The characteristics and spread of the outbreak suggest a common source of contamination of hydric origin, located in Campamento La Puntilla, where the presence of fecal matter and *Vibrio cholerae* was confirmed in a septic tank built very near a well that overflowed at high tide and contaminated the drinking water supply. In the first group of patients, all had drunk from this well.

The disease was then spread via contaminated seafood which, despite an intensive public health campaign, the patients had continued to eat raw, claiming that it was difficult to get fuel to cook their food and boil their water.

It is believed that the *Vibrio cholerae* contamination in Bajo Alto originated with larvae gatherers coming from Túmbez (Peru), a region that had reported cholera two weeks earlier. According to the people living in Bajo Alto Commune, since it was the laying season, a large number of Peruvian fishermen and vendors had come to the La Puntilla beaches to collect shrimp larvae. The hygienic conditions had been deplorable: defecation in the open, lack of drinking water, and very poor makeshift shelter consisting of cardboard, tin, or plastic sheets propped up with sugarcane stalks—the only housing available for the larvae-gatherers and their families.

### Health Sector Response

Ever since the outbreak was identified, the health authorities have insisted on the following measures:

- Outfitting of rooms in hospitals and health centers to accommodate patients.
- Distribution of oral rehydration salts and drugs to use for control (parenteral solutions, antibiotics) in the event of an epidemic.
- Immediate treatment of patients with oral rehydration salts, intravenous hydration (in pre-shock), and administration of tetracycline 500 mg every 6 hours for 4 consecutive days.
- Coordination with municipal councils and water boards to guarantee adequate chlorination of drinking water sources.
- Provision of chlorine to the populations at greatest risk.
- Formation of health brigades for environmental sanitation and vector control.
- Sanitary surveillance of food and beverages.
- Design of special forms to be used by the attending physicians.
- Meetings, round tables, and talks to health personnel on the clinical and epidemiological aspects of cholera.
- Broad dissemination of messages in the community (leaflets, instructions, bulletins) on cholera prevention and hygienic measures that the population should take.
- Educational household interviews in the affected sectors.
- Public information and education through press, radio, television, and direct personal contact in the community.
- Dispatch of epidemiological teams to investigate the problem on site.
- Creation and implementation of epidemiological control in the Provinces of El Oro, Loja, and Zamora Chinchipe.
- Reporting to the Ministry of National Defense on control in ports and airports.

### Cholera Cases in Colombia

The Colombian Health Ministry’s National Institute of Health confirmed the country’s first case of cholera on March 10 with the isolation of *Vibrio cholerae* 01, El Tor, Inaba. The patient was an adult man from a community on the banks of the Mira River, 20 km south of Tumaco in Nariño Department, near the border with Ecuador.

The epidemiological investigation of the case revealed that the patient had not traveled outside his home area, nor had he received visitors from outside the country.

The water that the patient drank came from a source pipe upstream from the treatment plant. Thirty specimens taken from the patient’s personal contacts, and from water and food he consumed, have all been negative for cholera.

On February 7 Colombia’s Minister of Health established the National Committee for Epidemiological Surveillance of Cholera. Coordinated by the Director of the National Institute of Health, the Committee includes: the Office of Disaster Preparedness and Relief, Presidency of the Republic; and, within the Ministry of Health, the Directors of Medical Care, Epidemiology, Environmental Sanitation, Direct Campaigns, and Community Participation, and the Chief of the Office of Disaster Preparedness. The Committee has formulated a strategy for public education, prevention, control and treatment of cholera cases.

In response to the first reported case, surveillance was stepped up in the area, and a plan for public education was put into effect. In addition, the
Colombian Agricultural and Livestock Institute took steps to bring industrial processing of food, notably Pacific coast fish and shellfish, under closer control.

The second confirmed case of cholera was reported on March 22. The patient, an adult man also from Tumaco, not related to the first patient, began suffering from diarrhea on March 17.

On March 26 four new cases were reported, three adults and a nine-year-old girl. Two of the patients came from Tumaco and two from the township of Salahonda, an hour by boat north of Tumaco.

A team of physicians, epidemiologists and environmental health experts has been sent to strengthen control actions in Tumaco. The Minister of Health has declared a red alert along the entire Pacific coast of the country. Preparations have been made to care for 100 patients in Tumaco and a similar number in adjacent townships.

As of 16 April, a total of 112 cases had been confirmed in Colombia, with no deaths. Figure 6 shows cholera affected areas.

As of the closing date for this publication, 20 April 1991, the Ministry of Health of Chile notified 15 confirmed cases of cholera, 13 in the Santiago Metropolitan Region and two in the Second Region Antofagasta. Brazil reported 5 suspected cases of cholera, of which one imported case from Peru has been confirmed in Tabatinga, Amazonas State.

Historical Background of Cholera in the Americas

As the second pandemic of cholera spread between 1829 and 1850, the disease reached the coast of the Americas for the first time. Ships arriving from Europe introduced the infection in 1832, despite having been quarantined at Gross Island, near Quebec, in Canada. From there, the disease attacked the city of Quebec and spread along the St. Lawrence River basin into the interior of the country.

Cholera appeared in the United States at the same time. It was prevalent in New York and Philadelphia until 1834, when it crossed the Rocky Mountains and spread west to the Pacific Coast. On the East Coast, it reached as far north as Halifax, Nova Scotia, in Canada.

During this pandemic, cholera also invaded Latin America and the Caribbean. It is possible that it appeared in Chile, Peru and Ecuador in 1832 (Haeser, according to Pollitzer), although the accuracy of this information is questioned by Hirsch (as quoted by Pollitzer).

In 1833, Mexico was stricken, in both the coastal regions and the high plateaus. The disease remained prevalent until 1850 in northern Mexico, and until 1854 in the south.

Also in 1833, cholera apparently imported from Spain ravaged the island of Cuba. From there it spread to New Orleans, Louisiana and Charleston, South Carolina in 1835.

In 1836 and 1837, an appearance of cholera on the Guiana coast of northeastern South America did not have a major impact. Guatemala and Nicaragua, however, suffered devastating epidemics, which may also have affected El Salvador and Costa Rica.

The presence of cholera in Peru in 1839 has been suggested but is not confirmed.

In 1848, cholera again attacked the southern United States. New York was once more the source of infection, along with New Orleans. From there it spread to the eastern Rocky Mountains and up to Canada, which also received new sources of infection arriving directly from Europe. Mexico was affected and from New Orleans, cholera spread as far as the Chagras River in Panama, which at that time was part of Colombia.

The epidemic continued spreading in 1850, reaching California. The disease was transported by ship from Panama to San Francisco, and then to Sacramento by land. In South America, it penetrated Colombia, reaching the Bogotá plains;