directing council | *regional committee*

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CHOLERA IN THE AMERICAS

For the first time in the current century, epidemic cholera struck the Americas in January 1991. During the past seven months, over 270,000 cases have occurred in Peru, Ecuador, and Colombia, with additional cases in Chile, Brazil, the United States of America, Mexico, and Guatemala. Considering the characteristics of cholera, 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 prepare for the possible introduction of cholera by developing national plans for cholera control. Such 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, prepare a plan at the Regional level, and identify potential external resources for national and regional prevention and control efforts.

The Organization has divided its response to the epidemic into two phases: the emergency phase, which will last three years, and the investment phase, which will continue for 12 years. It is expected that US$610 million will be required during the emergency phase to finance national plans and at least some subregional and Regional activities. During the investment phase, US$200 billion will be needed in order to correct deficiencies in the environmental and health infrastructure that have contributed to the spread of cholera. The countries will need to provide a significant share of the resources, with the remainder to be requested from international organizations. As of mid-August, PAHO had

participated in the mobilization of more than US$12 million, which was donated by various countries, the European Community, and the Inter-American Development Bank (IDB). The Organization is discussing projects with other organizations, since there is an obvious need to rapidly mobilize additional financial resources.

Discussions during the 107th Meeting of the Executive Committee focused on the role of national cholera control commissions, alternative strategies for dealing with the problem, the prioritization of studies on new vaccines, the desirability of strengthening diarrheal disease control, the importance of public information, ways to encourage community involvement, the need to report and share information on the problem, control actions, and the amount required for investment in the immediate future. As a result of these discussions, the document presented to the Executive Committee (see Annex) has been revised to clarify the role of the national commissions, underscore the importance of supporting the new vaccine studies, point out the need to step up programs for the control of diarrheal diseases, and emphasize the importance of public information and community involvement. Updated information has also been added with regard to the epidemic and the status of resource mobilization.

Resolution XI, adopted by the Executive Committee and included below, suggests a draft resolution that encompasses the policies proposed for consideration by the Council. Members of the Directing Council are asked to review this document for purposes of discussion, decide on the policies to be implemented, and provide guidance for the Secretariat and recommendations for the countries.

THE 107th MEETING OF THE EXECUTIVE COMMITTEE,

Having seen the report of the Director (Document CE107/25 and ADD. I) on the situation of cholera in the Americas,

RESOLVES:

To propose to the Directing Council the adoption of a resolution along the following lines:

THE XXXV MEETING OF THE DIRECTING COUNCIL,

Considering the spread of the cholera epidemic in several countries of the Region;

Recognizing that, in face of the threat of introduction of the disease to other countries of the Region, concrete measures must be adopted to limit its spread and to prevent mortality and reduce morbidity from the disease;

Cognizant that the parenteral vaccines presently available are not recommended for the prevention or control of cholera;

Aware of the link between the occurrence of cholera and the socioeconomic and sanitary situations in affected areas;

Cognizant of the Director's initiative to coordinate the Organization's response to this emergency;

Informed of the subregional action of the Andean and Central American countries to prepare coordinated plans for dealing with the emergency and to reinforce preparations against the threat; and

Informed of the general strategy proposed by the Organization to address the problem, and of Resolution WHA44.6,

RESOLVES:

1. To call upon the international community to intensify its cooperation with the countries affected or threatened by cholera.

2. To urge the international and regional agencies concerned to give more priority to granting to these countries the technical and financial cooperation they may request for their struggle against cholera.

3. To express appreciation for the Organization's response, to date, in support of Member Governments' efforts to contain the cholera epidemic in the Region.

4. To urge the Member Governments:

a) To report any case of cholera immediately, in compliance with the International Sanitary Regulations;

b) Not to apply to countries affected by the epidemic restrictions on passenger transit and imports of products from those countries which are not justified from the standpoint of public health;

c) To establish and execute national plans for the prevention and control of cholera which identify the most vulnerable areas and population groups, allocate the resources required to launch those plans, assure use of an intersectoral approach, address the need for effective social communications, and indicate the need for international technical and financial cooperation in the context of the Organization's general strategy;

d) In the countries yet untouched by the epidemic, to strengthen their capabilities for: epidemiological surveillance, maintenance of clean drinking water, disease prevention through public information, and correct management of cases.

5. To request the Director:

a) To strengthen measures that will ensure a prompt and effective response by the Organization to the needs of countries affected or threatened by cholera;

b) To assure that the Organization plays an active, creative role in mobilizing resources from all sources to provide the countries in the Region with the financial support required for their cholera prevention and control plans;

c) To coordinate regional measures against cholera so that technical and financial resources will be put to the most efficient possible use;

d) To continue activities for the development and evaluation of effective new vaccines against cholera;

e) To continue his efforts, in collaboration with the Member Governments and interested agencies and organizations, to implement the proposed general strategy by drawing up plans, programs and projects for its implementation and full execution.

Annex

CHOLERA IN THE AMERICAS

CONTENTS

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 1830's and the 1890's. 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, 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.

PAHO continues to work under the hypothesis that the present epidemic will spread to most countries in the Region and will become endemic in several of them.

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 August, a cumulative total of 238,261 probable cases and 2,387 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.

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*Tables and figures are included in Annex I.

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 0.1% 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, fatalities have exceeded 2% in several interior departments where educational campaigns have been less effective and health care is less readily available (Figure 3).

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 the province of El Oro 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 31,881 cases and 505 deaths (Table 2). The highest attack rates have been along the coast. The incidence of cases at the national level is declining (Figure 4).

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 the department of Nariño (located on the Pacific coast, at the border with Peru), 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 12 other departments: Cauca, Valle, Choco, Tolima, Cundinamarca, Huila, Santander, Caldas, Córdoba, Amazonas, Guaviare, and Meta. Colombia has registered a total of 4,292 cases and 76 deaths. As of 30 July, 3,991 cases had occurred in the departments of Nariño, Cauca, and Valle (Table 3 and Figure 5).

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, 31 more cases have been confirmed, 28 of which have been in the same area of the state of Amazonas (Tabatinga, Benjamin Constant and Atalaia do Norte); six of these cases were imported (Table 4). The most recent case in this area occurred on 28 May; an additional case was identified in Ponte Lacerda in the state of Mato Grosso, but it is unclear whether there is any association with the other cases (Figure 6).

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 41 cases and two deaths, all in persons 10 years of age and older. All except 6 cases were in the Santiago area and 35 cases occurred in April (Figure 7). The latest case occurred on 23 May (Figure 8). The most important risk factor has been the consumption of raw vegetables. 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 of America 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.

G. Mexico

The first case was detected on 13 June in San Miguel de Totomoloya (Table 5), a rural community with 1,100 inhabitants where there were 27 cases. Health authorities carried out a prevention and control campaign that included visits to all households. Later, still more foci of cholera infection were identified, and as of 27 July there had been 257 confirmed cases and two deaths in the states of Mexico (32), Hidalgo (183), Veracruz (7), Puebla (11), and Chiapas (24). Figure 9 shows 65 cases in the states of Mexico and Hidalgo.

H. Guatemala

The first case of cholera was reported on 24 July in a male patient residing in La Gloria, in the department of San Marcos, near the Mexican border. As of 10 August, nine cases of cholera had been reported.

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; coordinated by the Health Situation and Trend Assessment Program.

One of the first initiatives 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 $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 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 in external funds have 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 in instituting control measures. Headquarters-based staff have provided technical assistance in many areas, including case management, environmental sanitation, 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 mechanisms 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 for 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 defense units, the Red Cross, and various non-governmental organizations.

As of mid-August, PAHO had participated in the mobilization of more than US$12 million donated by various countries, the European Community, and the Inter-American Development Bank (IDB). PAHO is discussing several Regional and subregional projects, together with support for national plans, with a view to obtaining sufficient funds for the emergency and long-term investment phases. In view of the needs to be funded (see section IV), considerable additional resources will have to be obtained for cholera control and prevention from both national and international sources.

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 and distribution 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. Actions in response to cholera are contributing to better organization and expansion of the programs for diarrheal disease control. It has been demonstrated, for example, that the national cholera control commissions, owing to their intersectoral nature, fulfill important functions of coordination that extend beyond those normally carried out by the commissions for control of diarrheal diseases.

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 Portuguese, and distributed again in those languages. 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 in preparing 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 countries in 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 on 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 for 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 whole cell/subunit B 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 would coordinate these studies for Member Countries, in conjunction 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 responding to inquiries, considering it essential to provide information to all concerned communities and believing 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 widely distributed. PAHO has provided full support to country-level health education efforts, collaborating with a video production and photography crew in Peru, in order to obtain materials for education and information campaigns. PAHO has also worked closely with PWR Offices to rapidly disseminate information on how to prevent cholera, especially among 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; printed 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 whatever measures are necessary to control the present epidemic, reduce the immediate threat of future epidemics, and minimize the impact of cholera in the next two to three years. The long-term phase is directed at improving health infrastructure, 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 Draft Regional Plan for the Prevention and Control of Cholera - Emergency Phase (see Annex II) has been developed as a basis for Region-wide activities during the next two to three years; these activities will complement the actions undertaken within each Member Country. 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.

The Plan has five components:

1. The first is support of national plans, which itself includes six priority areas for action: a) national cholera commissions should be established and strengthened with multidisciplinary and multisectoral participation in order to coordinate development and implementation of national plans and prepare operational procedures for providing care and distributing materials and supplies, in addition to the important role they will play in elucidating various aspects of the problem among the component sectors; 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 safely dispose of human waste from selected locations (e.g., hospitals) should be priorities, with emphasis on rapid, practical measures in the emergency phase; e) community participation must be sought if the proposed interventions are to be implemented successfully; and f) a vigorous public information campaign should be mounted as an essential ingredient for success in the aforementioned activities.

2. The second component 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.

3. The third component is the initiation and support of research on oral cholera vaccines (whole cell/B subunit and live-attenuated), which may show the effectiveness and desirability of these new products in the specific protection of individuals against the disease, as well as their usefulness as a means of control at the community level; evaluation of intervention strategies; and assessment of rapid diagnostic methods.

4. 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. PAHO/WHO should play a coordinating role, working with all parties concerned.

5. 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 these projects.

The objectives of emergency measures in the countries and the Region are to: a) limit the extent of the cholera epidemic in the Region, and b) maintain low mortality rates from cholera where the disease is present.

The measures to be implemented or continued in the countries include the purchase and distributions of additional materials and supplies, improvement of surveillance, correct management of cases, improvement of food safety, health education, improvement of water quality, monitoring of water quality, and proper waste disposal in certain places (hospitals, in particular). All of these measures have been instituted in the countries affected by cholera, and they have been included in the national plans developed by other countries. The Organization has estimated that approximately US$610 million will be needed to apply these measures in all the countries and continue them throughout 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 Decade

The cholera epidemic is the most obvious and dramatic health consequence of the economic crisis of the 1980s. More than US$200 billion have been transferred from 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:

- 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.

- The extension of potable water, sewage treatment, and waste disposal systems to those without services.

- The strengthening of national and local health systems and the extension of the health services network, within the primary 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 such 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 targets 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 US$20 billion short of the original US$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. Current PAHO and the World Bank estimates of the amount of investment needed for 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 US$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 a lower amount.

In summary, it is estimated that some US$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 this amount will be provided by the countries themselves, but 30% will have to be obtained from external sources.

It is within the capacity of the countries and the international community to achieve that flow of resources. This 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 of at least 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, an increase in the allocation of grants from bilateral and multilateral cooperation agencies to health, water, and environmental sanitation projects.

This 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.

V. CONCLUSION

In confronting the cholera epidemic, the countries and the Organization must work under the hypothesis that the epidemic will spread to most countries and will become endemic in several of them. Cholera has created an opportunity, and actions to control it must be swift; otherwise the population will quickly become inured to the disease. Although the amounts required to deal with the epidemic (US$610 million over three years) and the investment needed to correct the deficiencies in infrastructure (US$200 billion over 12 years) may seem exorbitant, they are not excessive when considered in light of the needs of the countries, the importance of investment in the Region, and the will of international organizations.

Annexes

ANNEX I

TABLES AND FIGURES

Table 1

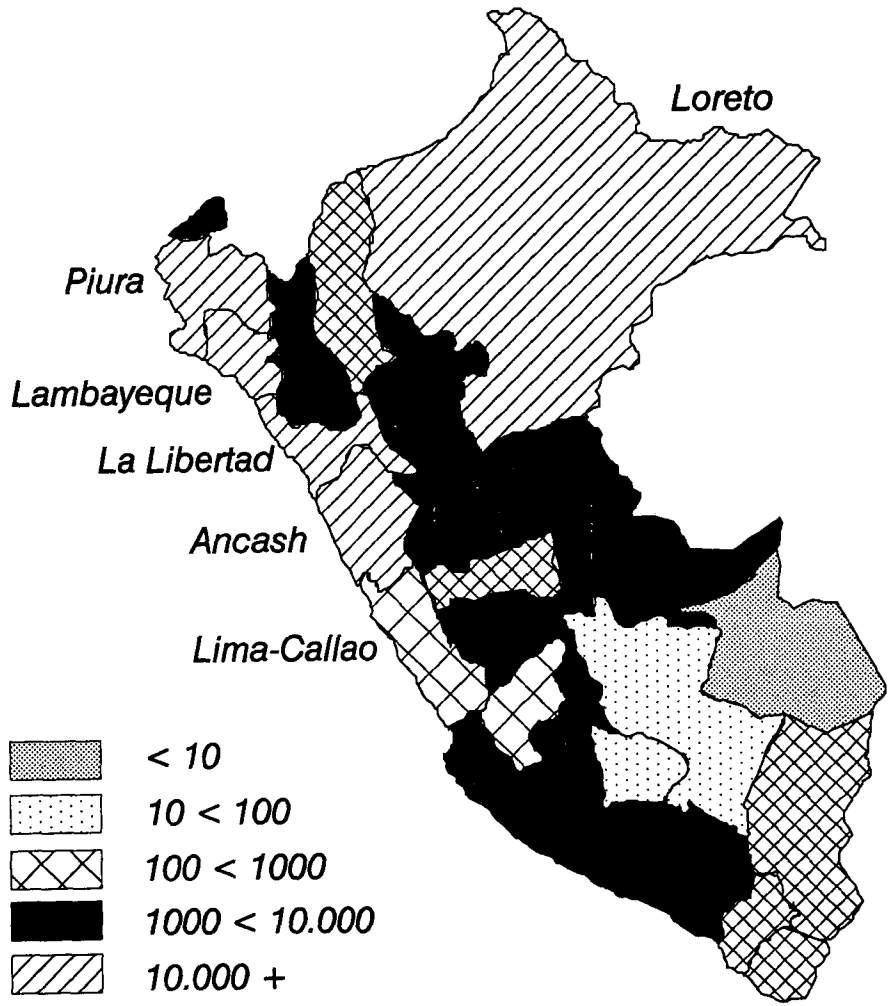
Number of reported diarrhoeal disease cases, hospitalizations and deaths notified by Department Health Units (UDES), PERU, through 1 August, 1991

UDES	Total Cases Week 29	Total Cases Week 30	Hospitalizations Week 29	Hospitalizations Week 30	Deaths Week 29	Deaths Week 30	Cumulative Total Cases	Cumulative Hospitalizations	Cumulative Deaths
Amazonas	0	0	0	0	0	0	525	251	20
Ancash	0	0	0	0	0	0	18,868	6,826	59
Apurimac	0	0	0	0	0	0	35	35	0
Arequipa	0	0	0	0	0	0	9,875	1,850	30
Ayacucho	27	0	7	0	0	0	2,057	837	100
Cajamarca	0	0	0	0	0	0	8,636	4,559	376
Cusco	0	0	0	0	0	0	40	3	7
Huancavélica	0	0	0	0	0	0	111	45	1
Huanuco	61	6	48	5	0	0	2,632	1,578	67
Ica	0	0	0	0	0	0	2,437	2,401	38
Junín	0	0	0	0	0	0	1,405	861	33
La Libertad	0	0	0	0	0	0	31,688	12,990	281
Lambayeque	56	19	9	9	0	0	18,291	11,141	106
Loreto	0	0	0	0	0	0	13,168	6,769	470
Madre de Dios	0	0	0	0	0	0	8	3	1
Moquegua	0	0	0	0	0	0	398	208	8
Pasco	0	0	0	0	0	0	410	158	23
Piura	0	0	0	0	0	0	22,936	6,646	147
Puno	0	0	0	0	0	0	173	36	4
San Martín	71	116	13	34	0	0	5,543	1,705	134
Tacna	1	0	0	0	0	0	568	118	6
Tumbes	9	1	0	1	0	0	1,904	1,114	9
Ucayali	396	299	131	122	5	0	5,709	2,018	239
Lima	0	0	0	0	0	0	79,225	27,458	201
Callao	121	0	0	0	0	0	11,619	2,412	27
TOTAL	742	441	208	171	5	0	238,261	92,022	2,387

Source: General Office of Epidemiology, Ministry of Health.

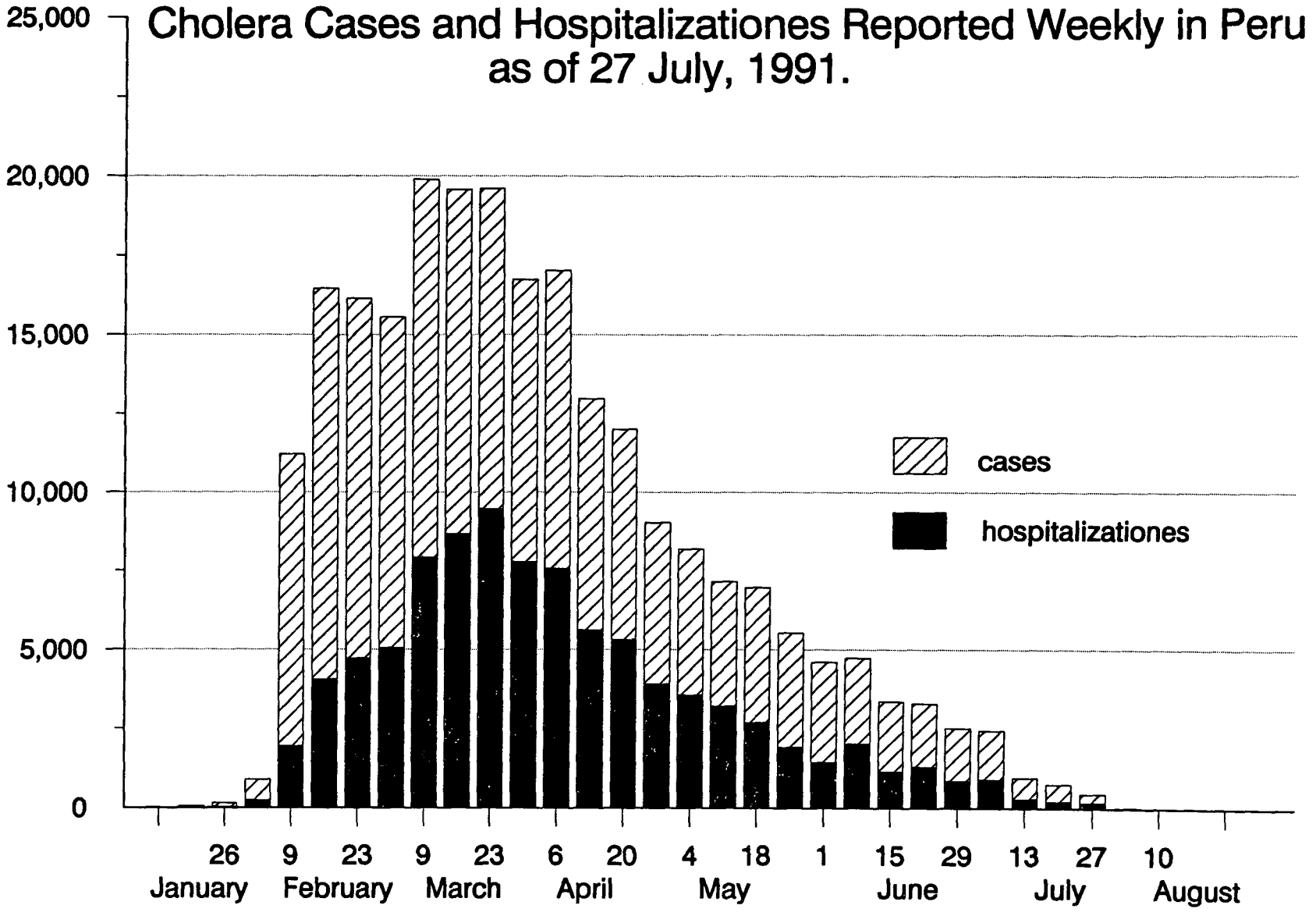
FIGURE 1

Cumulative Cases of Cholera in Peru by Department as of 1 August, 1991.



Source: Ministry of Public Health, Department of Epidemiology

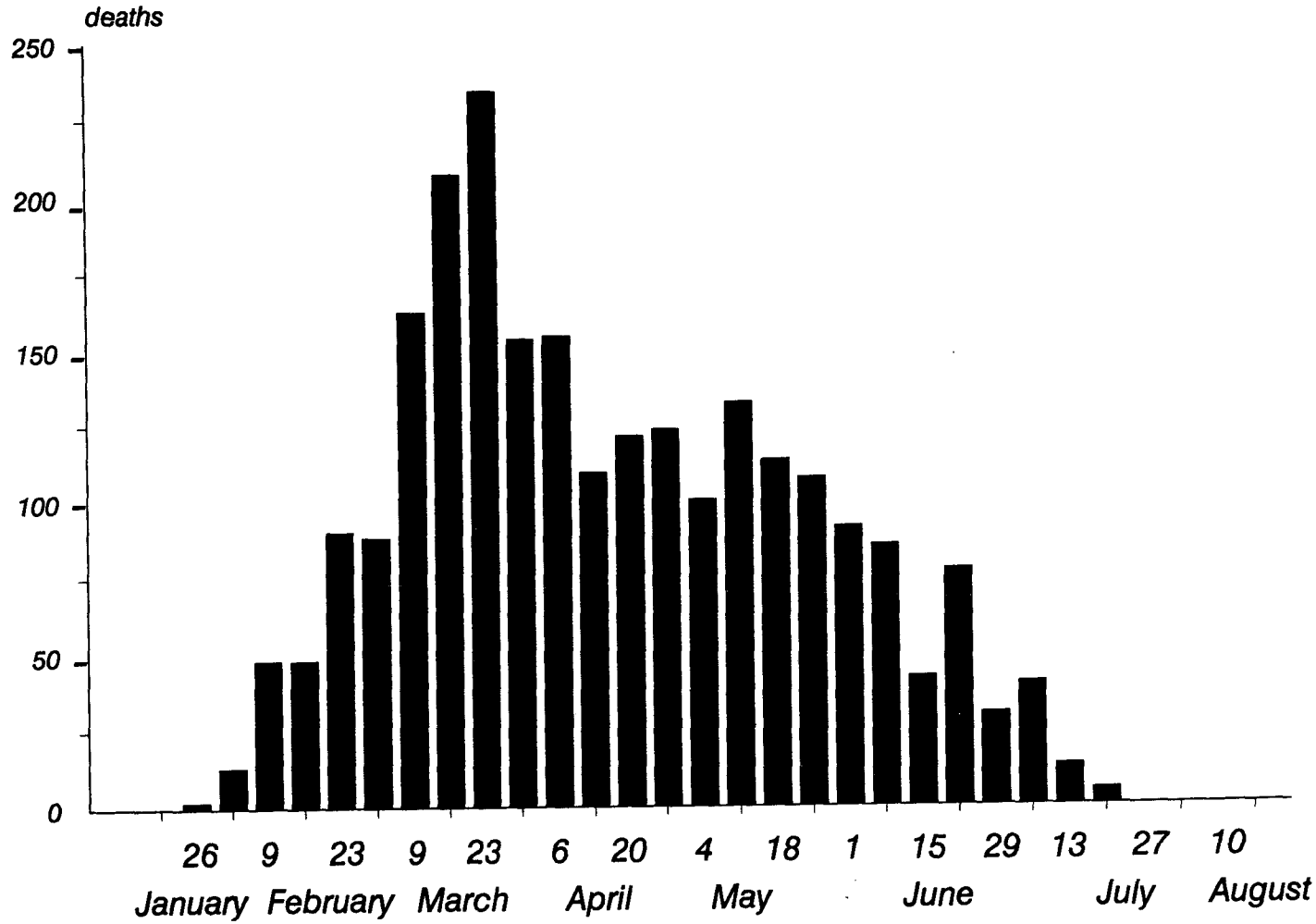
FIGURE 2



Source: Ministry of Health

FIGURE 3

Cholera Deaths Reported Weekly in Peru as of 1 August, 1991.



Source: Ministry of Public Health, Peru

Table 2

Cumulative Cholera Cases, by Province, ECUADOR, Epidemiological Week No. 28 through 13 July 1991

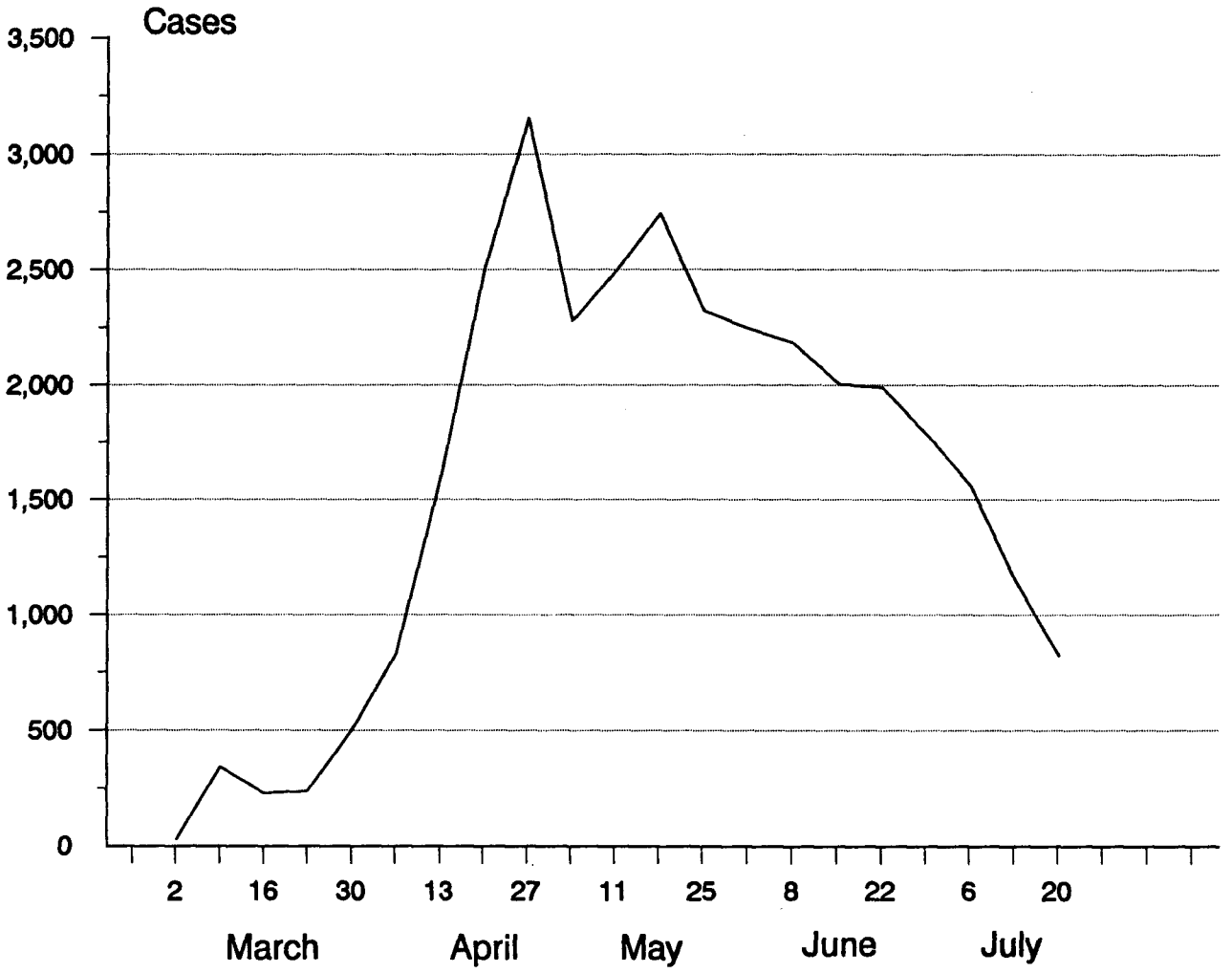
PROVINCES	Week Ending: 13 July (28) Cases	Cumulative Hospitalizations	Cumulative Total	Cumulative Deaths
Guayas	292	9,299	10,899	97
El Oro	22	2,296	4,159	27
Esmeraldas	4	2,862	3,680	39
Los Ríos	63	2,913	3,088	30
Manabí	57	943	1,274	30
Imbabura	111	1,545	3,089	66
Chimborazo	129	1,036	1,799	79
Tungurahua	51	950	1,058	24
Cotopaxi	76	781	837	68
Pichincha	117	764	825	6
Cañar	26	365	479	9
Loja	10	279	305	14
Azuay	9	219	246	7
Bolívar	3	74	90	5
Carchi	0	23	32	2
Pastaza	0	6	15	0
Zamora	0	2	2	0
Sucumbíos	0	1	1	0
Napo	0	0	0	0
Morona	0	0	0	0
Galápagos	0	3	3	0
Total	970	24,361	31,881	505

Source: "Dirección Nacional de Vigilancia y Control Epidemiológico, Ministerio de Salud Pública."

NOTE: Provisional data subject to change.

FIGURE 4

Cholera Cases Reported Weekly in Ecuador as of 20 July, 1991.



Source: Ministry of Health

Table 3

Cumulative number of confirmed cholera cases, hospitalizations and deaths, by state/municipality, COLOMBIA, through 30 July 1991

State and Municipality	Probable cases	Hospitalizations	Deaths
NARIÑO	1,749	1,079	8
- Barbacoas	79	79	0
- Cumbal	11	11	0
- El Charco	24	24	0
- Gualmatán	1	1	0
- Ipiales	1	1	0
- Isouandé	13	13	0
- Olaya Herrera	2	2	0
- Pizarro	72	72	0
- Ricaurte	2	2	0
- Roberto Payán	4	4	2
- Tumaco	1,537	867	6
- Magui	2	2	0
- Ancuya	1	1	0
CAUCA	870	637	34
- Guapí	211	193	3
- Timbiquí	230	80	16
- López de Micay	70	63	6
- Caloto	77	34	2
- Puerto Tejada	150	144	1
- Sant. Quilichao	24	24	0
- Corinto	3	2	0
- Miranda	5	5	0
- Toribío	6	6	1
- Jambalá	80	76	4
- Belalcázar	5	3	1
- El Tambo	1	1	0
- Caldono	8	6	2
VALLE	1,372	1,208	12
- Cali	69	58	0
- Buenaventura	1,166	1,051	6
- Dagua	17	16	3
- Yumbo	41	24	0
- Palmira	17	10	2
- Candelaria	12	12	1
- Ríofrío	9	8	0
- Tuluá	18	10	0
- Janundí	4	3	0
- Pradera	5	3	0
- Trujillo	4	3	0

.../...

Table 3 (Cont.)

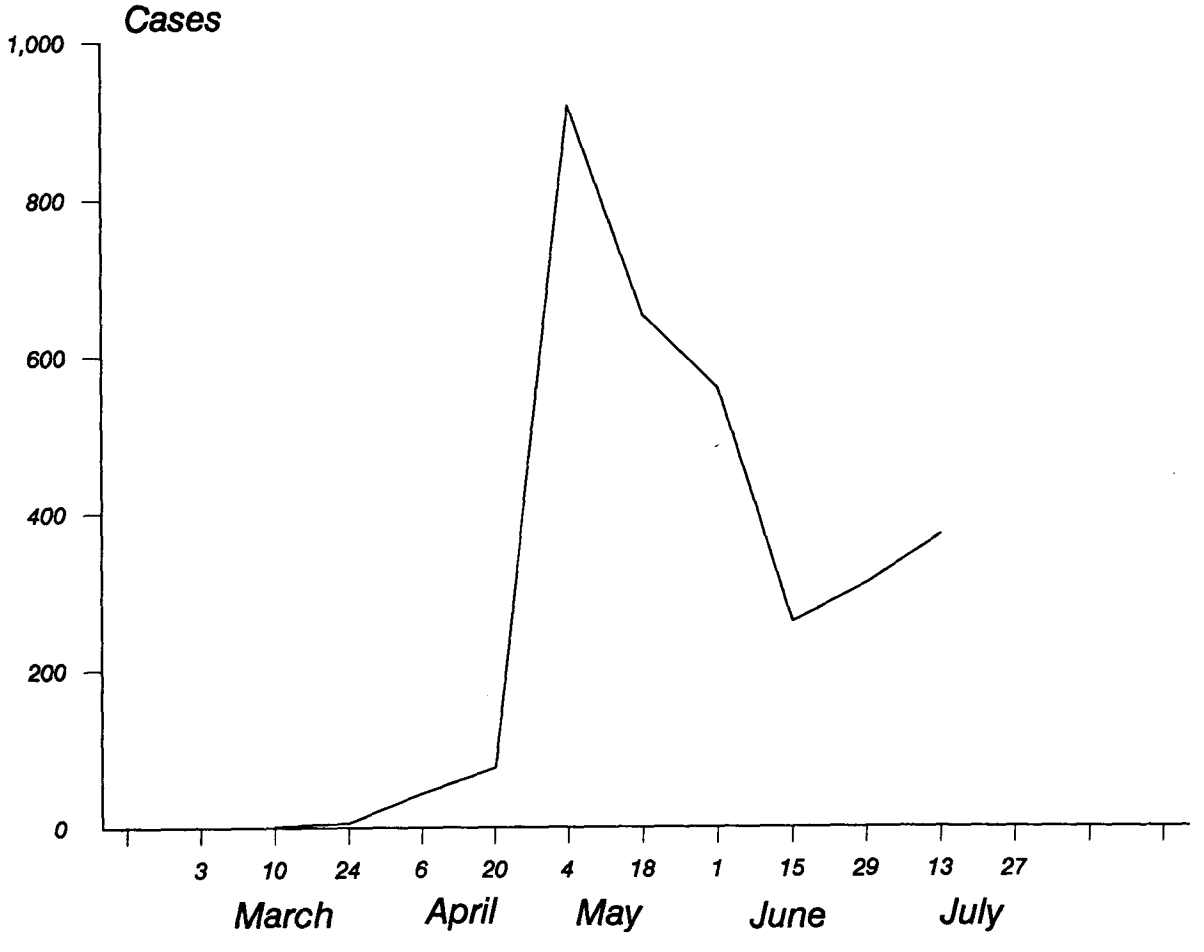
COLOMBIA continuation (through 30 July 1991)

State and Municipality	Probable cases	Hospitalizations	Deaths
CHOCO	211	206	20
- Quibdó	1	1	0
- Bahía Solano	13	8	0
- Pié de Pató	31	31	3
- Nuquí	18	17	0
- Itsmina	131	131	11
- Pizarro	17	17	6
TOLIMA	37	28	1
- Coyaima	17	16	1
- Purificación	3	3	0
- Natagaima	13	5	0
- Saldaña	1	1	0
- Flandes	3	3	0
CUNDINAMARCA	1	1	0
- Girardot	1	1	0
HUILA	24	17	1
- Neiva	3	3	0
- La Plata	2	2	0
- Tello	6	6	0
- Villavieja	7	4	1
- Aipe	5	1	0
- Algeciras	1	1	0
SANTANDER	2	1	0
- Puerto Wilches	2	1	0
CALDAS	2	1	0
- La Dorada	2	1	0
CORDOBA	1	1	0
- Valencia	1	1	0
OTHER DEPARTMENTS:	10	10	0
AMAZONAS	7	7	0
GUAVIARE	2	2	0
META	1	1	0
SUB-TOTAL (COLOMBIA)	4,279	3,166	76
OTHER COUNTRIES (ECUADOR - PERU)	13	12	0
TOTAL	4,292	3,198	76

SOURCE: Ministry of Health and Office of Emergency Preparedness.

FIGURE 5

Cholera Cases Reported Weekly in Colombia as of 27 July, 1991.



Source: Ministry of Health

Table 4

Cumulative number of confirmed cholera cases, hospitalizations and deaths by state/municipality, BRAZIL, through 2 August 1991.

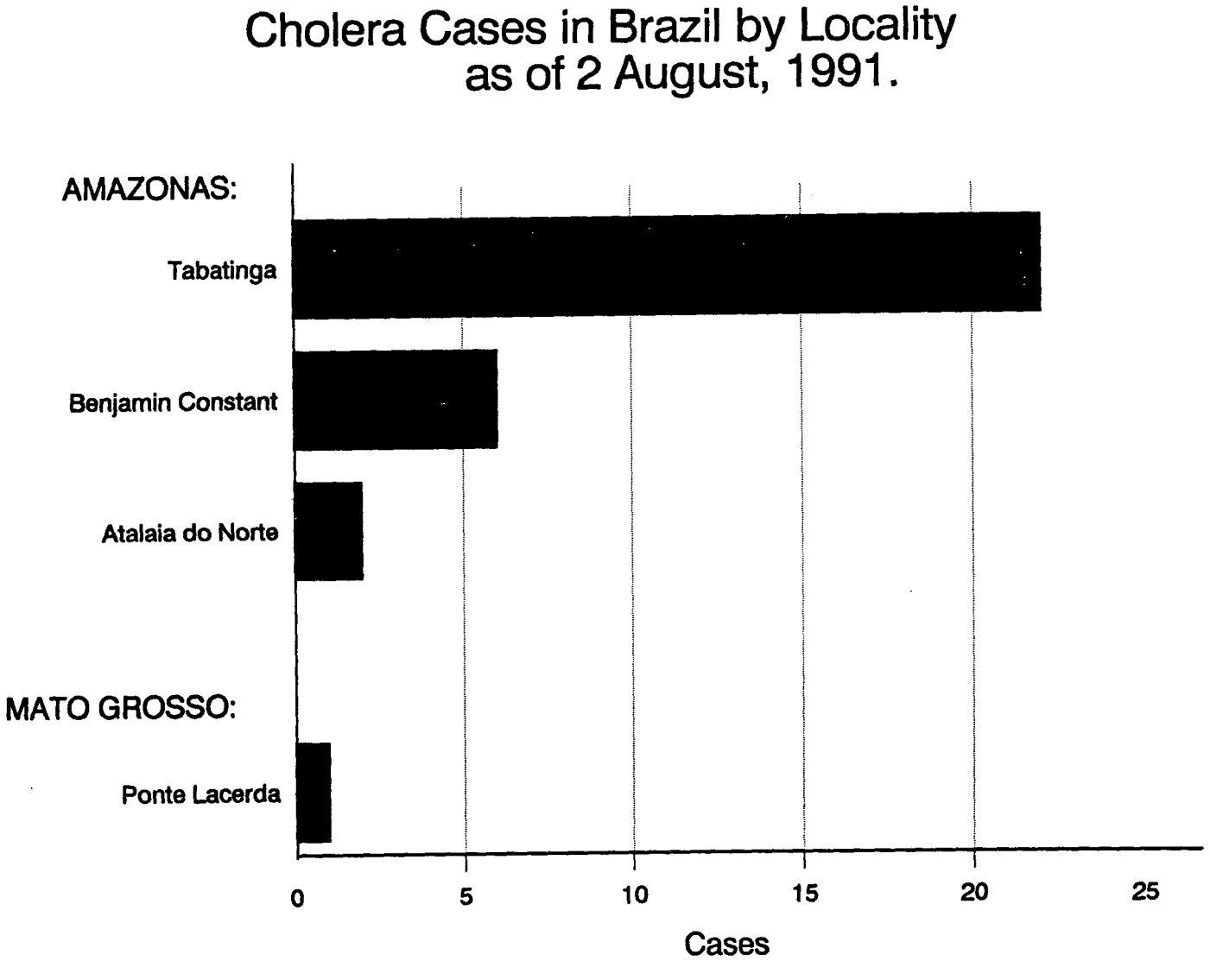
State/ Municipality	Confirmed Cases	Hospital-izations
AMAZONAS		
Tabatinga	22	14
Benjamin Constant	6	3
Atalaia do Norte	2	2
MATO GROSSO		
Ponte Lacerda	1	0
TOTAL	31	19

Table 5

Cumulative number of confirmed cholera cases, hospitalizations and deaths, by state, MEXICO, through 27 July 1991

State		Confirmed cases	Hospital-izations	Deaths
Mexico	32	9	0	
Hidalgo	183	33	1	
Veracruz	7	3	0	
Puebla	11	11	1	
Chiapas	24	13	0	
TOTAL	257	69	2	

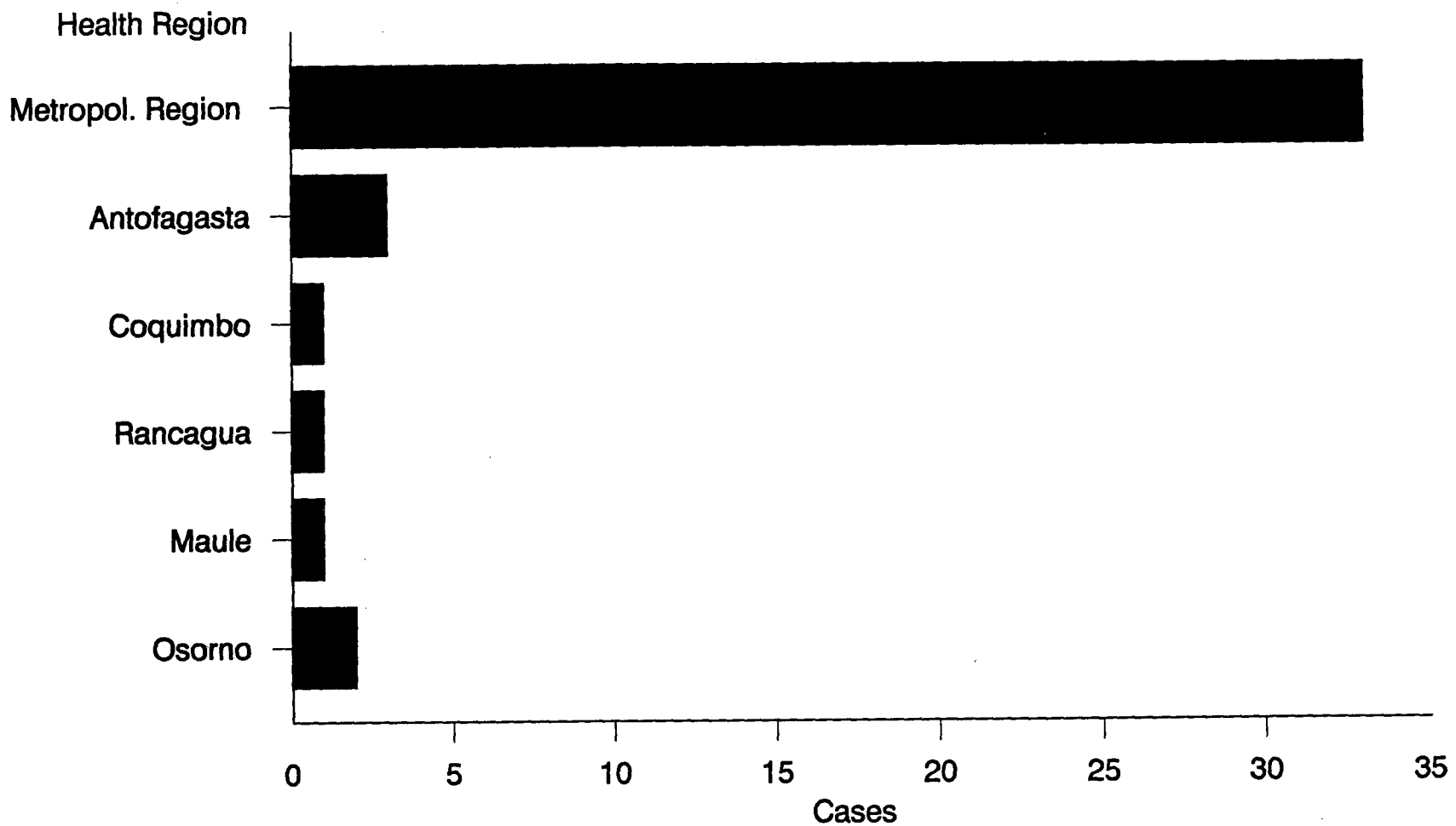
FIGURE 6



Source: Ministry of Health

FIGURE 7

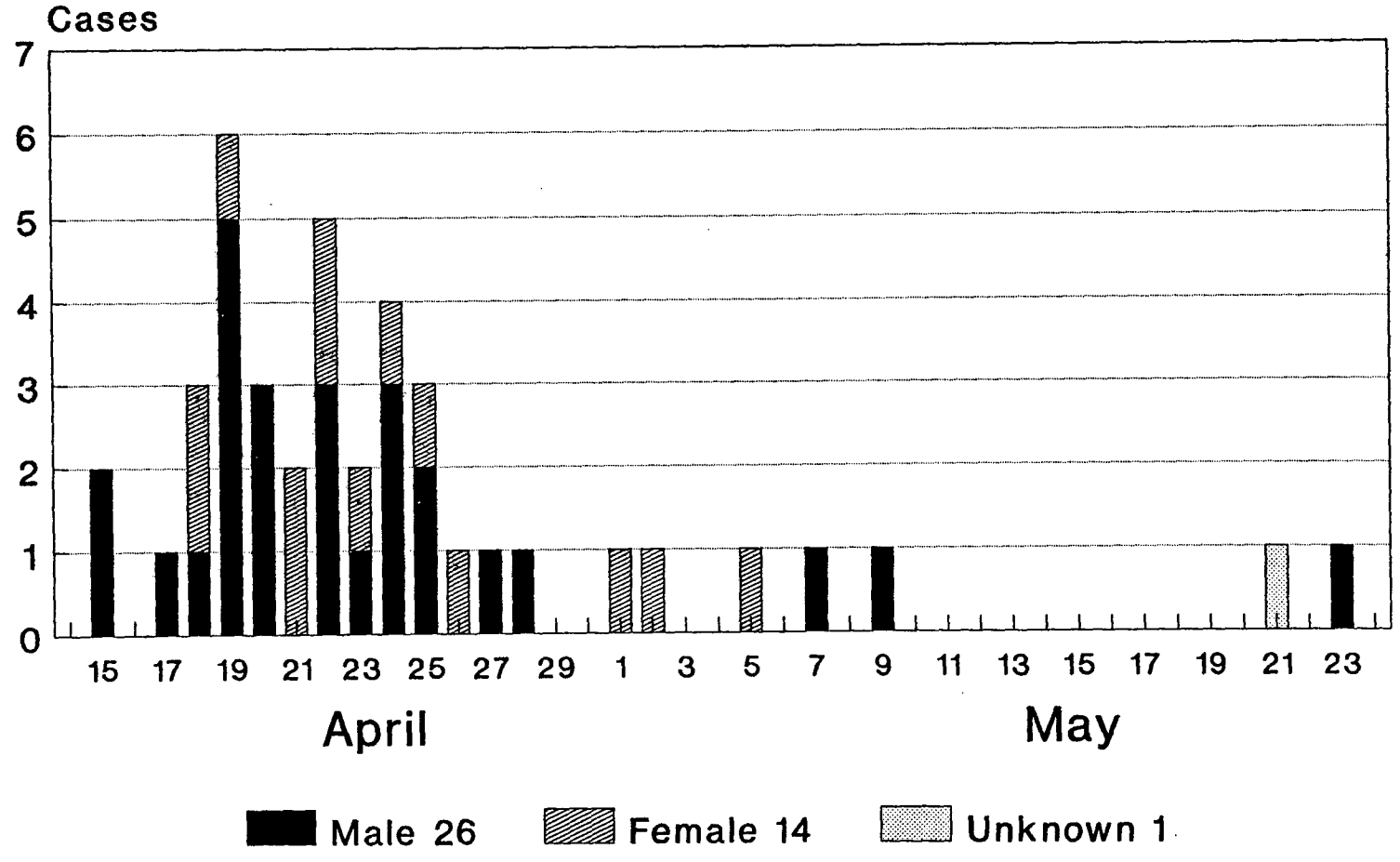
Cholera Cases in Chile by Health Region as of 5 August, 1991.



Source: Ministry of Health

FIGURE 8

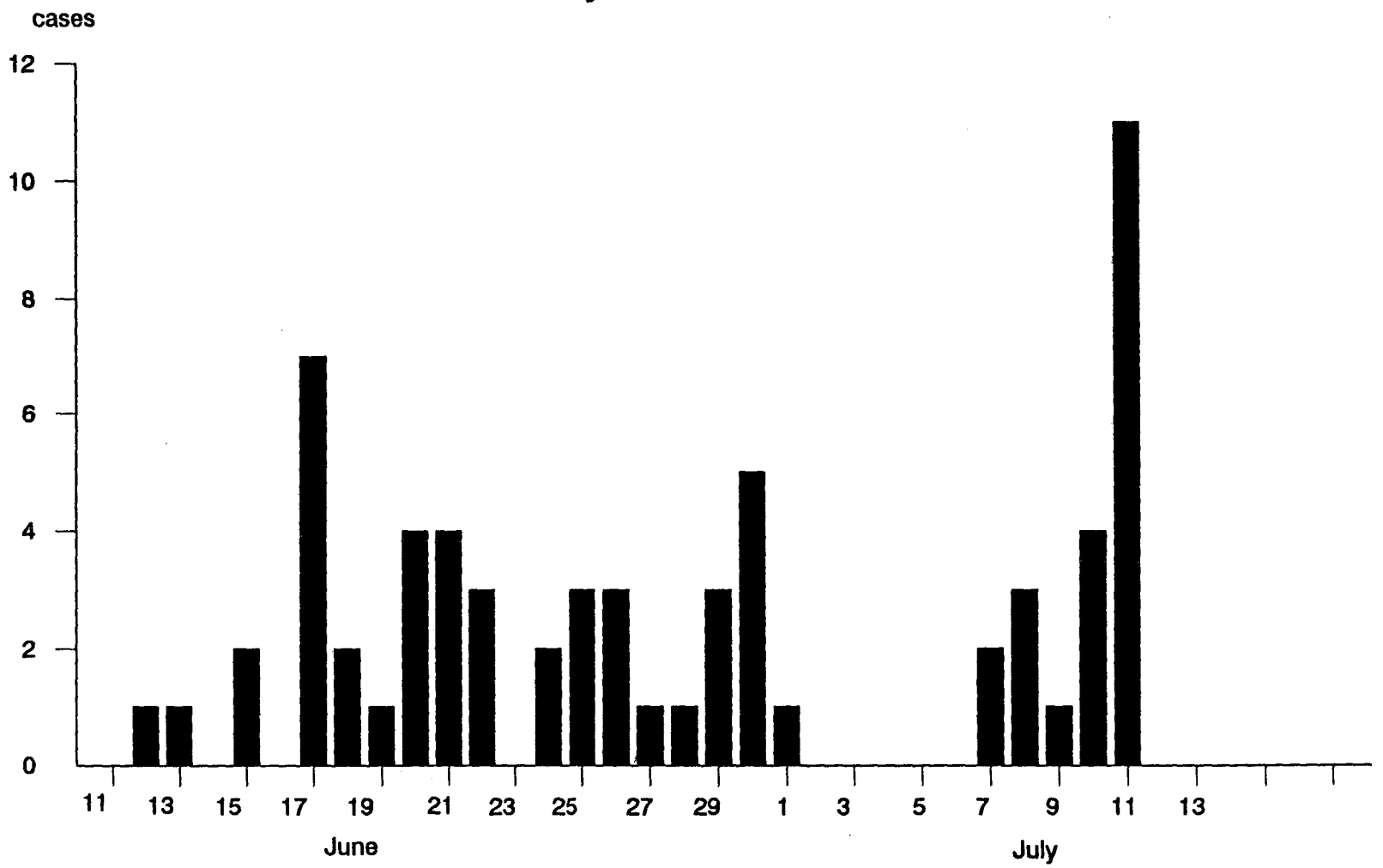
Cholera Cases in Chile by Sex
15 April through 29 July 1991.



Source: Ministry of Health

FIGURE 9

Cholera Cases Reported Daily in Mexico
as of 22 July, 1991.



Source: Ministry of health

ANNEX II

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.

directing council

PAN AMERICAN HEALTH ORGANIZATION

XXXV Meeting

regional committee

WORLD HEALTH ORGANIZATION

XLIII Meeting

Washington, D.C.
September 1991

Provisional Agenda Item 5.8

CD35/20, ADD. I (Eng.)
16 September 1991
ORIGINAL: ENGLISH

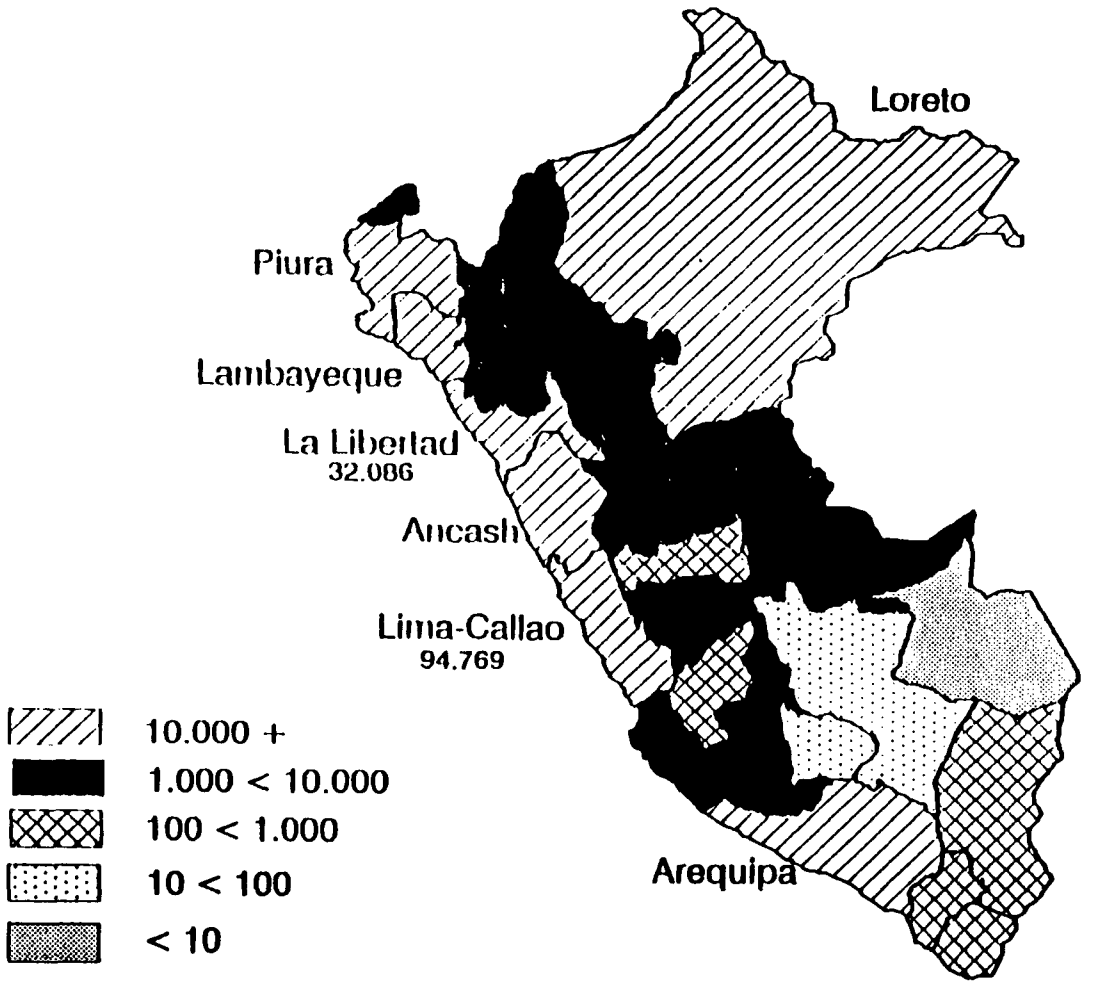
CHOLERA IN THE AMERICAS

The attached tables and graphs provide the Directing Council with updated information on the status of cholera in the countries of the Americas.

Annexes

FIGURE 1

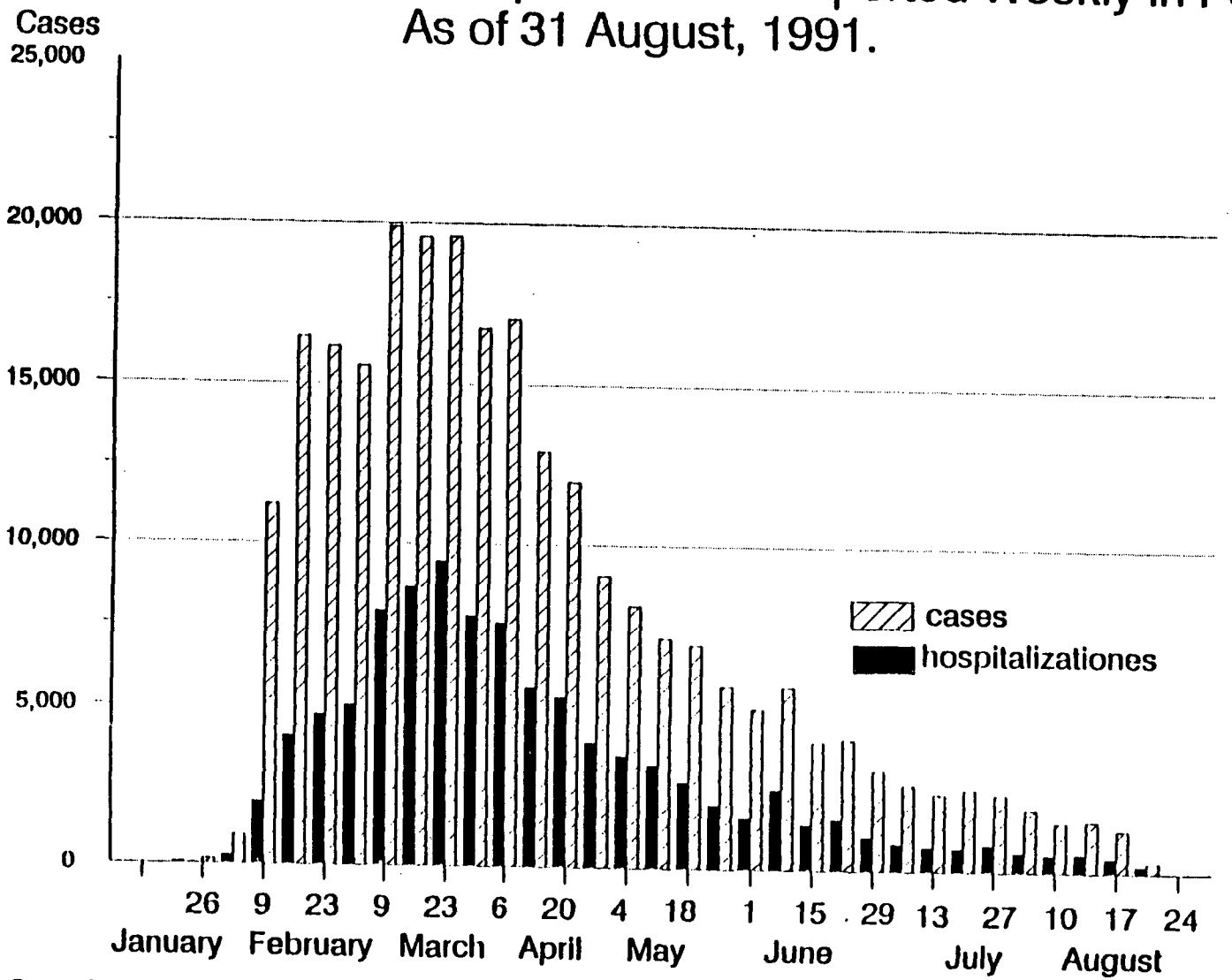
Cumulative Cholera Cases in Peru by Department As of 3 September, 1991.



Source: Ministry of Public health, Department of Epidemiology

FIGURE 2

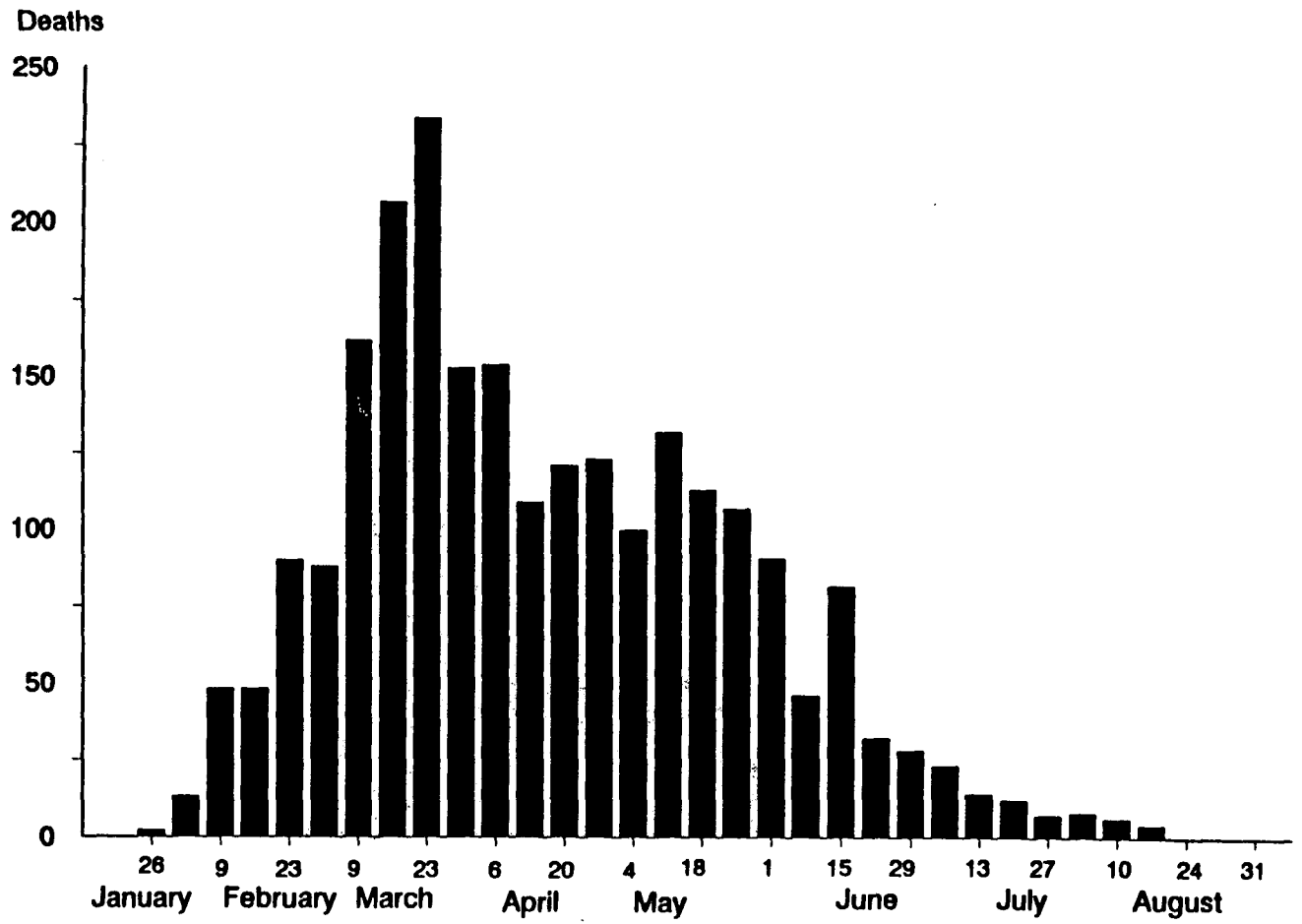
Cholera Cases and Hospitalizations Reported Weekly in Peru As of 31 August, 1991.



Source: Ministry of Public Health
Note: Provisional data

FIGURE 3

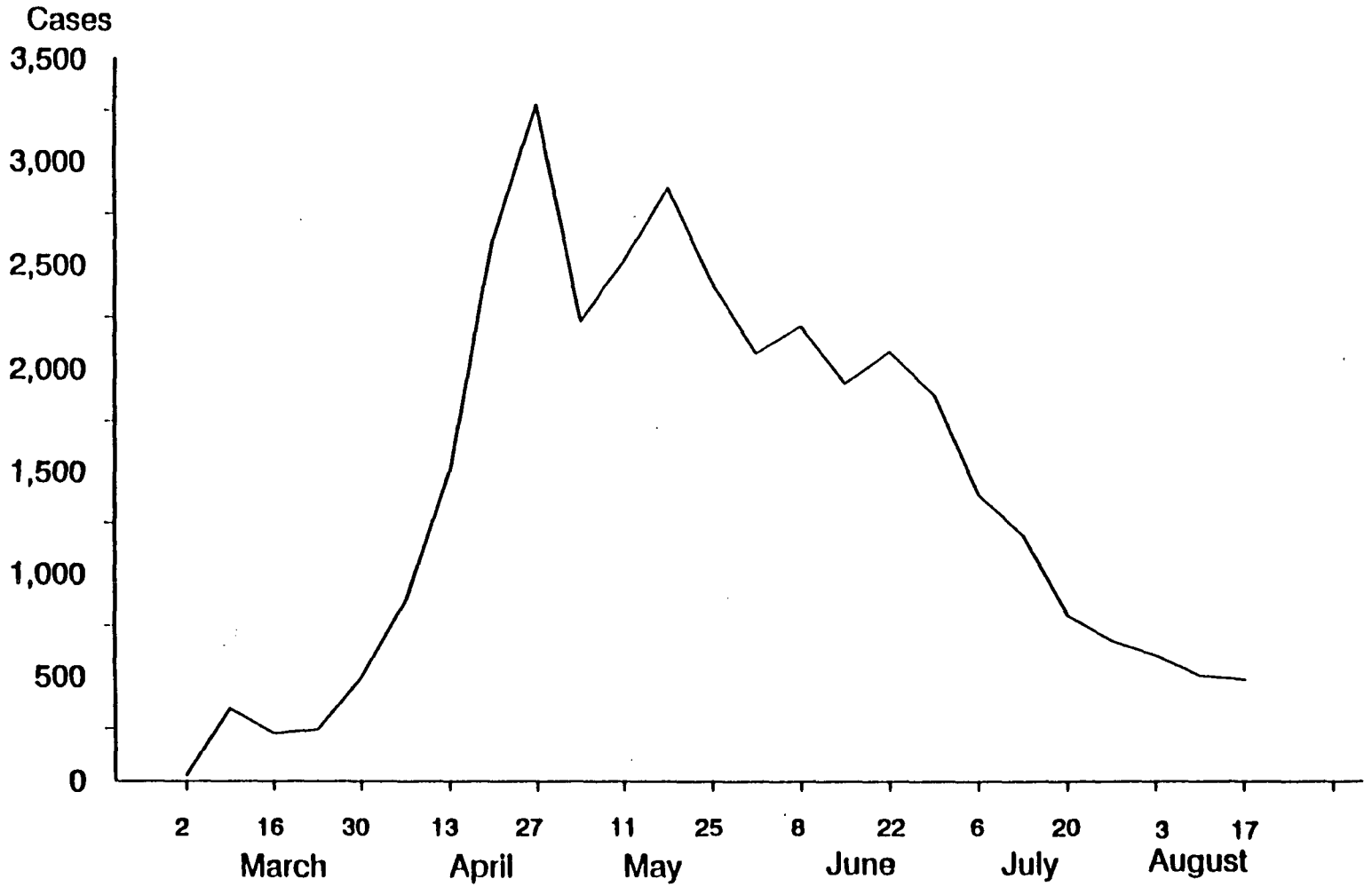
Cholera Deaths Reported Weekly in Peru
As of 3 September, 1991.



Source: Ministry of Public Health
Note: Provisional data

FIGURE 4

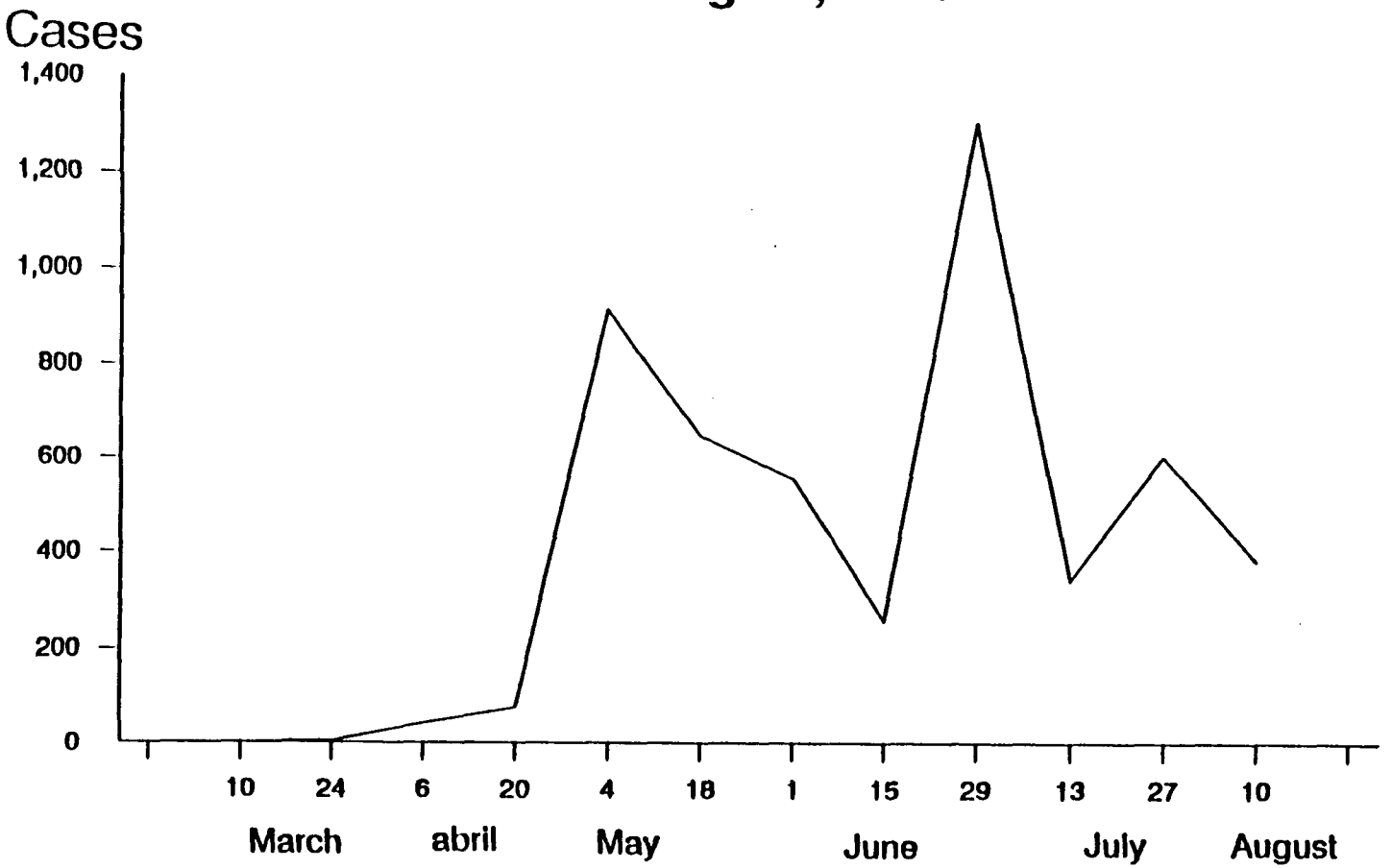
Cholera Cases Reported Weekly in Ecuador As of 17 August, 1991.



Source: Ministry of Public Health

FIGURE 5

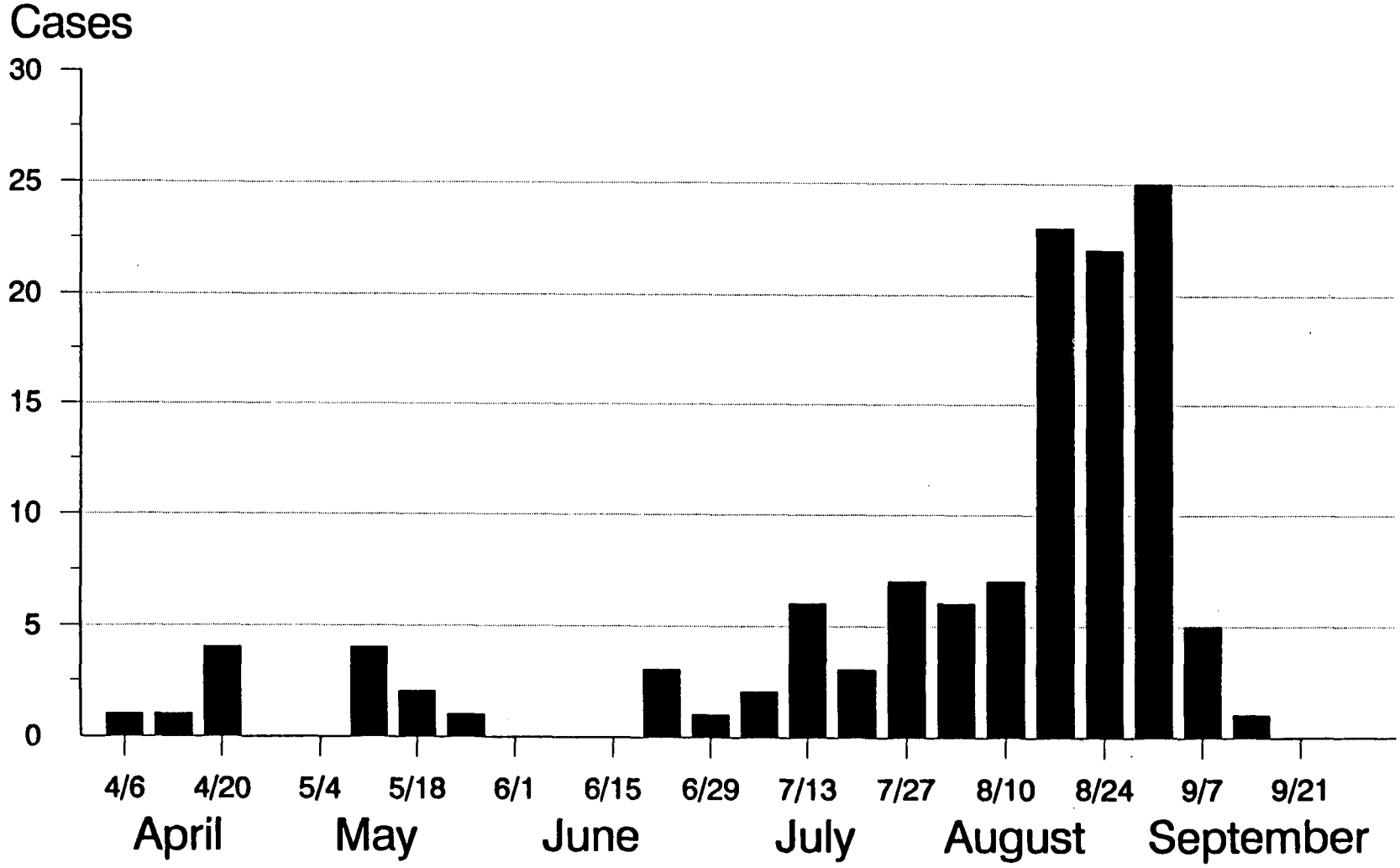
Cholera Cases Reported Biweekly in Colombia
As of 24 August, 1991



Source: Ministry of Public Health
Note: Provisional data

FIGURE 6

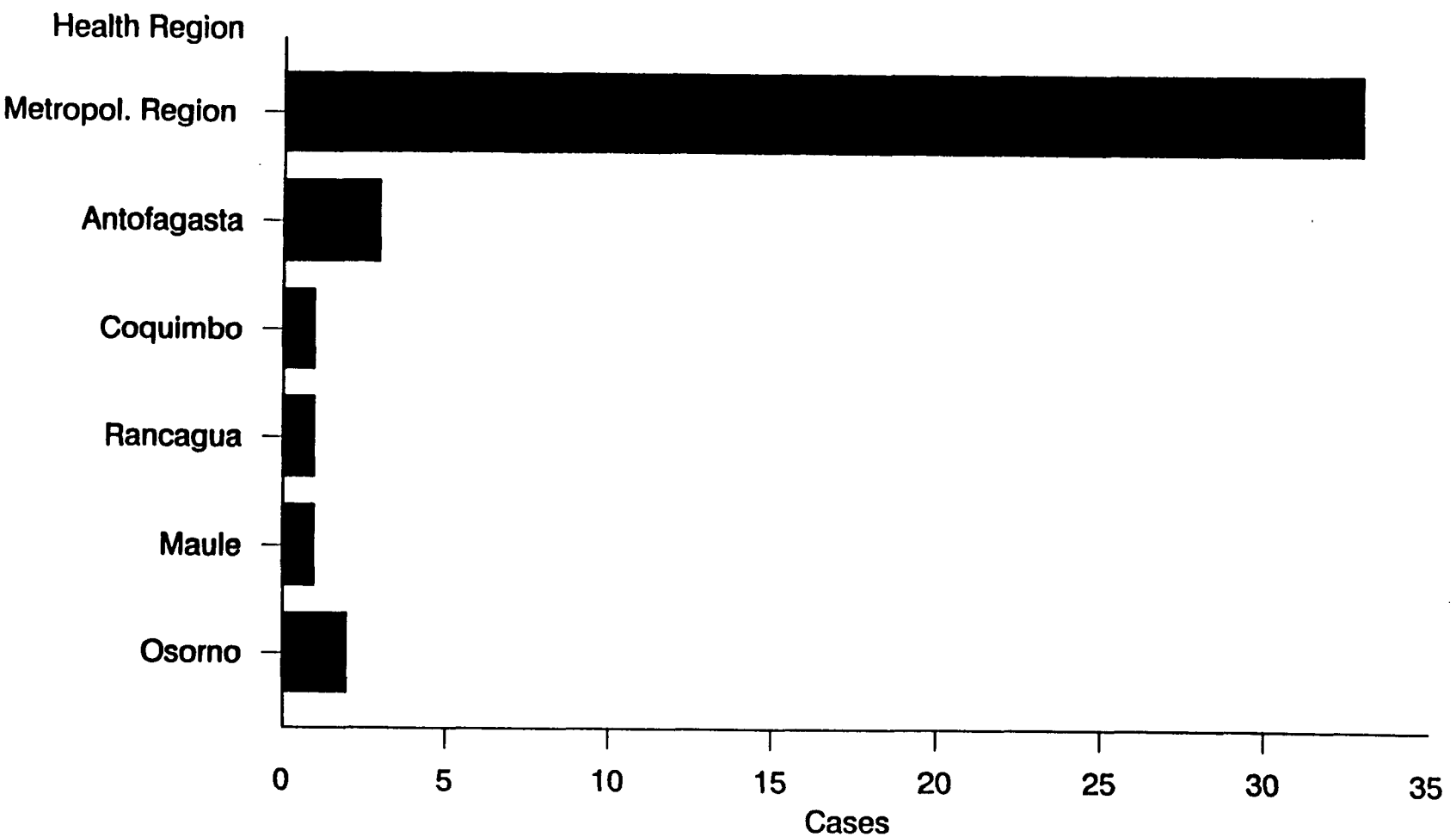
Cholera Cases Reported Weekly in Brazil
As of 14 September, 1991.



Source:Ministry of Health

FIGURE 7

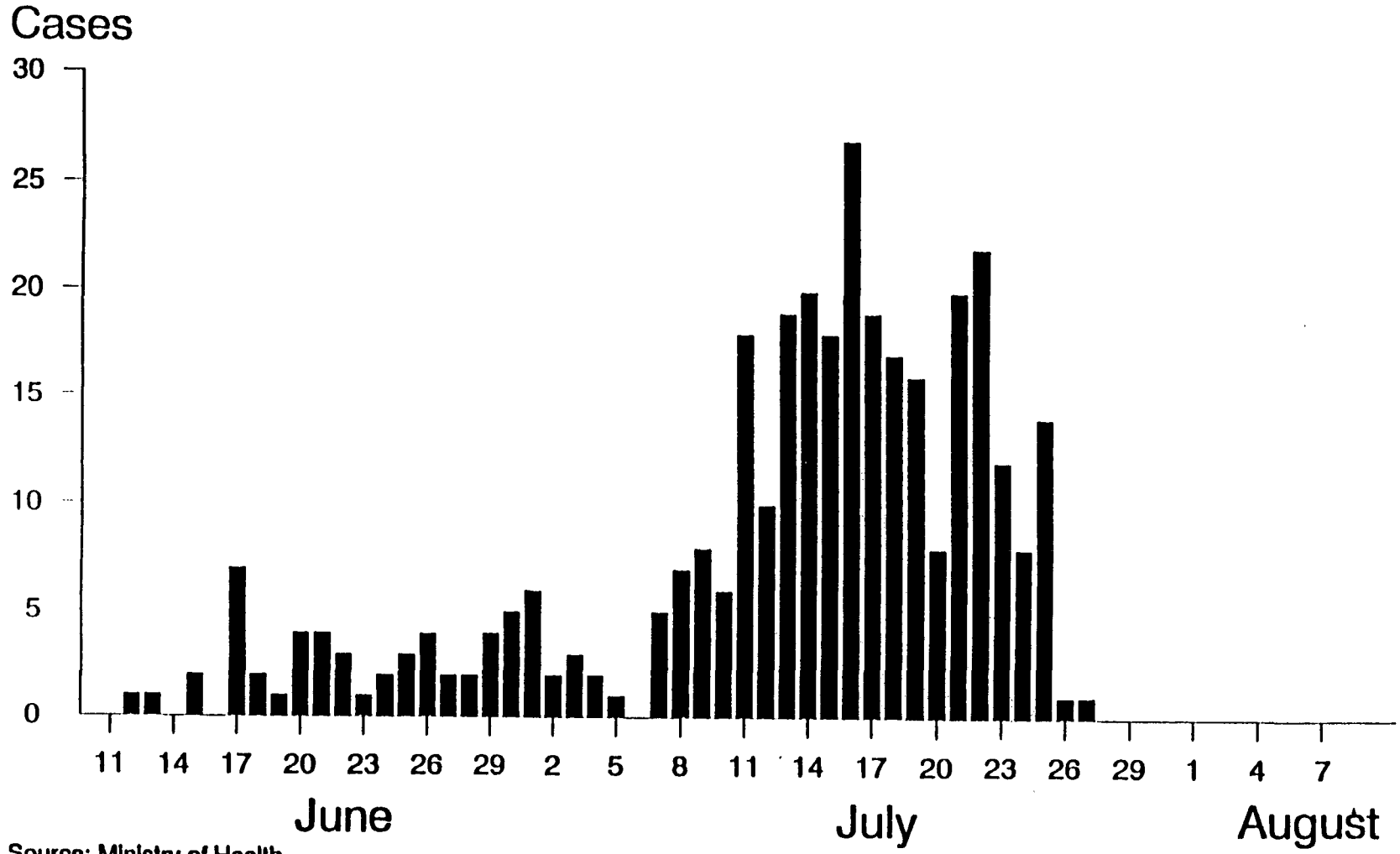
Cholera Cases in Chile by Health Region as of 5 August, 1991.



Source: Ministry of Health

FIGURE 8

Cholera Cases Reported Daily in Mexico
As of 6 August, 1991.



Source: Ministry of Health

Table 1

Cumulative number of reported diarrhoeal disease cases, hospitalizations and deaths notified by Department Health Units (UDES), PERU, through 3 September, 1991

UDES	Total Cases	Hospitalizations	Deaths
Amazonas	2,869	281	24
Ancash	19,808	7,490	71
Apurimac	35	35	0
Arequipa	11,867	1,968	31
Ayacucho	2,153	880	103
Cajamarca	8,687	4,586	376
Cusco	40	3	7
Huancavelica	111	45	1
Huanuco	2,836	1,689	68
Ica	2,437	2,401	38
Junín	1,405	861	33
La Libertad	32,086	13,133	281
Lambayeque	18,327	11,173	107
Loreto	17,635	9,126	493
Madre de Dios	8	3	1
Moquegua	412	211	8
Pasco	410	158	23
Piura	23,607	6,767	151
Puno	173	36	4
San Martin	6,063	1,824	138
Tacna	568	118	6
Tumbes	1,908	1,114	9
Ucayali	6,129	2,208	243
Lima	84,139	28,819	206
Callao	12,630	2,493	31
TOTAL	256,343	97,422	2,453

Source: General Office of Epidemiology, Ministry of Health.

Table 2

Number of cholera cases for week 35, and cumulative totals by Province, ECUADOR, through 31 August 1991

PROVINCES	WEEK 35	CUMULATIVE Total	Hospitalizations	Deaths
Guayas	167	12,501	10,662	109
El Oro	16	4,359	1,909	21
Esmeraldas	131	4,557	3,654	49
Los Ríos	29	3,310	3,139	30
Manabí	12	1,601	1,224	48
Imbabura	15	3,645	2,762	78
Chimborazo	24	2,157	1,175	86
Tungurahua	8	1,241	1,193	37
Cotopaxi	14	973	940	69
Pichincha	31	1,185	1,090	6
Cañar	5	541	518	15
Loja	2	317	215	14
Azuay	3	335	287	8
Bolívar	0	68	60	7
Carchi	0	32	23	1
Pastaza	2	27	27	1
Zamora	1	3	2	1
Sucumbíos	0	1	1	0
Napo	0	0	0	0
Morona	0	3	3	1
Galapagos	0	3	3	0
Total	460	36,859	28,887	581

Source: "Dirección Nacional de Vigilancia y Control Epidemiológico, Ministerio de Salud Pública."

Table 3
Cumulative number of cholera cases, hospitalizations and deaths, by state/municipality, COLOMBIA, through 14 September 1991

State and Municipality	Total	Hospitalizations	Deaths
NARIÑO	1,750	1,080	8
- Barbacoas	79	79	0
- Cumbal	11	11	0
- El Charco	24	24	0
- Gualmatan	1	1	0
- Ipiales	1	1	0
- Iscuande	13	13	0
- Olaya Herrera	2	2	0
- Pizarro	72	72	0
- Ricaurte	2	2	0
- Roberto Payan	4	4	2
- Tumaco	1,537	867	6
- Magui	2	2	0
- Anouxa	1	1	0
- Pasto	1	1	0
CAUCA	1,428	845	45
- Guapi	325	205	5
- Timbiqui	231	81	17
- Lopez de Micay	80	75	6
- Caloto	130	34	3
- Puerto Tejada	429	388	1
- Sant. Quilichao	51	8	0
- Corinto	6	2	0
- Miranda	18	5	0
- Toribio	6	4	1
- Jambalá	103	76	4
- Belalcazar	5	3	1
- El Tambo	8	1	0
- Caldono	9	6	3
- Piendamo	3	3	0
- Padilla	18	1	2
- Tunia	5	2	1
- Popayan	1	1	1
VALLE	1,514	1,209	12
- Cali	135	58	0
- Buenaventura	1,206	1,051	6
- Dagua	19	16	3
- Yumbo	44	24	0
- Palmira	18	10	2
- Buga	5	4	0
- Candelaria	21	16	1

3. COLOMBIA continuation (through 14 September 1991)

State and Municipality	Total	Hospitalizations	Deaths
- Riofrio	12	8	0
- Tulua	35	10	0
- Jamundi	6	3	0
- Pradera	5	3	0
- Zarzal	2	2	0
- La Cumbre	1	1	0
- Trujillo	5	3	0
CHOCO	711	354	48
- Quibdo	42	10	0
- Bahía Solano	58	8	2
- Pie de Pató	54	34	6
- Nuqui	96	22	0
- Itsmina	226	154	20
- Pizarro	112	42	12
- Tado	3	2	0
- Riosucio	88	76	7
- Unguia	6	4	0
- Condoto	2	1	0
- Bajaya	24	1	1
TOLIMA	109	38	1
- Coyaima	34	16	1
- Purificacion	7	3	0
- Natagaima	32	7	0
- Saldaña	10	1	0
- Flandes	7	3	0
- Chaparral	1	1	0
- Espinal	10	2	0
- Honda	1	1	0
- Suarez	2	1	0
- Guamo	4	2	0
- Coello	1	1	0
CUNDINAMARCA	6	4	0
- Girardot	3	1	0
- Agua de Dios	1	1	0
- Guatagui	1	1	0
- Tocaima	1	1	0
SANTA FE DE BOGOTA	3	3	0
- Santa Fe de Bogota	3	3	0
HUILA	54	30	1
- Neiva	5	3	0
- La Plata	4	2	0
- Tello	7	6	0
- Villavieja	9	4	1
- Aipe	13	3	0
- Algeciras	3	1	0

3. COLOMBIA continuation (through 14 September 1991)

State and Municipality	Total	Hospitalizations	Deaths
- Garzon	7	4	0
- Palermo	1	1	0
- Argentina Baraya	1	1	0
- Yaguara	1	1	0
- Salado Blanco	2	2	0
SANTANDER	13	8	1
- Puerto Wilches	2	1	0
- Barrancabermeja	5	1	0
- Cimitarra	6	6	1
CALDAS	5	3	0
- La Dorada	3	1	0
- Samania	1	1	0
- Belalcazar	1	1	0
CORDOBA	3	3	0
- Valencia	1	1	0
- Monteria	2	2	0
ANTIOQUIA	142	73	3
- Turbo	102	53	3
- Apartado	27	12	0
- Murindo	0	1	0
- Puerto Berrio	3	0	0
- Vigía del Fuerte	1	1	0
- Chigorodo	4	1	0
- San Pedro de Uraba	1	1	0
- Carepa	3	3	0
- Ynado	1	1	0
BOLIVAR	1	1	0
- Simiti	1	1	0
BOYACA	5	1	0
- Puerto Boyaca	5	1	0
RISARALDA	1	1	0
- Guatica	1	1	0
OTHER DEPARTMENTS:	33	10	0
AMAZONAS	30	7	0
GUAVIARE	2	2	0
META	1	1	0
SUB-TOTAL (COLOMBIA)	5,578	3,663	119
OTHER COUNTRIES (ECUADOR, PERU, BRAZIL)	27	27	0
TOTAL	5,605	3,690	119

SOURCE: Ministry of Health and Office of Emergency Preparedness.

Note: Inconsistencies are due to adjustments made in the place of residency of patients.

Table 4

Cumulative number of confirmed cholera cases, hospitalizations and deaths by state/municipality, BRAZIL, through 12 September 1991

State/ Municipality	Confirmed Cases	Hospital-izations	Deaths
AMAZONAS:			
Tabatinga	33	19	
Benjamin Constant	51	38	
Atalaia do Norte	18	4	
Sao Paulo de Olivenca	6	2	1
Jutai	1	1	
Santo Antonio do Ica	1	1	
MATO GROSSO:			
Pontes e Lacerda	1	0	
Imported	13	10	
TOTAL	124	74	1

Table 5

Cumulative number of confirmed cholera cases, hospitalizations and deaths, by state, MEXICO, through 10 September 1991

State	Confirmed cases	Hospitalizations	Deaths
Mexico	32	8	0
Hidalgo	381	25	2
Veracruz	66	12	0
Puebla	185	24	4
Chiapas	91	14	0
Campeche	6	0	0
Tabasco	21	0	0
Distrito Federal	22	1	3
Oaxaca	2	0	0
TOTAL	806	84	9

Table 6

Cumulative number of confirmed cholera cases, hospitalizations and deaths by Region/Locality, CHILE, Week 25, through 22 June 1991

REGION/Locality	Week: 25 Total	Week: 25 Hospitalizations	Week: 25 Deaths	Cumulative Total	Cumulative Hospitalizations	Cumulative Deaths
METROPOLITAN REGION	0	0	0	34	30	2
Antofagasta	0	0	0	3	3	0
Coquinbo	0	0	0	1	1	0
San Vic. T. T.	0	0	0	1	1	0
Osorno	0	0	0	2	2	0
TOTAL	0	0	0	41	37	2

Table 7

Cumulative number of confirmed cholera cases, hospitalizations and deaths by state/municipality, GUATEMALA, through 24 August 1991

Department	Confirmed Cases	Hospital-izations	Deaths
San Marcos	38	38	1
Suchitepequez	37	37	0
Retalhuleu	20	20	1
Guatemala	8	8	0
Quetzaltenango	7	7	0
Sololá	3	3	0
Escuintla	2	2	0
TOTAL	115	115	2

Table 8

Cumulative number of confirmed cholera cases, hospitalizations and deaths by state/municipality, EL SALVADOR, through 7 September 1991

REGION/Locality	Week: 37 Total	Week: 37 Hospitalizations	Week: 37 Deaths	Cumulative Total	Cumulative Hospitalizations	Cumulative Deaths
METROPOLITAN REGION						
- Apopa	0	0	0	2	2	0
- Ayutuxtepeque	0	0	0	1	1	0
- Barrio Lourdes	3	1	0	6	3	1
- Barrio San Jacinto	0	0	0	6	5	0
- Barrio Concepción	3*	3	0	9	8	1
- Ciudad Delgado	0	0	0	3	3	0
- Colonia Iberia	1	1	0	2	2	0
- Ilopango	1	1	0	2	2	0
- Mejicanos	0	0	0	4	3	0
- San Bartolo	0	0	0	2	1	0
- Barrio San Esteban	2	2	0	2	2	0
- Soyapango	0	0	0	2	2	0
- Colonia Dina	0	0	0	1	1	0
- Barrio Dulce Nombre	0	0	0	1	1	0
- Colonia IVU	0	0	0	1	1	0
- San Miguelito	0	0	0	2	2	0
- Cuscatancingo	0	0	0	1	1	0
- Colonia Palma	1	1	0	1	1	0
- Colonia El Milagro	1	1	0	1	1	0
REGION PARACENTRAL						
- Zacatecoluca	0	0	0	2	2	0
- Tapalhuaca	0	0	0	2	2	0
- Olocuilta	0	0	0	1	1	0
TOTAL	12	10	0	54	47	2

Note: *Imported case. Almolonga, Departamemto Quezaltenango, Guatemala.

Table 9

Cumulative number of cholera cases, hospitalizations and deaths by State/ Municipality, BOLIVIA, 9 September1991

DEPARTMENT/ Locality	TOTAL Cases	Hospital- izations	Deaths
LA PAZ			
- Rio Abajo	18	4	1
- El Alto	2	2	1
TOTAL	20	6	2

Table 10

Cumulative number of cholera cases, hospitalizations and deaths by Region and Locality, PANAMA, week 37 ending 13 September 1991

REGION/ Locality	Probable Cases	Hospital-izations	Deaths
DARIEN			
- Pinogua	12	4	1
- El Real de Santa Maria	1	0	0
TOTAL	13	4	1