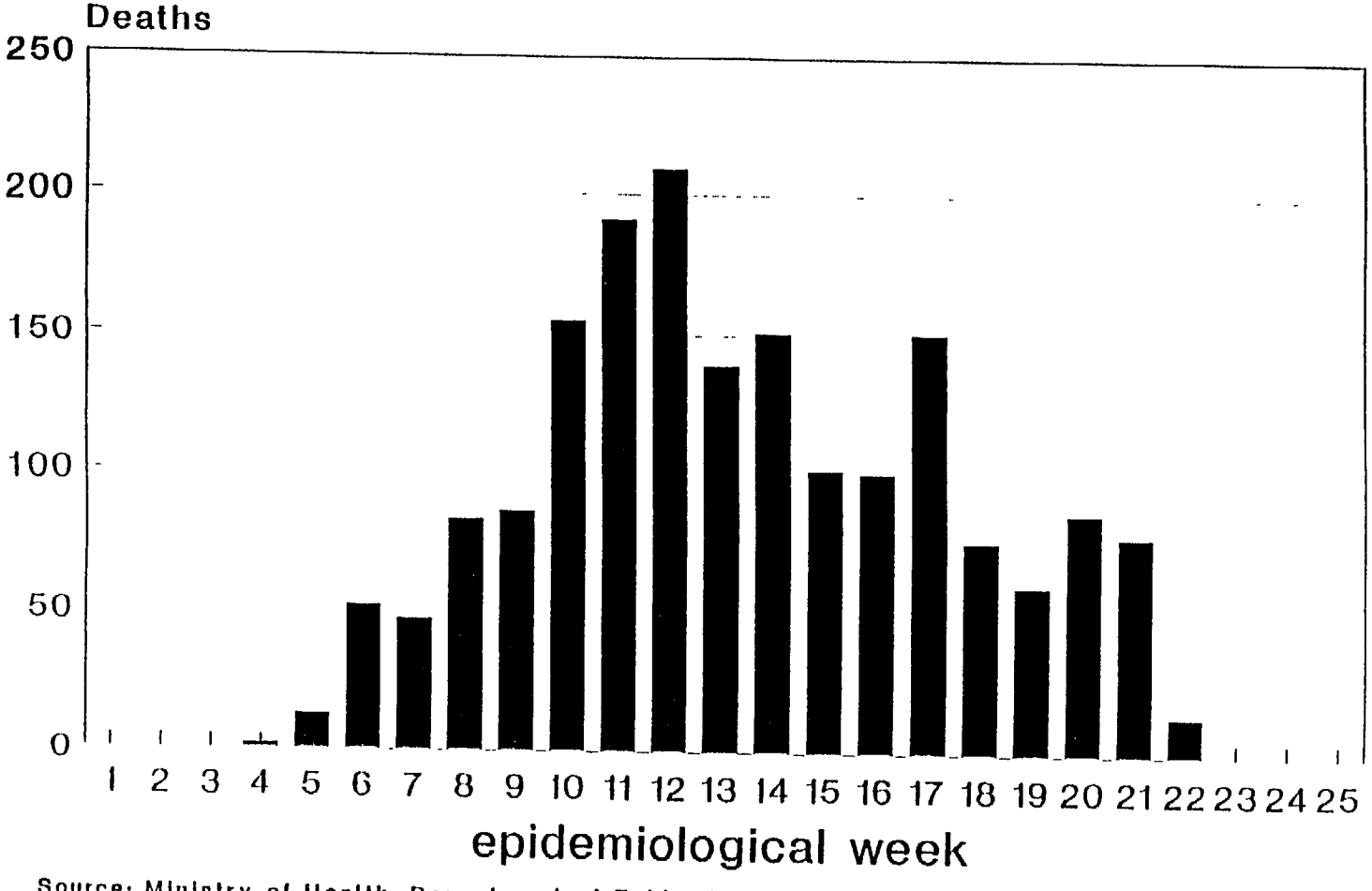
Cholera Cases and Hospitalizations in Peru by epidemiological week, as of 10 June 1991.



Source: Ministry of Health, Peru
Provisional data

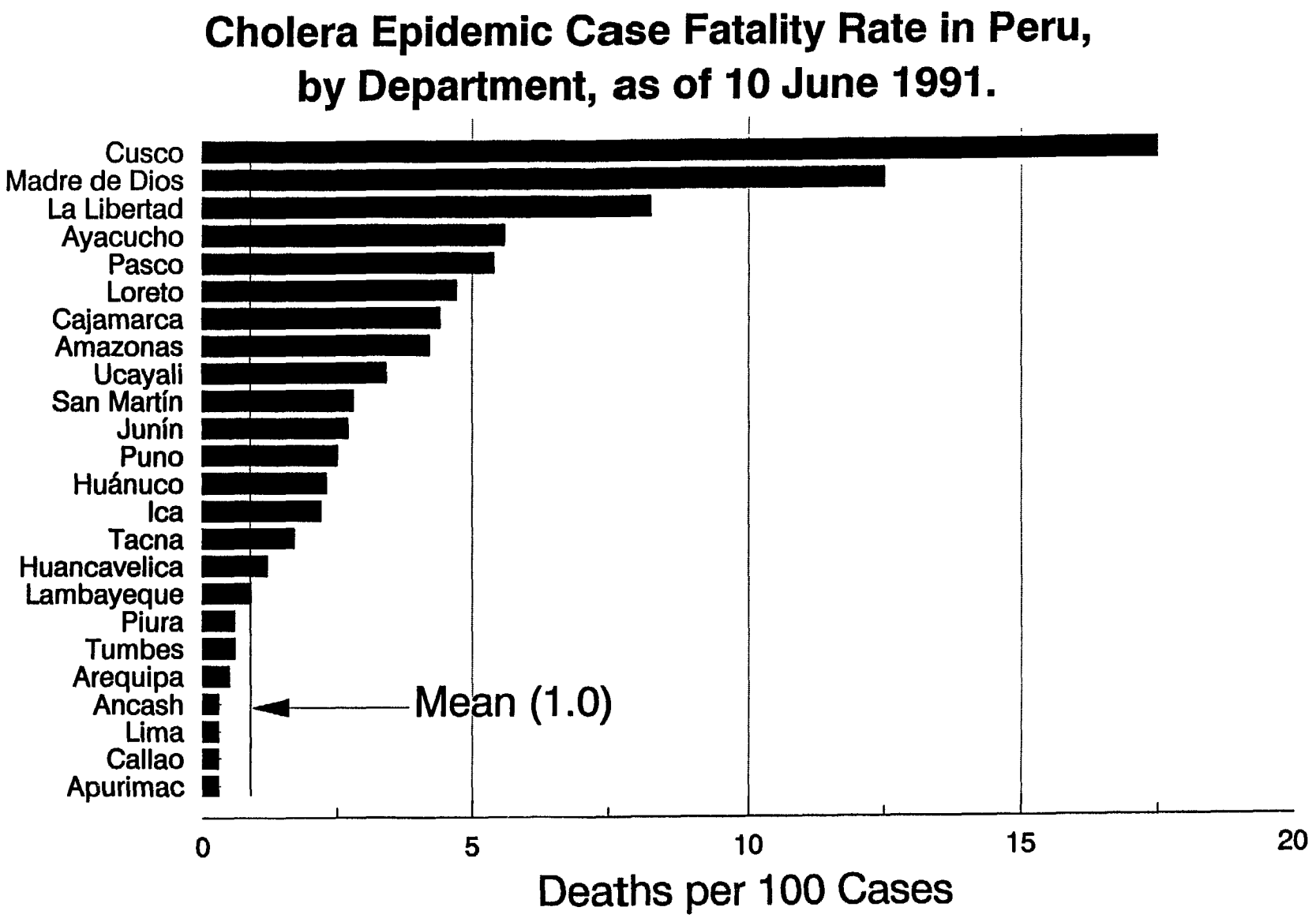
Reported Deaths From Cholera in Peru

by epidemiological week, 1991



Source: Ministry of Health, Department of Epidemiology.
Note: Provisional data received 10 June 1991.

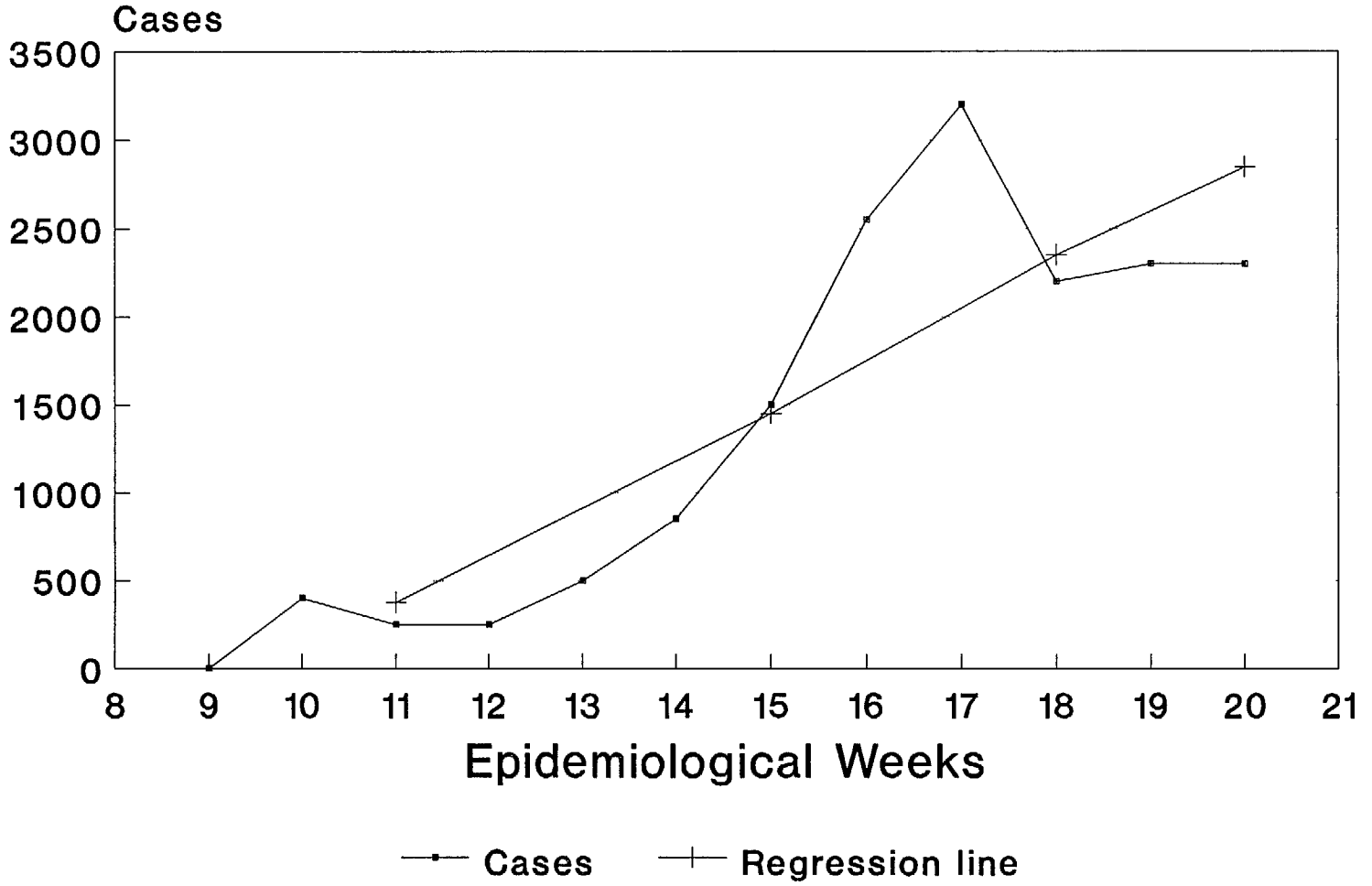
Figure 4



Source: Ministry of Health, Peru

Cholera Cases in Ecuador

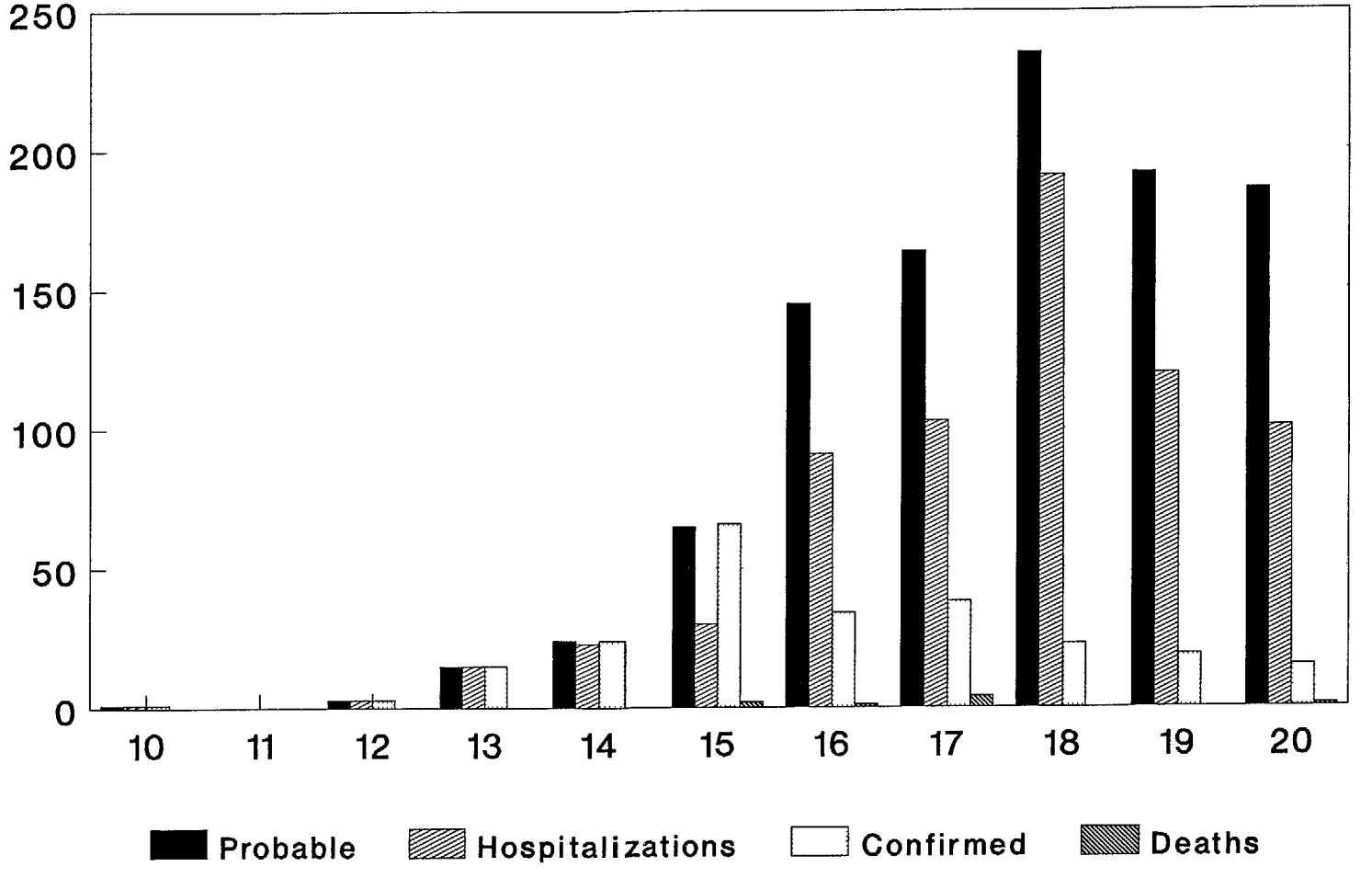
by epidemiological week, as of 23 May, 1991.



Source: National Department of Epidemiology
Ministry of Health, Ecuador

Figure 6

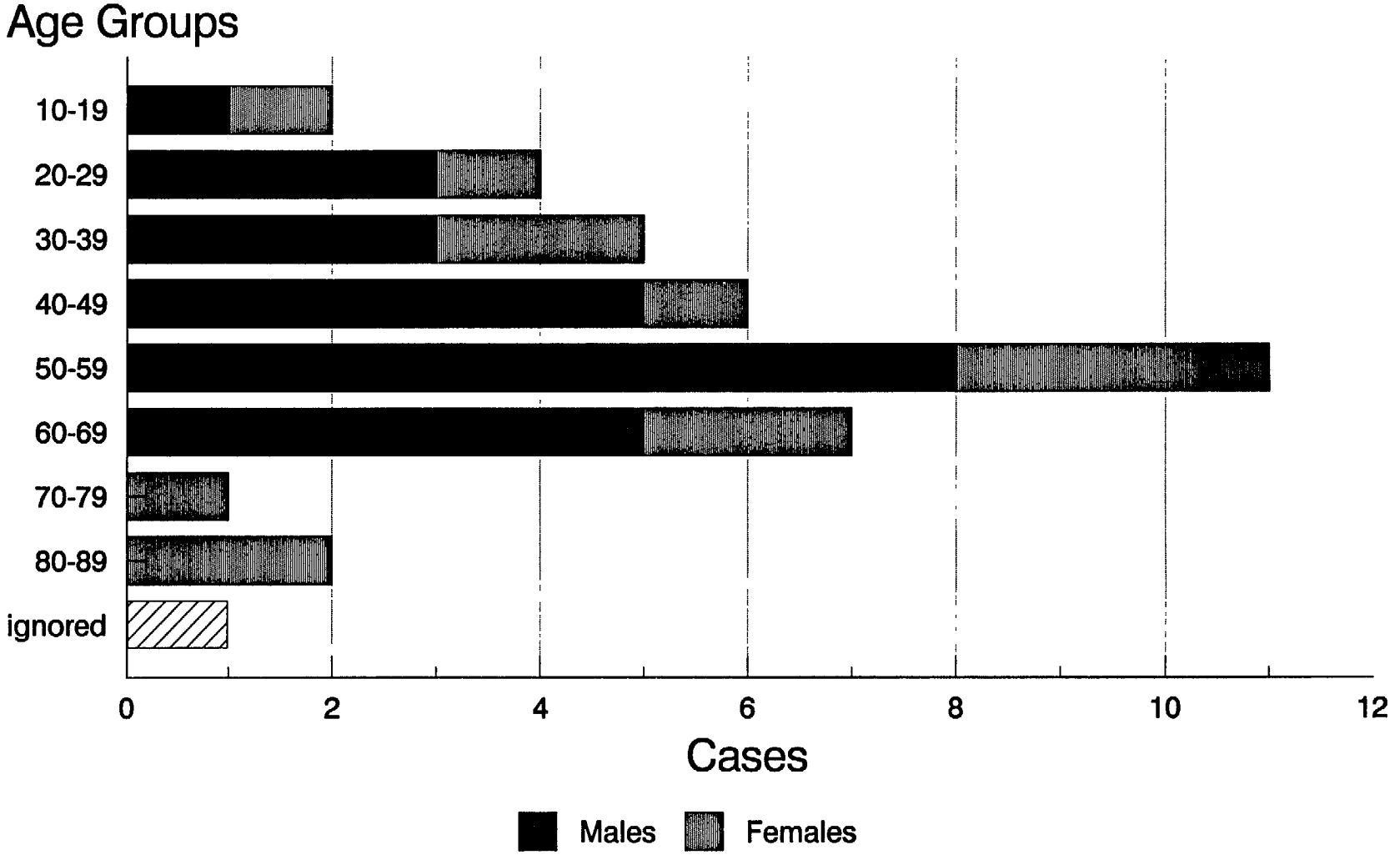
Evolution of Cholera in Narino, Colombia
by epidemiological weeks, 3 March through 18 May, 1991.



Source: Tumaco and other epidemic municipalities

Figure

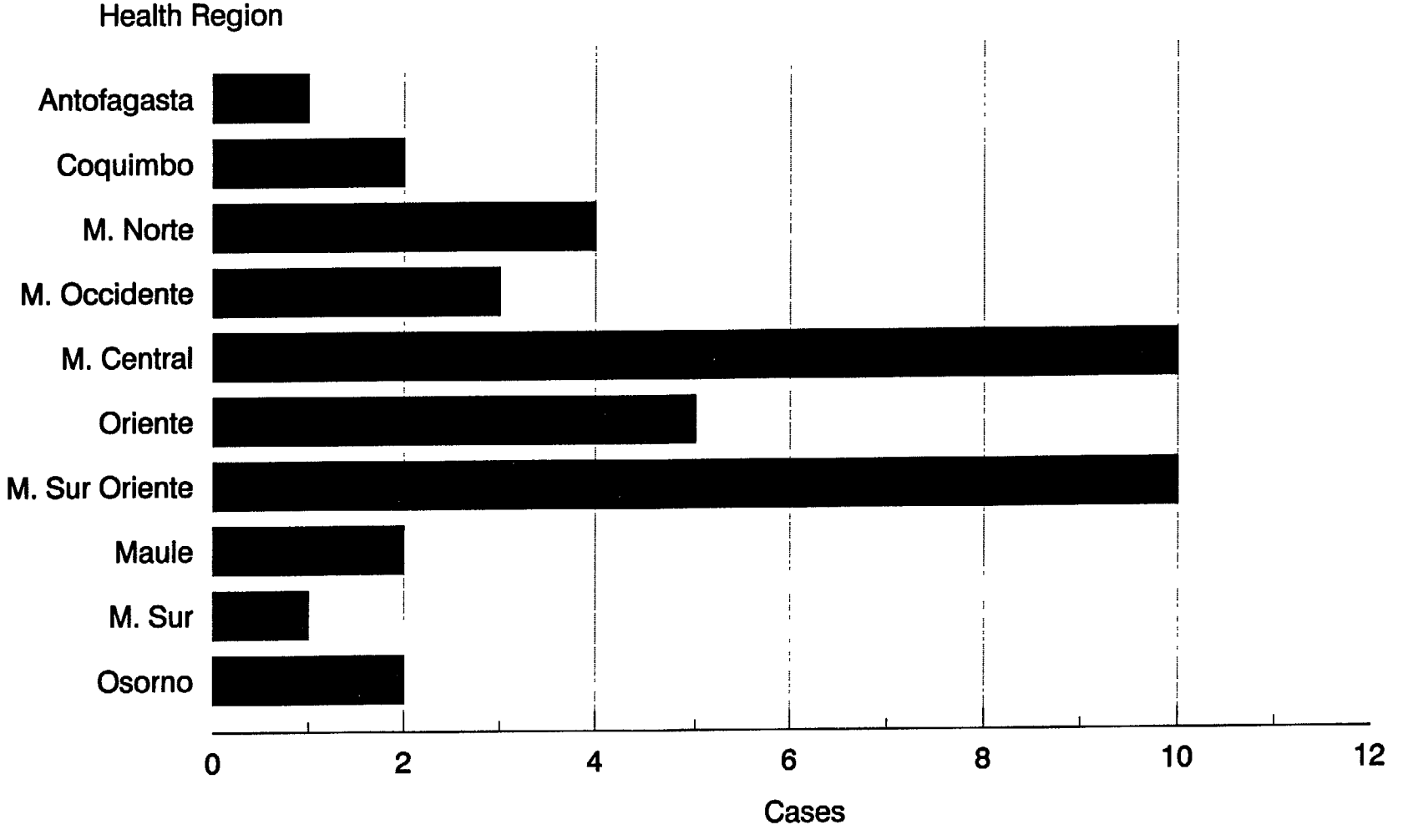
Cholera Cases in Chile, by Age Groups, by sex as of 10 May 1991.



Source: Ministry of Health

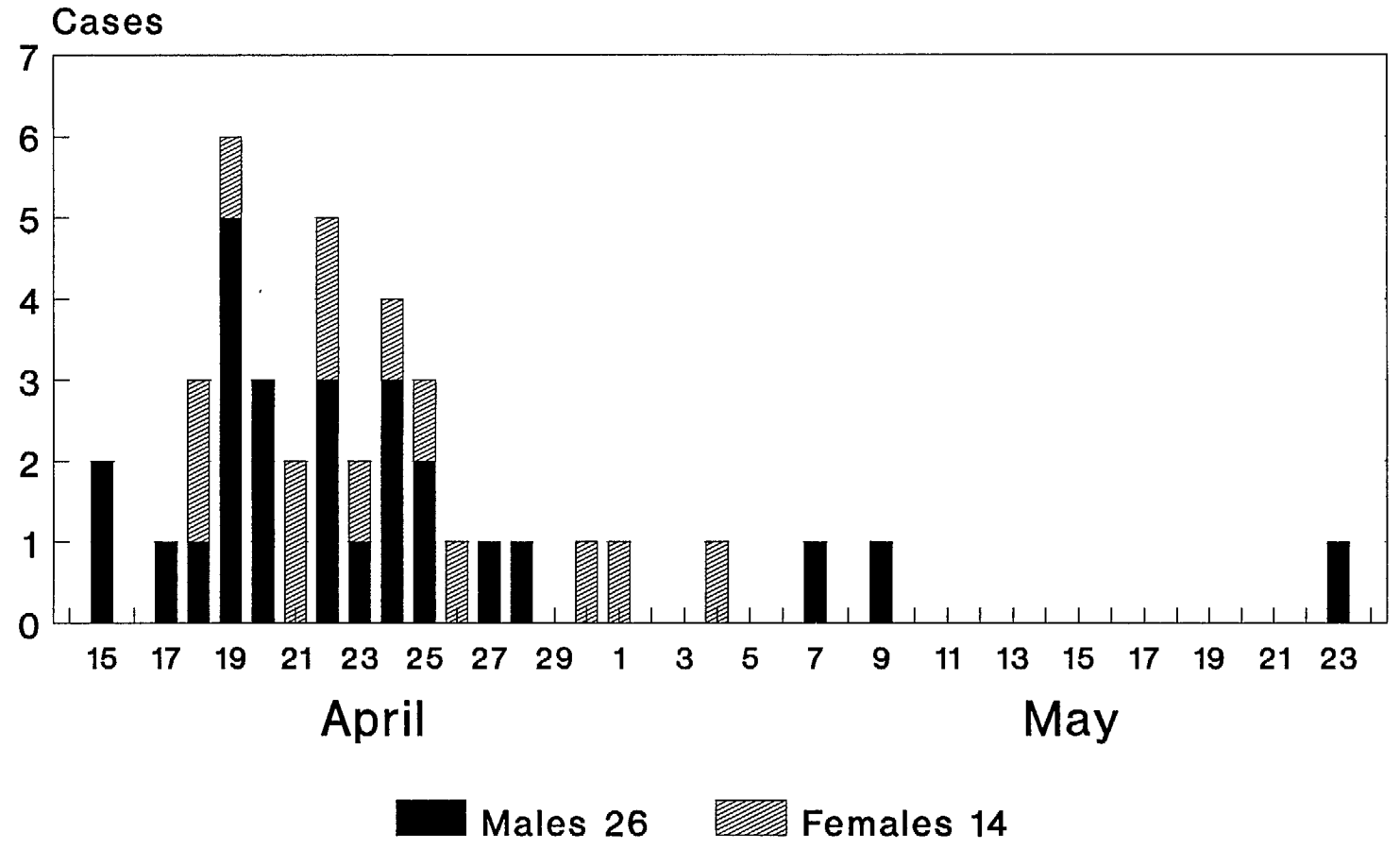
Figure 8

Cholera Cases in Chile, by health region, as of 15 May 1991.



Source: Ministry of Health

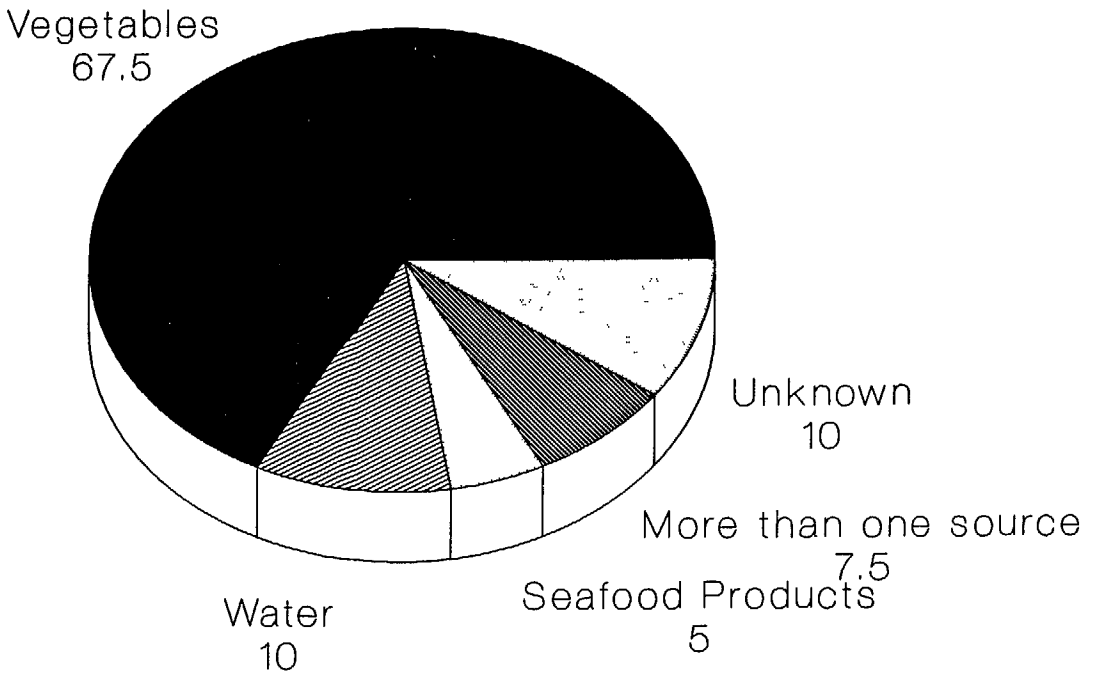
Cholera Cases in Chile, by Age Groups by sex, 15 April through 27 May 1991.



Source: Ministry of Health

Figure 10

Confirmed Cholera Cases in Chile, by source of infection as of 15 May 1991.



Source: Ministry of Health

TABLE 1

Cumulative number of diarrhoeal disease cases, hospitalizations and deaths notified by Department Health Units (UDES), PERU, through 1 June 1991.

UDES	Population (*)	Reported Cases			Incidence per 100,000	% Hospitalized	Per Cent Deaths	
		Probable	Hospitalized	Deaths			In Hospital	Total Cases
Lima	6,275,617	76,190	26,326	196	1,214.06	34.55	0.74	0.26
Callao	563,846	9,989	2,245	25	1,771.58	22.47	1.11	0.25
SUB-TOTAL	6,839,463	86,179	28,571	221	1,260.03	33.15	0.77	0.26
Amazonas	342,106	481	207	20	140.60	43.04	9.66	4.16
Ancash	986,231	18,050	6,404	49	1,830.20	35.48	0.77	0.27
Apurimac	366,133	2	2	0	0.55	100.00	0.00	0.00
Arequipa	921,160	8,008	1,565	25	869.34	19.54	1.60	0.31
Ayacucho	572,549	1,035	411	58	180.77	39.71	14.11	5.60
Cajamarca	1,234,357	8,602	4,538	376	696.88	52.76	8.29	4.37
Cusco	1,041,783	40	3	7	3.84	7.50	233.33	17.50
Huancavélica	377,153	111	45	1	29.43	40.54	2.22	0.90
Huanuco	611,556	1,421	787	32	232.36	55.38	4.07	2.25
Ica	522,665	2,179	2,143	38	416.90	98.35	1.77	1.74
Junín	1,083,761	1,404	861	35	129.55	61.32	4.07	2.49
La Libertad	1,195,102	28,613	11,912	231	2,394.19	41.65	1.94	0.81
Lambayeque	884,621	17,511	10,945	106	1,979.49	62.50	0.97	0.61
Loreto	656,630	5,773	3,269	271	879.19	56.63	8.29	4.69
Madre de Dios	49,190	8	3	1	16.26	37.50	33.33	12.50
Moquegua	129,214	316	157	9	244.56	49.68	5.73	2.85
Pasco	290,869	389	156	21	133.74	40.10	13.46	5.40
Piura	1,392,691	21,903	6,441	124	1,572.71	29.41	1.93	0.57
Puno	1,017,572	173	36	4	17.00	20.81	11.11	2.31
San Martín	462,209	3,342	1,136	91	723.05	33.99	8.01	2.72
Tacna	202,006	434	103	5	214.85	23.73	4.85	1.15
Tumbes	140,311	1,537	1,010	7	1,095.42	65.71	0.69	0.46
Ucayali	230,990	2,035	739	70	880.99	36.31	9.47	3.44
TOTAL	21,550,322	209,546	81,449	1,802	972.36	38.87	2.21	0.86

*Source: Ministry of Health, General Office of Epidemiology (Oficina General de Epidemiología).

Cumulative number of diarrhoeal disease cases, hospitalizations and deaths, by geographic area, notified by Department Health Units (UDES), PERU, through 1 June 1991.

Geographic Area	Population (*)	Reported Cases			Incidence per 100,000	% Hospitalized	Per Cent Deaths	
		Probable	Hospitalized	Deaths			In Hospital	Total Cases
COAST	13,213,464	184,730	69,256	815	1,398.04	37.49	1.18	0.44
MOUNTAIN	6,595,733	13,177	6,839	534	199.78	51.90	7.81	4.05
JUNGLE	1,741,125	11,639	5,354	453	668.46	46.00	8.46	3.89
TOTAL	21,550,322	209,546	81,449	1,802	972.36	38.87	2.21	0.86

*Source: Ministry of Health, General Office of Epidemiology (Oficina General de Epidemiología).

TABLE 2

Cholera cases and deaths, ECUADOR, by province, through 30 May 1991

PROVINCE	POPULATION	CASES			DEATHS		
		Hospitalized	Ambulatory	TOTAL	In Hospital	Ambulatory	TOTAL
GUAYAS	2,463,423	6,127	450	6,577	41	37	78
EL ORO	415,073	2,044	1,993	4,037	10	17	27
ESMERALDAS	307,190	2,103	298	2,401	12	15	27
LOS RIOS	530,844	1,904	172	2,076	16	7	23
IMBABURA	273,261	1,006	1,064	2,070	17	49	66
CHIMBORAZO	360,600	510	629	1,139	10	48	58
MANABI	1,026,266	350	372	722	9	12	21
TUNGURAHUA	366,523	262	6	268	2	4	6
CAÑAR	68,557	240	0	240	4	2	6
LOJA	389,632	165	42	207	4	6	10
AZUAY	506,546	116	0	116	1	1	2
PICHINCHA	1,734,942	92	1	93	0	1	1
COTOPAXI	283,236	83	6	89	3	9	12
GALAPAGOS	9,749	72	8	80	0	0	0
BOLIVAR	170,593	29	7	36	0	5	5
CARCHI	141,992	19	9	28	0	1	1
PASTAZA	40,714	4	0	4	0	0	0
SUCUMBIOS	77,450	3	0	3	0	0	0
ZAMORA	66,729	2	0	2	0	0	0
MORONA	95,685	0	0	0	0	0	0
NAPO	102,623	0	0	0	0	0	0
T O T A L	9,431,628	15,131	5,057	20,188	129	214	343

SOURCE: Dirección Nacional de Control y Vigilancia Epidemiológica.

TABLE 3

Cumulative number of confirmed cholera cases, hospitalizations and deaths, by state/municipality, COLOMBIA, through 31 May 1991

State and Municipality	Probable cases (1)	Hospital-izations	Confirmed cases I.N.S.	Deaths (2)
NARIñO	1,236	776	249	8
- Tumaco	1,111	651	124	6
- Others	125	125	125	2
CAUCA	222	217	21	15
- Guapí	127	127	9	2
- Timbiquí	69	64	9	12*
- López de Micay	24	24	2	1
- Others	2	2	1	0
VALLE	314	299	166	5
- Cali	2	2	2	0
- Buenaventura	306	291	160	5**
- Dagua	6	6	4	0
OTHER DEPARTMENTS	8	8	8	0
- AMAZONAS	5	5	5	0
- GUAVIARE	2	2	2	0
- META	1	1	1	0
SUB-TOTAL (COLOMBIA)	1,780	1,300	444	28
OTHER COUNTRIES (ECUADOR - PERU)	12	12	12	0
TOTAL	1,792	1,312	456	28

(1) Includes all cases diagnosed clinically, hospitalized, confirmed, and deceased.

(2) No intrahospital deaths have occurred.

* Two (2) deaths were laboratory confirmed, and ten (10) were clinically and epidemiologically confirmed.

** Two (2) deaths were laboratory confirmed, and three (3) were clinically and epidemiologically confirmed.

SOURCE: Ministry of Health and Office of Emergency Preparedness.

TABLE 4

Cumulative number of confirmed cholera cases, hospitalizations and deaths by state/municipality, BRAZIL, through the 5 June 1991

State/ Municipality	Confirmed cases	Hospital-izations
AMAZONAS:		
Tabatinga	12*	4
Benjamin Constant	2**	1
MATO GROSSO:		
Ponte Lacerda	2	
TOTAL	16	5

*Six (6) imported cases.
**One (1) imported case.

Out of the total of 16 cases in Brasil, five (5) are in the group of less than five years of age.

SOURCE: Ministry of Health, Brazil

executive committee of
the directing council

working party of
the regional committee

PAN AMERICAN HEALTH ORGANIZATION

WORLD HEALTH ORGANIZATION

107th Meeting
Washington, D.C.
June 1991

Provisional Agenda Item 7.1

CE107/25, ADD. I. (Eng.)
25 June 1991
ORIGINAL: SPANISH

CHOLERA IN THE AMERICAS

Attached is the "Draft Regional Plan for the Prevention and Control of Cholera - Emergency Phase."

DRAFT REGIONAL PLAN FOR THE PREVENTION AND CONTROL OF CHOLERA - EMERGENCY PHASE

BACKGROUND

Between February and June 1991, cases of cholera were confirmed in Peru, Ecuador, Colombia, the United States, Brazil, Chile, and Mexico, and thus the Americas have joined the other regions of the world affected by the pandemic that began to spread in 1961.

Living conditions play a crucial role in the determination and spread of cholera epidemics, and broad sectors of the Region's population currently live in conditions of poverty or destitution.

The first cases of cholera in Peru were detected on 23 January 1991, and the disease has spread rapidly to all the departmental health units in the country. By the end of May, a total of almost 200,000 cases had been reported, with 81,500 hospitalizations and 1,800 deaths. There has been a higher proportion of hospitalized cases and deaths in the highlands and jungle areas of this country than on the coast.

In Ecuador the first cases of cholera were reported on 1 March, and since that date there have been 20,188 cases and 343 deaths. The geographical distribution of the cases indicates that 19 of the 21 provinces of the country have been affected.

Colombia reported its first case of cholera on 10 March, in a locality near the border with Ecuador; the cases reported since then have reached 1,800, with 28 deaths. More than 70% of cases have occurred in the province of Nariño, although the infection has also been detected in Cauca and Valle on the coast and in Meta, Amazonas, and Guaviare in the interior.

The first case of cholera in the United States in 1991 was identified on 9 April, and 13 additional cases have subsequently been confirmed. Two of them were reported in individuals who had visited Peru and Ecuador, and the other 12 occurred in individuals who had ingested crabmeat brought into the country illegally from Ecuador. There is no evidence that the disease is spreading in the United States.

The first cases of cholera reported by Brazil were imported from the Peruvian island of Santa Rosa, in the Amazon region, on 10 April, and the affected individuals were hospitalized in the city of Tabatingá. Of the 16 cases that had been reported as of 5 June, seven imported and seven autochthonous cases were registered in Tabatingá and Benjamin Constant, in Amazonas State on the border with Colombia and Peru, and two cases were recently reported in the city of Pontes e Lacerda, in the State of Mato Grosso.

Chile reported its first case on 12 April in the Santiago metropolitan area. As of 27 May there had been 40 cases and two deaths confirmed by laboratory. All except six cases occurred in the Santiago metropolitan area; 35 of the cases occurred in April.

On 13 June, Mexico reported an outbreak of 17 cases of acute diarrhea in adults in a community of approximately 1,000 inhabitants in the southern area of Mexico State. The etiology was confirmed by laboratory to be cholera.

In response to the scope and severity of the cholera epidemic in the Region, which has aggravated both the health and socioeconomic problems that plague the countries affected by the epidemic, and in view of the impossibility of preventing its introduction to other countries, the Pan American Health Organization has established the present Plan with the following objectives:

GENERAL OBJECTIVES

- To reduce the risk of the spread of cholera
- To reduce the morbidity and mortality associated with cholera
- To reduce the economic and social impact of cholera

SPECIFIC OBJECTIVES

1. To strengthen the capacity for immediate and sustained response to cholera in the affected countries.
2. To ensure timely preparedness in the countries threatened by cholera.
3. To ensure adequate access by Member States to the pertinent information.
4. To promote the needed research activities.
5. To mobilize and coordinate regional efforts to prevent and control cholera, including emergency assistance activities.
6. To mobilize national commitment and international resources in order to provide the financial support needed for medium- and long-term projects aimed at the development of health and sanitation infrastructure.

The Regional Plan involves coordinated action between the Member States, the PAHO Country Representative Offices, PAHO Headquarters, and other agencies that provide technical and financial cooperation.

At Headquarters, the Plan will be executed by a working group made up of representatives from the following programs: Environmental Health, Diarrheal Disease Control, Communicable Diseases, Information and Public Affairs, Health Programs Development, Veterinary Public Health, Disaster Preparedness, and Research Coordination, under the coordination of the Health Situation and Trend Assessment Program (HST).

The technical cooperation actions will take into account the requirements of both the countries already affected by cholera and those that are threatened by introduction of the disease.

Given the nature of the factors that determine the occurrence of cholera epidemics, the plan must include activities that will address the need for immediate cooperation as well as activities aimed at the definition of medium- and long-term projects to respond to the need to develop environmental health and health services infrastructure.

The five principal components of the Plan are:

1. Support for national plans for the prevention and control of cholera.
2. Dissemination of information.
3. Research.
4. Mobilization of technical and financial resources.
5. Preparation of infrastructure development projects.

1. Support for national plans

Critical priority areas:

a. National plan for the prevention and the control of cholera

- Organization or strengthening of a national coordination commission.
- Preparation or review of national emergency plans, as well as medium- and long-term plans.
- Establishment of logistic procedures for the management of material resources that are procured or received as donations.

b. Epidemiological surveillance

The actions in this area are geared toward detecting and determining the scope of the epidemic, whom it affects, and its course in time, as well as at identifying the modes of transmission and the risk factors associated with cholera.

Active epidemiological surveillance will necessarily include the identification of Vibrio cholerae in patients with acute diarrhea and the monitoring of water and food quality.

Critical priority areas:

- Review or establishment of a reporting system that includes data on cases and risk factors associated with cholera.
- Strengthening of communication networks at the national level.
- Strengthening of the capacity to investigate cases and outbreaks.
- Strengthening of laboratory services for the processing of samples from cases, water, and food.
- Ensuring that data are analyzed and reports prepared.

c. Case management

Medical and paramedical personnel should be familiarized with current techniques for the management of acute diarrheal diseases, including cholera, in children and adults.

Preparations by the health services and the organized community should include the establishment of procedures for the evaluation and treatment of cases, the adaptation of facilities, the formation of mobile teams, and planning for the availability of fluids, drugs, materials, and equipment for peripheral and hospital units.

Critical priority areas:

- Definition of standards for the management of cholera cases at all levels of the health services system.
- Determination of needs and ensuring the availability of materials, supplies, and equipment.
- Support for the organization and operation of the health services and community organizations.

d. Environmental health

Environmental interventions are regarded as a priority for reducing the risk of spread of the disease. During the emergency phase, emphasis is on introducing measures that can be implemented quickly, are feasible at the local level, and involve the community. In order to reduce the transmission of cholera, the following activities, in addition to education, are considered indispensable: water disinfection and

monitoring of its bacteriological quality; sanitary disposal of human feces, with priority given to hospitals, schools, and ports and airports; and food safety in the phases of preparation, transportation, and sale.

Critical priority areas:

- Quality control of water for human consumption.
- Disinfection of water in municipal distribution systems and at the household (individual) level:
- Sanitary disposal of excreta and solid wastes.
- Food protection and control:

e. Community participation

Participation of the community is considered essential in order to meet the goals for cholera prevention and control which are mentioned in the other components: This will require the systematic interaction of all communities, organizations and sectors that are involved in health and environment. The actions are geared toward getting people to work together to maintain and improve not only their own health status but also that of the community at large.

Critical priority areas:

- Social mobilization
- Social communication
- Health education

2. Dissemination of information

The limited knowledge and lack of experience on the part of the Region's health professionals in the epidemiology of cholera and its clinical, environmental, and laboratory aspects makes information dissemination a key component of basic cooperation in the Region thus ensuring an adequate response from the health sector to these emergencies.

Critical priority areas:

- Update on the status of cholera outbreaks in the countries of the Region and the world in general.
- Preparedness in countries under the threat of cholera:
- Strengthening of the regional data base that includes data on cases, environmental status, and the results of special studies.

- Promotion of the inclusion of cholera as a subject in national and international meetings of a technical, scientific, or political nature.

- Updating of the reference bibliography on cholera.

- Establishment of a data bank that includes an inventory of human resources specialized in specific areas related to the prevention and control of cholera:

3. Research

The generation of knowledge on the prevention, diagnosis, and treatment of cholera and other control measures, should be aimed at strengthening interventions that are more timely and effective, and developing others that are compatible with national resources.

Critical priority areas:

- Oral cholera candidate vaccines: Despite promising results from tests conducted on candidate vaccines, additional field studies are needed in order to determine the efficacy and effectiveness of these vaccines in populations from areas where cholera is not endemic, as is the case of Latin America.

- Simplified diagnostic methods: Recent advances in the application of molecular biology and genetic engineering for getting faster results, while at the same time guaranteeing the sensitivity and specificity of the diagnostic tests, deserve to be studied.

- Evaluation of intervention strategies: Case management, social communication, improved water quality and sanitation, and food control.

4. Resource mobilization

Rapid implementation of the multi-institutional actions needed for the prevention and control of cholera is beyond the capacity of the public health agencies in the countries.

The mobilization of technical and financial resources should be aimed at supplementing the national resources needed in order to implement national plans that call for intersectoral actions involving government, universities, the private sector, and nongovernmental organizations at the country level. In addition, it is necessary to ensure that bilateral and multilateral cooperation agreements are coordinated and that the pertinent international and regional institutions are giving greater priority to financial support for the

countries of the Region that need it in order to develop and carry out projects relating to the development of an environmental health and health services infrastructure.

General strategies:

- Establish mechanisms for interagency coordination that will facilitate the provision of rational and efficient cooperation to the Member Countries.

- Support the development of national programs and subregional initiatives within the context of the Regional Plan.

- Guarantee the participation of research institutions, universities, and other organizations with expertise in cholera, as well as that of international cooperation agencies and nongovernmental agencies with expertise in cholera, as an expert advisory group on technical, political, and strategic issues related to the prevention and control of cholera.

5. Elaboration of proposals for infrastructure development

The attainment of a permanent reduction in the risk of cholera epidemics and other diarrheal diseases will require long-term investments in water supply and sanitation systems.

During the emergency phase it is imperative that the capacity of responsible institutions be strengthened so that they can prepare project outlines for future project proposals for infrastructure development, and thus consolidate efforts unfolded in response to the epidemic situation.

COST AND FINANCING

The cost of the plan is estimated at US$610,500,000, to be executed over a period of three years, from 1991 to 1993.

Even though the health sector institutions in most of the affected countries are laboring under financial restrictions as they face an epidemic of considerable magnitude, the Governments have committed resources from the national budgets to accelerate the operational capacity of their institutions.

It is hoped that this allocation of national budgetary resources by the Member Countries will continue and increase. This allocation is estimated at US$344,000,000, for the development of actions under the National Plans provided for in component 1 of the present Regional Plan, over the next three years.

The national effort will be supplemented with external resources coming from multilateral agencies and pertinent international and regional institutions.

Execution of the Regional Plan requires external funds under component 1 amounting to a total of US$230,000,000 for the support of national plans.

It is estimated that components 2 to 5 of the Regional Plan, which include regional and subregional activities, will be financed with external funds on the order of US$36,500,000.