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**REPORT ON THE REGIONAL INFORMATION SYSTEM
FOR EPIDEMIOLOGICAL SURVEILLANCE
OF FOODBORNE DISEASE
(SIRVE-ETA)**

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REPORT ON THE
REGIONAL INFORMATION SYSTEM FOR
EPIDEMIOLOGICAL SURVEILLANCE
OF FOODBORNE DISEASE
(SIRVE-ETA)

I. INTRODUCTION

To fulfill the mandates of the IV Inter-American Meeting, at the Ministerial Level, on Animal Health and the IV Directing Council of the Pan American Health Organization (PAHO), supported by the Inter-American Conference on Food Protection PAHO prepared the Regional Program for Technical Cooperation in Food Protection, which was launched in 1986.

The Plan of Action of the Regional Program has five components considered basic for the prevention and control of foodborne diseases (FBD):

- Organization of national food protection programs
- Strengthening of analytical capacity
- Strengthening of inspection services
- Epidemiological surveillance of foodborne diseases
- Promotion of food protection through community participation

The Pan American Institute for Food Protection and Zoonoses (INPPAZ) of the Pan American Health Organization is responsible for executing the Plan of Action of the Regional Program for Technical Cooperation in Food Protection, in close collaboration with the Coordination of the Program on Veterinary Public Health at Headquarters and the PAHO/WHO Representative Offices in the countries.

One of the components of the plan is support for the countries in the organization of national surveillance systems for foodborne diseases.

The present report details outbreaks of FBD during 1997 and 1998, as reported by the health authorities of the countries to the Regional Information System for Epidemiological Surveillance of Foodborne Diseases (SIRVE-ETA), coordinated by INPPAZ.

The second part of the report contains the results of the evaluation of SIRVE-ETA that was conducted in 1998 to analyze its development, evaluate its effectiveness, and generate information that makes it possible to orient technical cooperation to improve the system.

Based on that evaluation, a Plan of Action is presented for technical cooperation in the 1999-2000 biennium.

II. BACKGROUND ON THE ORGANIZATION OF SIRVE-ETA

An epidemiological surveillance component is considered essential for the planning of a food protection program, especially in the decision-making on measures for the control and prevention of cases and outbreaks of FBD nationally and internationally. In addition, the rising trade in food products and the growth of international tourism also increase the risk that related outbreaks of FBD will occur in the countries; this, in turn, requires greater coordination and more rapid information exchange among the different levels of the health services and the countries for the detection, investigation, and timely control of outbreaks of common origin.

With a view to systematizing the data on FBD in the Region and creating the technical basis for the execution of prevention and control actions, implementation of the Regional Information System for Epidemiological Surveillance of Foodborne Diseases (SIRVE-ETA) began in 1994, coordinated by INPPAZ.

In order to contribute to development of surveillance in the countries, the Guide for the Establishment of Systems for Epidemiological Surveillance of Foodborne Diseases and the Investigation of Outbreaks of Food Toxi-infections (FBD Surveillance Guide) was prepared with the participation of epidemiologists from the countries. The Surveillance Guide has been widely distributed and constitutes the principal reference text in the training of personnel and for the investigation of outbreaks of FBD.

The Scientific and Technical Council of INPPAZ, an advisory body for the Director of PAHO, issued recommendations at its first meeting in 1994 that oriented the organization of the current system.

In 1994 the document Orientations for the Implementation of the Regional Surveillance System on Outbreaks of Foodborne Diseases was prepared and distributed to the countries. It fixes the responsibilities of PAHO and the countries for the implementation of SIRVE-ETA and indicates the need for naming a staff member to act as liaison between PAHO and the national system for epidemiological surveillance of FBD. Its annex contains a form and instructions for sending quarterly reports on outbreaks and cases of FBD.

In 1995 a Regional Meeting on Focal Points for Surveillance of Foodborne Diseases was held in INPPAZ, in which 20 representatives from the Member Governments of PAHO participated and which resulted in the establishment of guidelines for information systems in each of them.

With the background described above, the flow of the information was designed and the operating conditions and the commitment to gather quarterly information were established. A form was designed to gather basic data with a view to promoting the implementation of the system and contributing knowledge to initiate the information processes that will make it possible to increase the recognition of outbreaks of FBD and actions for their prevention and control.

III. REPORT OF FBD OUTBREAKS

a) FBD OUTBREAKS REPORTED IN 1997

General Considerations

Thirteen countries of the Region reported 823 outbreaks of FBD involving 27,159 patients, of whom 34 died. These data indicate an average of 33 patients per outbreak, similar to the 1995 and 1996 averages, which were 35 and 34, respectively.

Table 1 shows the data for 1995 to 1998, allowing a comparison of the countries that have participated in reporting outbreaks during the quadrennium. The comparison of the numbers of outbreaks has limited value, since the reporting is influenced by numerous variables that are different in every country. The outbreaks identified in each country are a portion of an unknown reality, since the national systems are in the process of organization.

For each country the annual figures reported within the quadrennium can be compared, allowing an appreciation of the progress in the capacity of the particular system to detect, investigate, and report the outbreaks. Missing data in the report would indicate technical deterioration or a situation influenced by administrative factors or particular policies in the country. This subject will be explored in the section on evaluation of SIRVE-ETA.

Etiologic Agents

Table 2 contains information reported in 1997 on etiologic agents, classified in groups, and includes the number of outbreaks, individuals affected, and deaths. Of the 823 reported outbreaks, the etiologic agent was identified in 473 (57.4%), for 18,490 people (68.1% of those affected).

Among the outbreaks for which the etiology was known, bacteria rank first in both the number of outbreaks (67.4%) and the number of people affected (84.6%).

The *Staphylococcus* sp. toxin caused the most outbreaks (106), which represented 22.4% of the outbreaks of known etiology and affected 4,389 people. Similar figures are observed for *Salmonella* sp., with 97 outbreaks affecting 4,402 people. However, these outbreaks were more serious because they produced one death, for which the species was not classified serologically.

Specificity in the Notification of Outbreaks to the Regional System

Table 3 classifies the outbreaks in three groups: infections, poisoning, and toxi-infections, in accordance with their pathogenesis. For 257 outbreaks (31.2%), the report does not allow classification.

In Table 4 the foods implicated in the outbreaks are detailed. However, in 115 outbreaks (13.9%) the food is not specified.

Table 5 shows the place where the food implicated in the outbreak was consumed. However, in 126 outbreaks (15.3%), the place of consumption is not indicated.

In Table 2 it can be observed that on considering the outbreaks for which the etiologic agent has been confirmed, the specificity of the system decreases. Let us take as an example the outbreaks of hepatitis, only 12 of which are confirmed as hepatitis A, out of a total of 102 (see Table 3). Analysis of two variables together, that is, when the food and the etiologic agent are both identified, as in Table 6, reveals that in only 6 outbreaks of hepatitis A was ingested material responsible, in this case, water. But because of the method of reporting, it is not known whether the respective microbiological confirmations were performed. This analysis illustrates the need for improving the procedures for investigating outbreaks.

If the total figures are also compared, it is observed that the specificity decreases: Table 3 shows 257 unspecified outbreaks and Table 2, 350, but the specificity in the first case is 68.7% and in the second, 57.5%.

The lack of reporting of the etiologic agent would indicate low specificity of the system, possibly because of difficulties in conducting the investigation. In some outbreaks the agent or disease is not reported. However, if the place where the food was consumed and the food implicated are reported, then at least the suspected disease should be indicated, which would facilitate interventions for control of the disease and, secondarily, adequate registry in the FBD surveillance system.

Poisoning

Poisoning occurred in 242 outbreaks (42.7%) that affected 6,131 people (30.5%), 11 of whom died. See Table 3.

Poisoning by staphylococcal enterotoxin was involved in the largest number of outbreaks, 106 (43.8%), and, in turn, involved the largest number of individuals, 4,389 (71.5%). See Table 3.

The fatal poisonings were caused by: nitrites (5), pesticides (3), and methanol (3).

Infections

Infections occurred in 233 outbreaks (41.1%), affecting 9,353 people (46.6%) and producing one death. See Table 3.

The greatest number of outbreaks was caused by hepatitis A; 2,097 individuals were affected in 102 outbreaks. Salmonellosis, which occurred in 97 outbreaks, was the infection that made the most people sick (4,402) and was responsible for the only death caused by infection.

Toxi-infections

Toxi-infections were involved in 91 outbreaks (16%) in which 4,575 individuals became ill (16.9%) and two died because of cholera. See Table 3.

The greatest number of sick, 2,549, was produced in 36 outbreaks diagnosed as colibacillosis. Another important toxi-infection was the produced by *C. perfringens* in 34 outbreaks affecting 1,652 individuals.

Foods Implicated

Among the 823 outbreaks reported, in 708 the implicated food was specified (86%), leaving 115 outbreaks (14%) unidentified. See Table 4.

Food of animal origin was associated with 380 outbreaks, representing 46.1% of the total. Within this category are meats, with 264 outbreaks (32%), most of which (126, or 15.3%) were associated with seafood. Red meats were associated with salmonella, dairy products with staphylococci, and eggs and white meat with salmonella. See Table 6.

Water was responsible for 212 outbreaks, representing 30.2% of total; these outbreaks generated the greatest number of patients (7,073 or 30.4%), with 3 deaths. The etiologic agent was reported in 21% of them; the most frequently reported was *E. coli* (31%), with *A. histolytica* in second place.

For 90% of the outbreaks for which the food vehicle was known, the place where the food was consumed was also reported, with institutional dining rooms reported most frequently. The agent in one of the three deaths was identified; it was cholera.

Observation of the relationship between the implicated food and the etiologic agent revealed that seafood was the food for which the greatest number of outbreaks (101) with known etiology was reported. The predominant etiologic agent was ciguatoxin, involved in 69 outbreaks. The rest of the outbreaks had various causes, with bacteria predominating.

Following in importance are milk and dairy products, with 51 outbreaks, which are linked to poisoning by staphylococcal enterotoxin. See Table 6.

Place of Consumption

Of the 697 outbreaks whose origin was reported, 40.3% began in homes, while a higher number, 319 (45.7%), began in the dining rooms of institutions such as schools, clubs, and restaurants, all regarded as institutional dining rooms.

Ages of Those Affected

Figure 1 presents the number of affected people by age and the type of pathogenesis in the outbreak. Since the regional information is not complete, it is not valid to infer trends, but a predominance of people in the 15 to 44-year age group was observed in all the types of pathogenesis.

Mortality and Case-fatality

Table 7 shows the etiologic agents, the food implicated, and the place where the food was consumed in the deaths that occurred in Cuba, Ecuador, Mexico, and Venezuela.

The 34 deaths reported resulted from 20 outbreaks in which a total of 360 people were affected.

Of those 34 deaths, for 20.5% (7) the etiologic agent was not specified. These deaths occurred in four outbreaks reported by Mexico.

Of the outbreaks for which the etiologic agent or disease was reported, most (7 or 35%) were caused by chemical substances. Within this category poisoning by nitrites was the most frequent, affecting 40 people in four outbreaks; five people died, representing a case-fatality of 12.5% for this cause.

The six outbreaks that produced the most deaths (13) were caused by plant toxins (fungi) and had a case-fatality rate of 26%.

Also included in Table 7 are the variations in the specific case-fatality. Pesticide and methanol poisoning produced the highest case-fatalities, 42.9% and 37.5%, respectively. The lowest case-fatality (1.1%) corresponded to a salmonella infection.

With regard to the place where the food was consumed, 55% of the outbreaks that caused deaths began in the home. The food that was implicated in the outbreaks, detailed in Table 7, varied, and no particular predominance was observed.

b) FBD OUTBREAKS REPORTED IN 1998 (Preliminary Information)

The outbreaks of FBD reported to date for the purposes of this report should be considered preliminary since the countries have not finalized or remitted the information corresponding to the last quarter(s) of 1998.

Table 1 quotes 13 countries that reported 448 outbreaks in which 14,863 people fell ill and 11 died. The average number of individuals affected per outbreak is 33.1, a figure very similar to those for 1995 and 1997.

Etiologic Agents

Table 8 shows the reported etiologic agents or diseases. For 149 (33%) of the 448 outbreaks reported, the cause was not identified.

The 56 outbreaks of poisoning by the *Staphylococcus* sp. toxin represent 18.7% of the 299 outbreaks in which the contaminating agent was recognized, but they are the most important because of the number of individuals who became ill (1,624).

Second in importance are the 76 outbreaks of ciguatoxin poisoning in which 475 people became ill. This last figure is also relative in order of importance in view of the fact that there were 44 outbreaks of infection by *Salmonella* sp. which sickened 2,018 people, 23.7% of the total number affected.

In the classification of outbreaks by type of etiologic agent, found in Table 11, it can be observed that a predominance of the 149 outbreaks (33.2%) were caused by bacteria. These outbreaks involved 5,993 cases (40.3%).

Specificity in the Outbreak Report

In Table 9 the outbreaks are grouped according to pathogenesis, and it is observed that 127 outbreaks (28.3%) cannot be so classified for lack of data.

Table 10 contains the number of outbreaks for each food implicated. For 76 outbreaks (16.9%), the implicated food is not identified.

Poisoning

Poisoning occurred mainly in the 76 outbreaks of ciguatera, which represent 23.6% of all outbreaks; 475 people, 5.3% of the known total, were made ill. In second place is poisoning by staphylococcus toxin, with 56 outbreaks and 1,624 cases. See Table 9.

Nine deaths were observed in the poisoning group, all due to chemical agents, four by sodium nitrite, two by cyanide, and the rest by methyl alcohol, potassium dichromate, and organophosphates.

Infections

The outbreaks classified as infections numbered 120, with 4,351 cases and no deaths. Again, a profile similar to previous years is observed. The greatest number of outbreaks (54) involved hepatitis, and infections by salmonellas affected the greatest number of individuals (1909). See Table 9.

Toxi-infections

The category of toxiinfections contains 37 outbreaks with 1,798 cases; toxi-infections by *C. perfringens* affected the most individuals, 784 people in 15 outbreaks. See Table 9.

Foods Implicated

Of the 448 outbreaks reported, the implicated food was identified in 372 outbreaks (83%), leaving 76 without identification. See Table 10.

Food of animal origin was implicated in the most outbreaks (214), or 47.7% of the total. The outbreaks caused by seafood affected 772 people, but more people were affected by red meats, 2,639 in 45 outbreaks.

Water was responsible for 82 outbreaks (18.5%) with 3,246 cases, the highest number of people affected.

Place of Consumption

Homes were reported as the origin of 172 outbreaks, representing 46.2% of the 372 outbreaks for which the place of consumption is known. Of the total, in 76 outbreaks (16.9%) the origin is not identified. The number of cases originating in homes was 1,162, 11.3% of those affected for which the location of the food consumed is known. See Table 11.

Regrouping the dining rooms of schools, workers, barracks, hospitals, and other institutions under the category of institutional dining rooms accounts for 148 outbreaks (39%) with 6,497 cases, 63.6% of the total and, hence, the most important.

Table 11 also shows that 16 outbreaks, with 196 patients and one death, were associated with food sold by street vendors.

Mortality and Case-fatality

Table 12 details the 11 cases of death stemming from nine outbreaks that were reported by three countries. Information on the etiologic agents, the food implicated, and the place of consumption is provided.

For two of the 11 deaths reported, the etiologic agent was not identified. All of the other nine were of chemical origin. Nitrate poisoning in two outbreaks where homes were the food was consumed produced four deaths. Two other outbreaks produced one death each, both from cyanide poisoning from manioc consumed in the home.

The case-fatalities from nitrite and potassium dichromate poisoning are the same, 20%.

IV. EVALUATION OF SIRVE-ETA

Evaluation is an integral part of an epidemiological surveillance system. Its purpose is to improve quality and efficiency and ensure monitoring of the principal risk factors in the event under surveillance, thereby contributing to resolution of the problem from the standpoint of public health.

After four years of operation it is deemed appropriate to evaluate the current status of SIRVE-ETA and to identify potential areas for modification.

Objective of the Evaluation

Identification of measures to improve the efficiency of the system, and aimed at:

- Strategies to implement or strengthen surveillance of FBD in the countries
- Inputs and quality control in the operation of the system
- Technical cooperation activities

Data Sources

- a) Quarterly reports on FBD sent to INPPAZ by the countries. See Annex 2 for the model form.
- b) Survey of the national systems for epidemiological surveillance of FBD conducted in November 1998. To this end a questionnaire was prepared (see Annex 2) and sent to 14 countries served by the field consultants of the PAHO/WHO Program on Veterinary Public Health.

Results

a) Analysis of the Quarterly Information on FBD Received from 1995 to 1998

During the period 1995 to 1998 reports were received from 24 countries of the Americas. The reporting has been rather irregular, both in the number of reports sent per country and in their timeliness. The number of reports received per country ranged from one to the maximum number possible for the period (16), and the average time between the closing of the particular quarter and the date of receipt of the corresponding report by INPPAZ was 132 days. See Tables 13 and 14.

The analysis of the information received will take only 22 countries into account, since Honduras and Guyana each sent only one report and did not report cases or outbreaks because the system is not implemented.

Table 15 indicates the number of outbreaks and cases by country and by year for the period from 1995 to 1998. Of the 22 countries that provided information to SIRVE-ETA, 15 reported outbreaks and cases, four reported only outbreaks, and three, only cases.

On analyzing the information on the outbreaks significant variations in the number of reports per year and per country can be seen. See Table 1. The annual average number of outbreaks reported in the period was 800, with the maximum number of outbreaks, 1,307, recorded in 1996 and the minimum, 448, in 1998.

During the quadrennium under analysis, 3,198 outbreaks of FBD were reported; 102,842 cases were reported, with 191 deaths. The average number of cases per outbreak is 32.2, with the highest number, 119.4, in the Bahamas, and the lowest, 2.3, in Costa Rica. The highest case-fatality rate occurred in the outbreaks in Guatemala and Peru. See Table 16.

Although the information from 1998 is still preliminary, a declining trend can be seen in the number of outbreaks reported over the past two years, since 1996. This situation might indicate that the sensitivity of the national systems for surveillance of FBD and the incentives for surveillance in some countries is decreasing. However, on classifying the outbreaks by pathogenesis (see Figure 2), can be observed that in 1996, 666 outbreaks were reported without identifying the causative agent, while in 1997 there were only 257 and in 1998, even fewer, 127. Translation into percentages of the total outbreaks indicates that there was a reduction in nonspecificity to 50.9%, 31.2%, and 28.3%, respectively. As a result, it could be concluded that the reports have improved in quality.

The greatest number of outbreaks was reported by Cuba (1,823), representing 57.0% of the total for the period. The high proportion of outbreaks reported by Cuba reflects that country's tradition of epidemiological surveillance and the sensitivity of the system in detecting, investigating, and reporting outbreaks of FBD.

The *food* associated with the outbreak was identified in 2,360 outbreaks (73.8%). Food of animal origin was responsible for the most outbreaks, 1,457 or 61.7% of the total. Seafood, the most significant food of animal origin, was associated with 748 outbreaks, with consumption mainly in homes (63%) and with few individuals affected per outbreak (5.8). See Table 17.

Water was identified as the disease vehicle in 365 outbreaks, which represented 15.4% of the total. The principal sites of contamination observed were the schools (34%).

In 160 of the 191 deaths, the ingested material was identified. The leading causes were contaminated beverages (67.4%) and toxic fungi (27.16%).

In approximately 15% of the outbreaks in which the food was reported, its classification was difficult, since mixtures of food (for example, rice with chicken and sauce) or vernacular names that are hard to interpret (such as acamayas, chorote, durofrío, paches, and pintadilla) were reported. This situation indicates the need for standardizing the nomenclature of food so that the information can be interpreted, compared, and translated into other languages.

In 1,786 outbreaks (55.9%), the *etiologic agent* was identified. Bacterial agents caused 50.7% of the outbreaks and marine toxins, 37.4%. Other agents, such as parasites, viruses, chemical products, and plant toxins, account for 11.53% of the outbreaks whose agent was identified. See Table 18.

The principal outbreaks of bacterial origin involved infections due to *Salmonella* (311), whose principal vehicle was eggs. Dairy products were the principal vehicle in outbreaks of staphylococcus poisoning (317). Poisoning with marine toxins chiefly involved ciguatera (568 outbreaks), which occurs in cycles. Chemical poisoning chiefly involved methanol in beverages (20 outbreaks), and sodium nitrite in meats (19 outbreaks).

Among the parasitic diseases, amebiasis was the most important FBD (42 outbreaks) and among the viral diseases, that produced by the hepatitis A virus was the most important (49 outbreaks). The FBD considered emerging or reemerging were reported in 17 outbreaks of *Salmonella enteritidis*, in one outbreak of *Campylobacter* sp., and in 25 outbreaks of *V. cholerae*. See Table 18.

In 1,896 outbreaks (59.28%), the *place of consumption* was determined; in 741 outbreaks (39%) the home was implicated and in 369, public dining rooms. Other important places of consumption were schools and restaurants; health units accounted for 68 outbreaks. See Table 6.

The grouping of the places where the contaminated food was consumed is hindered by the different names used to designate eating places or dining rooms in the countries. In some cases terms, such as "población abierta", "cocinería," and "pupusería," remain unclassified. This particular issue indicates the need to develop coded classifications, which each country would use when submitting its information.

During the period, 3,015,320 *isolated cases of FBD* were reported, with 219 deaths. Of these cases 98.1% were reported by Argentina and Ecuador. Analysis of these data shows diarrheal diseases as the leading cause of FBD but does not indicate the etiologic agents. In 99% of the cases, the food vehicle of the FBD is also not reported nor is the place where the food was consumed. These facts show that the reporting of isolated cases has a relative value for intervention activities in comparison with the reporting of outbreaks. In general, the isolated cases are reported without corresponding investigation; hence the high percentage of reports in which neither the food nor the contaminant is known.

There are circumstances in which the clinical diagnosis is sufficient to identify the food involved, lending significant value to the reporting of such isolated cases. Thus, the kinds of

isolated cases of FBD that should be reported must be determined, because they would be useful in analysis and intervention.

b) Analysis of the Survey of the National Systems for Epidemiological Surveillance of FBD

The object of the survey was to update the information on the structure and operation of the national systems for epidemiological surveillance of FBD, to identify the principal factors limiting their operation, and to reorient PAHO/INPPAZ technical cooperation.

Taking into account some drawbacks and difficulties in conducting the survey in all the countries, for practical reasons it was decided to include the countries served directly by the field consultants of the Program on Veterinary Public Health of PAHO/WHO. With this criterion representation of all the subregions in the survey was ensured. Information from the following 14 countries was obtained: Argentina, Barbados, Bolivia, Brazil, Colombia, El Salvador, Ecuador, Guatemala, Mexico, Nicaragua, Paraguay, Peru, the Dominican Republic, and Uruguay.

Table 20 contains a summary, by country, of the responses to the 13 closed questions (yes or no) contained in the survey questionnaire.

The majority of the countries surveyed (78%) responded that epidemiological surveillance of FBD is incorporated in the national disease surveillance system, as advocated, thus avoiding the creation of parallel systems.

Four countries reported that the personnel involved in the epidemiological surveillance system for FBD did not receive specific training.

In 43% of the countries reporting of FBD is not systematized. However, 13 of the 14 countries that responded conduct investigations of reported outbreaks.

In the majority of the countries (12 of the 14) there are laboratory facilities for the study of clinical samples and food, and samples are collected to identify the causative agent of the outbreak.

Nine countries reported that the data on FBD are published regularly in their respective national epidemiological bulletins, and eight of these indicated that analyses of the data on FBD have been utilized to orient prevention and control activities.

Answers from 13 of the 14 countries indicate that they have received PAHO/WHO technical cooperation for epidemiological surveillance of FBD, and six countries stated that they have received support from other organizations in addition to PAHO.

The questionnaire also contained *open questions* (descriptive) on the following topics:

- *Institution in charge of national epidemiological surveillance of FBD.*

All the countries answered that the epidemiology sections of their ministries of health had responsibility for epidemiological surveillance of FBD.

- *Legal framework*

Thirteen of the 14 respondents reported that they had some standard for epidemiological surveillance of FBD. The specificity of the standards varies widely, from specific legislation on epidemiological surveillance of FBD to general instruments, such as national sanitary codes.

- *Which FBD are reported?*

Two countries reported that their system is being set up and that they still have not specified the FBD that will be the object of surveillance. Four countries indicated that all FBD are included in the surveillance system. In the cases of diarrheal diseases and food poisoning, the countries report syndromes without specifying the etiology.

- *Flow and Periodicity of Information*

In most of the countries three levels are identified (local, intermediate, and national). Reports are made weekly at the three levels, except in one country, where reporting from the intermediate to the national level is quarterly.

- *Outbreaks investigated in 1997 and 1998*

The survey data on the number of outbreaks differ in all the countries from the number of outbreaks reported to SIRVE-ETA in the period. See Table 21.

- *Primary sources and training*

Great diversity in the sources of the reports is observed; however, in most of the countries the system is based on the health units. With respect to the training of personnel in epidemiological surveillance of FBD, five countries did not respond. The others indicated that they have some trained personnel at the three levels.

- *Who conducts the research and coordinates the team investigating outbreaks (epidemiological surveillance, health surveillance, or the laboratory)?*

Six countries reported that research is conducted only by the epidemiological surveillance service; six indicate that research is conducted jointly by epidemiology with health surveillance and/or the laboratory. In one country research is conducted by health surveillance and the laboratory, and one country did not answer the question.

- *What are the principal obstacles to development of the system for epidemiological surveillance of FBD?*

The countries have identified the following obstacles:

- . Lack of trained staff
- . Deficient institutional development at the local level
- . Lack of financial resources and material for activities for epidemiological surveillance of FBD

. Deficiency in interinstitutional coordination and in the analytical capacity of public health laboratories

• *Priority activities for the improvement of the system*

The principal cooperative activities identified by the countries were:

- . Organization of the system for epidemiological surveillance of FBD in the local area
- . Training of personnel in epidemiological surveillance and investigation of outbreaks
- . Strengthening of public health laboratories
- . Production of educational material and dissemination of information
- . Strengthening of cooperative actions among countries and with INPPAZ

Conclusions

Based on the information analyzed, the following general conclusions on SIRVE-ETA should be considered:

- ◆ The information produced by SIRVE-ETA provided the organization with a database on FBD, the only one in Latin America and the Caribbean. Even though epidemiological surveillance of FBD is in the implementation phase in many countries and deficiencies are recognized, the available data make it possible to identify, for the first time, the principal variables related to the incidence of FBD in the entire Region.
- ◆ The system provides information on some risk factors for FBD in the reporting countries. However, it still does not permit inferences to be drawn for the countries or the Region.
- ◆ It is necessary to expand the coverage of the system, incorporating the countries that still do not report, as well as Canada and the United States of America, and increasing the number of reporting units in all the countries.
- ◆ The quality of the information collected and transmitted to the system by the countries through quarterly reporting needs to be improved, as well as the regularity of the submission of reports.
- ◆ The design of the quarterly reports should be reviewed to include information on factors that contribute to outbreaks of FBD.
- ◆ It is necessary to standardize the terms utilized in reporting the foods and types of sites involved in the outbreaks to facilitate the analysis of the information and its comparison among the countries.
- ◆ The improvement of the information system for FBD in the Region is basic for conducting risk analyses and for facilitating application of the hazard analysis critical control point system (HACCP).

Recommendations

In order to improve and strengthen SIRVE-ETA, it is recommended that, as a minimum, the technical cooperation activities in the Plan of Action detailed below be carried out in the biennium 1999-2000.

Preparation of the plan took into account the postulates of the document Mission, Functions, Sphere of Action, Objectives, and Goals of the Strategic Plan of the Pan American Institute for Food Protection and Zoonoses (INPPAZ).

V. 1999-2000 PLAN OF ACTION

Based on the results of the present analysis, the following Plan of Action is proposed, as orientation for PAHO technical cooperation to the countries.

Regional Information System for Epidemiological Surveillance of Foodborne Diseases (SIRVE-ETA)

1999-2000 Plan of Action

Activity	Task	Agency responsible
Joint evaluation with the countries	<ul style="list-style-type: none"> Meeting of focal points (FP) 	INPPAZ HCV PWRs CAREC
Dissemination of information	<ul style="list-style-type: none"> Preparation/distribution of FBD quarterly bulletin 	INPPAZ
	<ul style="list-style-type: none"> Publication <i>INPPAZ en las Américas</i> 	
Preparation of technical material	<ul style="list-style-type: none"> Reprinting/distribution of FBD surveillance guides 	INPPAZ
	<ul style="list-style-type: none"> Preparation of FBD surveillance guides simplified for local use 	
	<ul style="list-style-type: none"> Production of audiovisual material for training in epidemiological surveillance of FBD 	
Training of personnel	<ul style="list-style-type: none"> Subregional and national workshops on epidemiological surveillance of FBD for focal points 	INPPAZ PWRs HCV
	<ul style="list-style-type: none"> Distance learning on epidemiological surveillance of FBD 	INPPAZ CAREC CDC
	<ul style="list-style-type: none"> Evaluation exercises for national systems for epidemiological surveillance of FBD 	
	<ul style="list-style-type: none"> Courses on microbiological diagnosis of FBD in clinical samples and food 	
Development of systems for epidemiological surveillance of FBD	<ul style="list-style-type: none"> Direct technical assistance to the countries 	INPPAZ HCV CAREC PWRs
	<ul style="list-style-type: none"> Establishment of demonstration areas for systems for epidemiological surveillance of FBD at the local (municipal) level 	
	<ul style="list-style-type: none"> Support for the operation of networks for surveillance of marine toxins 	
Research	<ul style="list-style-type: none"> Studies on the impact of FBD on public health 	INPPAZ

Strategies

For executing the Plan of Action, the following principal strategies will be utilized:

1. Interprogrammatic Coordination

Establishment of mechanisms for coordination, information exchange, and the sharing of experiences with PAHO programs and similar programs in the countries on cholera and diarrheal disease control, IMCI, and environmental health. Coordination of activities in epidemiological surveillance of FBD with other organizations, such as the Food and Agriculture Organization of the United Nations (FAO), the Inter-American Institute for Cooperation on Agriculture (IICA), and the International Office of Epizootics (IOE).

Coordination with the Caribbean Epidemiology Center (CAREC) of PAHO should be intensified to strengthen epidemiological surveillance of FBD in the countries of the English-speaking Caribbean.

2. Cooperation among Countries

Promotion of the sharing among countries of experiences and information on the establishment of surveillance systems for the prevention and control of FBD, through the development of bilateral and multilateral cooperation projects with PAHO/INPPAZ participation. Particular emphasis will be placed on including activities for the organization of systems for epidemiological surveillance of FBD in border areas.

3. Utilization of National Experts as Temporary Consultants

Experts from the countries will be hired for specific missions related to activities for the organization and evaluation of systems for epidemiological surveillance of FBD and as instructors in training activities. For the present, INPPAZ will continue to update its database of country experts on epidemiological surveillance of FBD.

4. Cooperation Agreements with Centers of Excellence

Establishment of cooperation agreements with institutions in the countries that exhibit excellence and a tradition of epidemiological surveillance of FBD for the exchange of professionals (associate professionals program), evaluation of surveillance systems, conducting of joint research projects, and the development of active systems for surveillance of selected foodborne pathogens.

Table 1
SIRVE-ETA
Outbreaks of Foodborne Disease,
Cases and Deaths by Country and Year

OUTBREAKS														
1995			1996			1997			1998			TOTAL		
N°	Cases	Deaths	N°	Cases	Deaths	N°	Cases	Deaths	N°	Cases	Deaths	N°	Cases	Deaths
1	19		5	143		33	355		1	50		40	567	0
18	948		17	3015		12	1479		25	3160		72	8602	0
1	4								1	3		2	7	0
			86	6564	1							86	6564	1
78	939		256	3099	2	3	46					337	4084	2
32	73											32	73	0
377	15751	8	714	21390	6	475	18204	7	257	8863	6	1823	64208	25
14	95		9	57		19	74		13	66		55	292	0
9	277	1	17	545	10	8	428	1	4	264		38	1514	12
3	165	2	5	83		10	179		3	70		21	497	2
			20	152	7							20	152	7
3	99											3	99	0
51	2674	40	73	1696	11	144	3658	23	24	292		292	8320	74
8	35		16	58		32	137		21	181		77	411	0
6	95											6	95	0
13	178		11	44		13	418		16	103		53	743	0
			29	1525	58	6	118		15	615	2	50	2258	60
5	443		12	201		17	424		18	303		52	1371	0
1	9		37	444	2	51	1639	3	50	893	3	139	2985	8
620	21804	49	1307	39016	97	823	27159	34	448	14863	11	3198	102842	191

Table 2
SIRVE-ETA
Outbreaks of Foodborne Disease
Cases and Deaths by Etiologic Agent, 1997 (*).

ETIOLOGIC AGENT	OUTBREAKS	CASES	DEATHS
BACTERIA	319	15658	3
BACILLUS CEREUS	12	632	0
CAMPYLOBACTER SP.	1	21	0
CL. BOTULINUM	1	3	0
C. PERFRINGENS	34	1652	0
COLIFORMES	6	112	0
E. COLI	29	2437	0
ENTEROBACTERIA	2	50	0
PLESIOMONA SHIGELLOIDES	2	30	0
SALMONELLA AGONA	1	3	0
SALMONELLA ENTERITIDIS	5	259	0
SALMONELLA SP	91	4141	1
SHIGELLA SONNEI	1	200	0
SHIGELLA SP	9	1404	0
STAPHYLOCOCCUS AUREUS	9	128	0
STAPHYLOCOCCUS SP.	97	4261	0
V. PARAHEMOLYTICUS	2	116	0
V. CHOLERAЕ	17	209	2
PARASITES	24	1250	0
A. HISTOLYTICA	14	1036	0
GIARDIA SP	1	60	0
TRICHINELLA SPIRALIS	9	154	0
CHEMICALS	31	472	11
POTASSIUM BROMATE	3	70	0
DICHOROANILINE	2	43	0
HERBICIDES	1	2	1
METHANOL	1	8	3
NITRITE	2	28	2
SODIUM NITRITE	7	55	3
ORGANOPHOSPHATES	6	180	0
PESTICIDES	8	69	2
ZINC	1	17	0
MARINE TOXINS	84	430	0
CIGUATOXIN	77	390	0
SCOMBROID FISH TOXIN	3	7	0
HISTAMINE	4	33	0
PLANT TOXINS	3	38	0
AMANITA COLKEN	1	4	0
AMANITA PHALLOIDES	1	11	0
SOLANINE	1	23	0
VIRUS	12	656	0
HEPATITIS A	12	656	0
IDENTIFIED AGENT	473	18504	14
UNIDENTIFIED AGENTS	350	8655	20
TOTAL	823	27159	34

(*) Information from 13 countries in the Americas

Table 3
SIRVE-ETA
Outbreaks of Foodborne Disease,
Cases and Deaths by Type of Pathogenesis, 1997 (*).

DISEASE	OUTBREAKS	CASES	DEATHS
INFECTIONS	233	9354	1
AMEBIASIS	14	1036	0
GIARDIASIS	1	60	0
HEPATITIS	102	2097	0
SALMONELLOSIS	97	4403	1
SHIGELLOSIS	10	1604	0
TRIQUINOSIS	9	154	0
POISONINGS	242	6142	11
BOTULISM	1	3	0
CIGUATERA	77	390	0
I. ALLERGIC	5	30	0
I. SHELLFISH	1	17	0
I. PLANT	6	55	0
I. CHEMICAL	31	472	11
I.A STAPHYLOCOCCUS	106	4389	0
I.A. B. CEREUS	12	632	0
FOOD POISONING	3	154	0
TOXI -INFECTIONS	91	4577	2
CAMPILOBACTERIOSIS	1	21	0
CHOLERA	17	209	2
COLIBACILOSIS	29	2437	0
FBD-COLIFORMS	6	112	0
FBD-LEISIOMONAS	2	30	0
FBD- V. PARAHEMOLYTICUS	2	116	0
I. CL. PERFRINGENS	34	1652	0
UNGROUPED	257	7086	20
ACUTE DIARRHEA	1	5	0
FBD-ENTEROBACTERIA	2	50	0
GASTROENTERITIS	6	1041	0
UNSPECIFIED	247	5987	20
DIARRHEAL SYNDROME	1	3	0
TOTAL	823	27159	34

(*). Information from 13 countries in the Americas.

**Table 4 - SIRVE-ETA.
Outbreaks of Foodborne Disease
Cases and Deaths by Food Implicated, 1997(*)**

FOOD	OUT-BREAKS	CASES		DEATHS
		Nº	%	
WATER	212	7076	26.1	3
BEVERAGES	8	90	0.3	3
POULTRY	42	1722	6.3	2
RED MEAT	97	5959	21.9	2
DRUGS	15	340	1.3	0
FRUITS	3	32	0.1	0
MUSHROOMS	11	74	0.3	13
VEGETABLES	20	491	1.8	4
EGGS-MAYONAISE	18	622	2.3	0
DAIRY PRODUCTS	55	1671	6.2	0
MIXED PRODUCTS	45	1358	5.0	0
SEAFOOD	126	1021	3.8	1
DESSERTS	7	51	0.2	0
OTHER	49	2834	10.4	4
IDENTIFIED	708	23341	85.9	32
UNIDENTIFIED	115	3818	14.1	2
TOTAL	823	27159	100.0	34

(*) Information from 13 countries in the Americas.

**Table 5 - SIRVE-ETA.
Outbreaks of Foodborne Disease,
Cases and Deaths by Place of Food Consumption, 1997(*)**

TYPE OF LOCALE	OUTBREAKS	CASES	DEATHS
AGRICULTURAL FIELDS	14	397	0
CAMP	1	31	0
PLAY GROUP	17	134	0
CLUB	14	551	0
CAFETERIA	17	636	0
WORKERS' CAFETERIA	68	3834	1
BARRACKS	2	25	0
SCHOOL	15	1187	1
URBAN SCHOOL	45	2488	1
RURAL SCHOOL	52	3203	0
POULTRY FARM	1	5	0
FACTORY	1	31	0
FARM	1	24	0
DAY CARE FACILITY	4	49	0
ICE CREAM VENDOR	1	19	0
HOSPITAL	6	276	0
HOTEL/RESTAURANT	14	396	0
MARKET	8	87	0
BAKERY	1	10	0
"POBLACIÓN ABIERTA"	92	4424	3
STREET VENDOR	5	108	0
"PUPUSERÍA"	1	30	0
RESTAURANT	11	274	0
ROTISSERIE	1	3	0
BANQUET HALL	4	286	0
HEALTH UNIT	19	692	0
HOME	281	2474	22
COMMERCIAL FLIGHT	1	20	0
IDENTIFIED	697	21694	28
UNIDENTIFIED	126	5465	6
TOTAL	823	27159	34

(*) Information from 13 countries in the Americas.

Table 6 - SIRVE-ETA.
Outbreaks of Foodborne Disease
by Etiologic Agent and Food Implicated, 1997 (*).

TYPE	ETIOLOGIC AGENT	FOOD																
		Water	Beverages	Poultry	Red Meat	Starches	Fruits	Mushrooms	Vegetables	Eggs/Mayonnaise	Dairy Products	Mixed Products	Seafood	Desserts	Other	IDENTIFIED	UNIDENTIFIED	TOTAL
BACTERIA	<i>Salmonella sp.</i>	2	1	13	25	2			3	14	6	16		1	6	89	8	97
	<i>Staphylococcus sp.</i>			3	22	3			2	1	37	10	4	3	19	104	2	106
	<i>E. coli</i>	15		3	4				1	1	2	5			4	35		35
	<i>C. perfringens</i>			8	17	1			1			3	3		1	34		34
	<i>Vibrio cholerae</i>	2							1				13			16	1	17
	<i>Shigella sp.</i>	7														7	3	10
	<i>Bacillus cereus</i>				3	1			3		2	3				12		12
	Other										2			1		3		3
	<i>Pleisiomona shigelloides</i>													2		2		2
	<i>Ci.botulinum</i>															0	1	1
	<i>Vibrio parahemolyticus</i>												1		1	2		2
Total		26	1	27	71	7	0	0	11	16	49	37	24	4	31	304	15	319
CHEMICALS	Methanol		1													1		1
	Pesticides		2		1				2		1				1	7	2	9
	Other		2			4	1		2							9		9
	Nitrite				2	1						1	1		3	8	1	9
	Potassium Bromate					2					1					3		3
	Total		0	5	0	3	7	1	0	4	0	2	1	1	0	4	28	3
MARINE TOX.	Ciguatoxin												69		4	73	4	77
	Scombrototoxin												3			3		3
	Histamine												4			4		4
	Total		0	0	0	0	0	0	0	0	0	0	76	0	4	80	4	84
PARASITES	<i>Ameba histolytica</i>		12													12	2	14
	<i>Giardia sp.</i>		1													1		1
	<i>Trichinella spiralis</i>					9										9		9
	Total		13	0	0	9	0	0	0	0	0	0	0	0	0	22	2	24
VIRUSES	Hepatitis A		6													6	6	12
	Total		6	0	0	0	0	0	0	0	0	0	0	0	0	6	6	12
PLANT TOX.	<i>Amanita phalloides</i>														1	1		1
	<i>Amanita colken</i>														1	1		1
	Solanine								1							1		1
	Total		0	0	0	0	0	0	1	0	0	0	0	0	2	3	0	3
Outbreaks of known etiology		45	6	27	83	14	1	0	16	16	51	38	101	4	41	443	30	473
Outbreaks of unknown etiology		167	2	15	14	1	2	11	4	2	4	7	25	3	8	265	85	350
Total Outbreaks		212	8	42	97	15	3	11	20	18	55	45	126	7	49	708	115	823

(*). Information from 13 countries in the Americas.

Table 7
SIRVE-ETA
Deaths in Outbreaks of Foodborne Disease
by Country, Etiology, Food, and Place of Food Consumption , 1997.

Country	N°	Disease	Food	Site	Cases	Deaths	%	
	Outbreaks	Agent		of Consumption			Case-fatality	
Cuba	1	Salmonela	Bologna sandwich	Workers' cafeteria	87	1	1.1	
	1	Methanol	Rum	"Población abierta"	8	3	37.5	
	2	Nitrite	Soup Spagetti	Home School	12	3	25.0	
Ecuador	1	Cholera	Water	Unidentified	19	1	5.3	
Mexico	2	Pesticide	Unidentified Vegetables	Unidentified	7	3	42.9	
	4	Unidentified	Unidentified Water Corn Chicken w /Mole	School Home Unidentified	125	7	---	
	6	Plant Toxin	Mushrooms	Home	50	13	26.0	
	Venezuela	1	Cholera	Seafood	Home	24	1	4.2
		2	Nitrite	Salt Oxtail		28	2	7.1
	SUMMARY	4 Countries	7 Chemical		11 Outbreaks in the home	360	34	
	3 Microbial							
	6 Plant Toxins							
	4 Unidentified							

Table 8.
SIRVE-ETA
**Outbreaks of Foodborne Disease,
Cases and Deaths by Etiologic Agent, 1998 (*).**

AGENT	OUTBREAKS	CASES	DEATHS
BACTERIA	149	5993	0
BACILLUS CEREUS	4	196	0
CL. PERFRINGENS	15	784	0
COLIFORMS	3	63	0
E. COLI	15	761	0
ENTEROBACTERIA	3	25	0
SALMONELLA ENTERITIDIS	9	130	0
SALMONELLA SP	30	1571	0
SALMONELLA SP GROUP D	2	208	0
SALMONELLA TYPHI	3	109	0
SHIGELLA SONNEI	1	21	0
SHIGELLA SP	4	311	0
STAPHYLOCOCCUS AUREUS	5	259	0
STAPHYLOCOCCUS SP.	51	1365	0
V. PARAHEMOLYTICUS	1	8	0
V. CHOLERAE	3	182	0
PARASITES	17	914	0
A. HISTOLYTICA	16	909	0
FASCIOLA HEPATICA	1	5	0
CHEMICALS	14	112	9
METHYL ALCOHOL	1	6	1
POTASSIUM DICHROMATE	2	10	1
POTASSIUM BROMATE	2	30	0
CYANIDE	2	23	2
COLOCINTINE	1	2	0
SODIUM NITRITE	3	25	4
ORGANOPHOSPHATES	1	7	1
PESTICIDES	2	9	0
MARINE TOXINS	84	550	0
CIGUATOXIN	76	475	0
SCOMBROTOXIN	3	14	0
HISTAMINE	5	61	0
PLANT TOXINS	1	6	0
MYCOTOXINS	1	6	0
VIRUSES	34	939	0
HEPATITIS A	34	939	0
IDENTIFIED AGENTS	299	8514	9
UNIDENTIFIED AGENTS	149	6349	2
TOTAL	448	14863	11

(*) Information from 13 countries in the Americas.

Table 9.
SIRVE-ETA
Outbreaks of Foodborne Disease
by Type of Pathogenesis, 1998 (*).

DISEASE	OUTBREAKS	CASES	DEATHS
INFECTION	120	4351	0
AMEBIASIS	16	909	0
FASCIOLASIS	1	5	0
TYPHOID FEVER	3	109	0
HEPATITIS	54	1087	0
SALMONELLOSIS	41	1909	0
SHIGELLOSIS	5	332	0
POISONING	164	2733	9
CIGUATERA	76	475	0
I. ALLERGIC	9	80	0
I. PLANT TOXINS	4	26	0
I. CHEMICAL	13	110	9
I.A. STAPHYLOCOCCUS	56	1624	0
I.A. B.CEREUS	4	196	0
FOOD POISONING.	2	222	0
TOXI-INFECTION	37	1798	0
CHOLERA	4	349	0
COLIBACILOSIS	15	597	0
FBD-COLIFORMS	2	60	0
FBD-V.PARAHEMOLYTICUS	1	8	0
I. CL.PERFRINGENS	15	784	0
UNGROUPED	127	5981	2
ACUTE DIARRHEA	1	15	1
FBD-ENTEROBACTERIA	3	25	0
GASTROENTERITIS	11	1696	0
UNIDENTIFIED	112	4245	1
TOTAL	448	14863	11

(*) Information from 13 countries in the Americas.

Table 10 - SIRVE-ETA
Outbreaks of Foodborne Diseases
by Food Implicated, 1998 (*).

FOOD	OUTBREAKS	CASES		DEATHS
		Nº	%	
WATER	82	3246	21.8	0
BEVERAGES	4	62	0.4	1
POULTRY	18	860	5.8	0
RED MEAT	45	2639	17.8	0
STARCHES	5	68	0.5	1
FRUIT	1	6	0.0	0
MUSHROOMS	2	9	0.1	0
VEGETABLES	6	102	0.7	0
EGGS-MAYONAISE	11	178	1.2	0
DAIRY PRODUCTS	40	992	6.7	0
MIXED	28	1384	9.3	1
OTHER	26	674	4.5	3
SEAFOOD	100	772	5.2	0
DESSERTS	4	70	0.5	1
IDENTIFIED	372	11062	74.4	7
UNIDENTIFIED	76	3801	25.6	4
TOTAL	448	14863	100.0	11

(*) Information from 13 countries in the Americas.

Table 11 - SIRVE-ETA
Outbreaks of Foodborne Disease
by Place of Food Consumption, 1998 (*).

SITE OF FOOD CONSUMPTION	OUTBREAKS	CASES	DEATHS
AGRICULTURAL	11	387	0
CAMP	1	51	0
"CARTEL"	1	7	0
PLAY GROUP	7	83	0
CAFETERIA	8	441	0
WORKERS' CAFETERIA	25	1038	0
BARRACKS	1	65	0
SCHOOL	6	383	0
URBAN SCHOOL	26	2024	0
RURAL SCHOOL	18	797	0
FACTORY	1	102	0
PARTY	1	14	0
HOSPITAL	1	50	0
HOTEL/RESTAURANT	4	75	0
MARKET	5	46	0
BAKERY	2	64	0
"POBLACIÓN ABIERTA"	36	2357	0
STREET VENDOR	16	197	1
RESTAURANT	16	273	0
BANQUET HALL	1	120	0
HEALTH UNIT	13	477	0
HOME	172	1162	10
IDENTIFIED	372	10213	11
UNIDENTIFIED	76	4650	0
TOTAL	448	14863	11

(*) Information from 13 countries in the Americas..

Table 12.
SIRVE-ETA
Deaths from Outbreaks of Foodborne Disease
by Country, Etiology, Food, and Place of Consumption, 1998.

Country	N° Outbreak	Disease Agent	Food	Place of Consumption	Cases	Deaths	% Case fatality
Cuba	1	Potassium dichromate	Rice	Home	5	1	20.0
	2	Sodium nitrite	Unidentified		20	4	20.0
	1	Unidentified	Molasses		4	1	25.0
Peru	1	Methyl alcohol	Liquor	Home	6	1	16.7
	1	Cyanide	Lamb and rice		15	1	6.7
Venezuela	2	Cyanide	Yucca	Home	23	2	8.7
	1	Organophosphates	Crackers	Street vendor	7	1	—
SUMMARY							
3 Countries	9	7 Chemical 2 Unidentified		6 outbreaks in the home	80	11	

Table 13
SIRVE-ETA
Quarterly Reports, by Year and Country, 1995-1998.

Country	1995				1996				1997				1998				N° Reports (max. 16)
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	
ARGENTINA (1)				X	X	X	X	X	X	X	X	X			X	X	10
BAHAMAS	X	X	X	X	X	X		X		X	X	X	X	X	X	X	14
BARBADOS	X	X	X										X				4
BELIZE (2)	X	X	X	X													4
BRAZIL					X	X	X	X									4
CHILE	X	X			X	X	X	X	X								7
COSTA RICA	X	X	X														3
CUBA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
DOMINICA	X	X															2
DOM. REPUBLIC		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
ECUADOR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		14
EL SALVADOR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		14
GUATEMALA					X	X	X										3
GUYANA	X	X	X														3
HONDURAS	X	X	X	X													4
JAMAICA			X														1
MEXICO	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16
NICARAGUA	X	X		X	X	X	X	X	X	X		X	X	X			12
PANAMA	X	X															2
PARAGUAY	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
PERU					X		X	X	X	X	X	X	X	X	X		10
SAN KITTS AND NEVIS	X	X	X	X													4
URUGUAY	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	15
VENEZUELA	X				X	X	X	X	X	X	X	X	X	X	X	X	13

X : Quarterly reports on FBD received.

(1) Sporadic reports from the Provinces.

(2) Annual report, without specifying the quarter.

Table 14
SIRVE-ETA
Average Time (Days) between End of Quarter
and Receipt of Quarterly Report by Country and Year, 1995-1998.

Country	Average (Days)				Total
	1995	1996	1997	1998	
ARGENTINA	0.0	292.5	83.0		125.2
BAHAMAS		77.7	66.0	50.3	64.7
BARBADOS	264.0			104.0	184.0
BELIZE					
BRAZIL		156.0			156.0
CHILE		528.0	163.0		345.5
COSTA RICA	193.0				193.0
CUBA	145.0		439.3	92.3	225.5
DOMINICA					
DOM. REPUBLIC	135.0	291.0	123.8	63.0	153.2
ECUADOR	116.5	44.5	53.3	53.5	66.9
EL SALVADOR	95.5	64.3	34.0	95.5	72.3
GUATEMALA		170.0			170.0
GUYANA	111.7				111.7
HONDURAS	187.0				187.0
JAMAICA	11.0				11.0
MEXICO	57.0	29.0	113.8	106.0	76.4
NICARAGUA	54.0	71.3	33.3	39.0	49.4
PANAMA					
PARAGUAY	128.0	47.3	255.5	64.3	123.8
PERU		330.0	323.0	78.0	243.7
SAN KITTS AND NEVIS	191.5				191.5
URUGUAY	60.0	53.0	107.3	51.0	67.8
VENEZUELA		80.0	15.0	43.7	46.2
AVERAGE	116.6	159.6	139.2	70.1	136.4

Table 15
SIRVE-ETA
Outbreaks of Foodborne Disease
Cases and Deaths by Country, 1995-1998.

COUNTRY	Outbreaks			Cases	
	N°	Cases	Deaths	Cases	Deaths
ARGENTINA	40	567	0	2511780	0
BAHAMAS	72	8602	0	975	0
BARBADOS	2	7	0	333	0
BELIZE	0	0	0	1077	0
BRAZIL	86	6564	1	0	0
CHILE	337	4084	2	36	2
COSTA RICA	32	73	0	196	0
CUBA	1823	64208	25	178	1
DOMINICA	0	0	0	8	0
DOM. REPUBLIC	55	292	0	73	0
ECUADOR	38	1514	12	447346	191
EL SALVADOR	21	497	2	0	0
GUATEMALA	20	152	7	52985	16
JAMAICA	3	99	0	0	0
MEXICO	292	8320	74	47	3
NICARAGUA	77	411	0	129	0
PANAMA	6	95	0	0	0
PARAGUAY	53	743	0	121	0
PERU	50	2258	60	7	4
SAN KITTS AND NEVIS	0	0	0	8	0
URUGUAY	52	1371	0	14	0
VENEZUELA	139	2985	8	7	2
Total	3198	102842	191	3015320	219

Table 16
SIRVE-ETA
Outbreaks of Foodborne Disease
Number of Cases, Average Cases per Outbreak,
Deaths, and Case-fatality Rate by Country, 1995-1998.

Country	N° Outbreaks	Cases	Average cases/outbreak	Deaths	Case-fatality Rate
ARGENTINA	40	567	14.18	0	0.00
BAHAMAS	72	8602	119.47	0	0.00
BARBADOS	2	7	3.50	0	0.00
BRAZIL	86	6564	76.33	1	0.02
CHILE	337	4084	12.12	2	0.05
COSTA RICA	32	73	2.28	0	0.00
CUBA	1823	64208	35.22	25	0.04
ECUADOR	38	1514	39.84	12	0.79
EL SALVADOR	21	497	23.67	2	0.40
GUATEMALA	20	152	7.60	7	4.61
JAMAICA	3	99	33.00	0	0.00
MEXICO	292	8320	28.49	74	0.89
NICARAGUA	77	411	5.34	0	0.00
PANAMA	6	95	15.83	0	0.00
PARAGUAY	53	743	14.02	0	0.00
PERU	50	2258	45.16	60	2.66
DOM. REPUBLIC	55	292	5.31	0	0.00
URUGUAY	52	1371	26.37	0	0.00
VENEZUELA	139	2985	21.47	8	0.27
Total	3198	102842	32.16	191	0.19

Table 17
SIRVE-ETA
Outbreaks of Foodborne Disease
by Food Implicated and Place of Food Consumption, 1995-1998 (*).

FOOD	TYPE OF LOCALE									
	CAFETERIA	SCHOOL	STREET VENDOR	RESTAURANT	HEALTH UNIT	HOME	OTHER	IDENTIFIED	UNIDENTIFIED	TOTAL
WATER	30	112		2	9	59	117	329	36	365
BEVERAGES	5	4	1	1	2	11	13	37	4	41
POULTRY	38	6	1	12	3	20	10	90	10	100
RED MEAT	79	40	6	14	27	40	25	231	34	265
STARCHES	7	3	1	2		13	4	30	7	37
FRUIT	3	1				4		8	2	10
MUSHROOM						13		13	3	16
VEGETABLES	3	4	2	1	1	22	4	37	8	45
EGGS/MAYONAISE	13	4	3	12		25	5	62	61	123
DAIRY PRODUCTS	46	13	18	1	5	88	24	195	26	221
MIXED PRODUCTS	58	15	6	36	10	56	23	204	13	217
OTHER	21	23	6	4	5	40	12	111	16	127
SEAFOOD	42	9	40	26	1	217	6	341	407	748
DESSERTS	9	3	1			15	11	39	6	45
IDENTIFIED	354	237	85	111	63	623	254	1727	633	2360
UNIDENTIFIED	15	9	4	3	5	118	15	169	669	838
TOTAL	369	246	89	114	68	741	269	1896	1302	3198

(* Information from 22 countries in the Americas.

Table 18 - SIRVE-ETA.
Outbreaks of Foodborne Disease by
Etiologic Agent and Food Implicated, 1995-1998 (*).

TYPE	AGENT	FOOD														TOTAL		
		WATER	BEVERAGES	PULTRY	REDMeat	STARCHES	FRUIT	MUSHROOMS	VEGETABLES	EGG/MAYONAISE	DAIRY PRODUCTS	MIXED	SEAFOOD	DESSERTS	OTHER		IDENTIFIED	UNIDENTIFIED
BACTERIA	BACILLUS CEREUS				5	2			3		5	7				22	22	
	CAMPYLOBACTER SP.										1					1	1	
	CL. BOTULINUM										1					1	1	
	CL. PERFRINGENS			16	38	1			1	1		9	3		2	71	71	
	COLIFORMS	6		2	2					1	2	4	1		3	21	21	
	E. COLI	29	3	9	12				3	2	8	13	4		6	86	88	
	ENTEROBACTERIA										2		5		1	8	8	
	PLEISIOMONA					1										1	1	
	PLEISIOMONA SHIGELLOIDES												2			2	2	
	SALMONELLA AGONA			1												1	1	
	SALMONELLA ARIZONAE										1					1	1	
	SALMONELLA ENTERIT.				1	1					11	1	2		1	17	17	
	SALMONELLA GLOSTRUP										1					1	1	
	SALMONELLA SP.	8	1	22	59	3			0	84	9	40	4	5	10	281	283	
	SALMONELLA SP. GRP. D			1												1	1	
	SALMONELLA TYPHI	2											3			5	5	
	SHIGELLA SONNEI															0	0	
	SHIGELLA SP.	17			2							2				21	28	
	STAPH. AUREUS			2	6	2				1		9	5	2	8	2	37	38
	STAPHYLOCOCCUS SP.			12	48	5				5	5	110	34	14	4	41	278	279
	STREPTOCOCCUS SP.	2														2	2	
	V. PARAHAEOLYTICUS												2			1	3	3
V. CHOLERAE	8								2			14		1	23	2	25	
TOTAL BACTERIA	70	4	83	172	13	0	0	21	115	149	120	51	18	67	683	42	805	
PARASITES	A. HISTOLYTICA	30													30	12	42	
	FASCIOA HEPATICA								3						3		3	
	GIARDIA SP.	1													1		1	
	TRICHINELLA SPIRALIS				13										13		13	
TOTAL PARASITES	31	0	0	13	0	0	0	3	0	0	0	0	0	47	12	59		
CHEMICAL	NITRIC ACID										1				1		1	
	ACIDS		1											1	2		2	
	ALKALOIDS							1							1		1	
	METHYL ALCOHOL		1												1	1	2	
	BARBITURATES					1									1		1	
	POTASSIUM DICHROMATE			1								1			1	3	3	
	POTASSIUM						6				1	2			2	11	11	
	CYANIDE														2	2	2	
	COLOCINTINE								1						1		1	
	PDT	1													1		1	
	DICHLOROANILINE								2						2		2	
	FLURADAN														0	1	1	
	HERBICIDES														0	1	1	
	HEAVY METALS										1				1		1	
	METHANOL		20												20		20	
	NITRITE				1										1	2	2	
	SODIUM NITRITE				2	2						4	1		4	13	4	17
	ORGANOPHOSPHATES		1			5	1				1				8		8	
PESTICIDES		2		1				2		1	3			2	11	3	14	
UREA													2	2		2	2	
ZINC		1												1		1	1	
TOTAL CHEMICALS	1	28	1	4	14	1	1	5	0	3	12	1	3	12	84	10	94	
MARINE	CIGUATOXIN											541			8	549	19	568
	SCOMBROTOXIN				1						1	80			1	83		83
	HISTAMINE											8			8		8	
	SAXITOXIN											8			8		8	
	TETRADOTOXIN											1			1		1	
TOTAL MARINE TOX.	0	0	0	1	0	0	0	0	0	0	1	537	0	8	848	19	867	
PLANT	AMANITA COLKEN														1	1		1
	AMANITA PHALLOI								1						1	2		2
	SOLANINE								1						1		1	1
	MYCOTOXIN					1			1						1	3		3
TOTAL PLANT TOX.	0	0	0	0	1	0	0	2	1	0	0	0	0	3	7	0	7	
VIRUS	HEPATITIS A	27													27	22	49	
	ROTAVIRUS														0	5	5	
	TOTAL VIRUS	27	0	0	0	0	0	0	0	0	0	0	0	0	27	27	54	
IDENTIFIED	129	30	84	190	28	1	3	30	115	152	133	669	21	91	1678	110	1786	
UNIDENTIFIED	236	11	36	75	9	9	13	15	8	89	84	59	24	38	684	728	1412	
TOTAL	365	41	120	265	37	10	18	45	123	221	217	748	45	127	2360	838	3198	

(*). Information from 22 countries in the Americas.

Table 19 - SIRVE-ETA
 Outbreaks of Foodborne Disease by
 Etiologic Agent and Place of Food Consumption, 1995-1998 (*).

TYPE	AGENT	TYPE OF LOCALE									TOTAL
		CAFETERIA	SCHOOL	STREET VENDOR	RESTAURANT	HEALTH UNIT	HOME	OTHER	IDENTIFIED	UNIDENTIFIED	
BACTERIA	BACILLUS CEREUS	8	4		2		3	2	18	3	22
	CAMPYLOBACTER SP		1						1		1
	CI BOTULINUM	1					1		2		2
	CL PFERINGENS	40	10		3	7	6	3	68	2	71
	COLIFORMS	3	2	2	5		3	5	20	1	21
	E COLI	22	19	1	7	7	15	8	79	9	88
	ENTEROBACTERIA	2			2	1	2		7	1	8
	PLEISIOMONA	1							1		1
	PLEISIOMONA SHIGELLOIDES			1	1				2		2
	SALMONELLA AGONA							1	1		1
	SALMONELLA ARIZONAE				1				1		1
	SALMONELLA ENTERIT	3	1		4		7	2	17		17
	SALMONELLA GLOSTRUP				1				1		1
	SALMONELLA SP	44	24	4	23	15	57	25	192	91	283
	SALMONELLA SP GRP D	1		1					2		2
	SALMONELLA TYPHI	1		1	1		1	1	5	1	6
	SHIGELLA SONNEI			1					1	1	2
	SHIGELLA SP	2	5			1	1	11	20	9	28
	STAPH. AUREUS	8	4	2	8	1	9	7	37	1	38
	STAPH. SP	55	36	14	15	13	91	30	254	25	279
	STREP. SP	1						1	2		2
	V. PARAHEMOLYTICUS				1		2		3		3
	V. CHOLERAE	1		3	2		4	1	11	14	25
	TOTAL BACTERIA	193	106	30	74	45	202	97	747	158	905
PARASITES	A. HISTOLYTICA	8	9			3		4	22	20	42
	FASCIOLA HEPATICA							2	2	1	3
	GIARDIA SP		1						1		1
	TRICHINELLA SPIRALIS			1			3		4	9	13
	TOTAL PARASITES	6	10	1	0	3	3	6	29	30	58
CHEMICAL	NITRIC ACID						1		1		1
	ACIDS	1						1	2		2
	ALKALOIDS							1	1		1
	METHYL ALCOHOL							1	1	1	2
	BARBITURATES	1							1		1
	POTASSIUM BICHROMATE						3		3		3
	POTASSIUM BROMATE							6	3	8	11
	CYANIDE							2	2		2
	COLOCINTINE						1		1		1
	DDT		1						1		1
	DICHLOROANILIN						2		2		2
	FURADAN							1	1		1
	HERBICIDE								0	1	1
	HEAVY METALS								1		1
	METHANO	1		1				4	11	17	20
	NITRITE							2	2		2
	SODIUM NITRITE		1		1		14	1	17		17
	ORGANOPHOSPHATES	1			1	1		5	7	1	8
	PESTICIDES	1				1	10		12	2	14
	UREA						2		2		2
ZINC		1						1		1	
TOTAL CHEMICAL	4	3	2	2	1	56	16	84	10	94	
MARINE TOX.	CIGUATOXIN	2			3		157	1	163	405	568
	SCOMBROTOXIN	16		24	9	1	29	1	80	3	83
	HISTAMINE	3	3		1		1	1	9		9
	SAXITOXIN			1			4		5	1	6
	TETRADOTOXINE						1		1		1
	TOTAL MARINE TOX	21	3	25	13	1	192	3	258	409	567
PLANT TOXINS	AMANITA COLIKEN						1		1		1
	AMANITA PHALLOI						2		2		2
	SOLANINE								0	1	1
	MYCOTOXINS	1							1	2	3
TOTAL PLANT TOX	1	0	0	0	0	3	0	4	3	7	
VIRUS	HEPATITIS A	1	10			1	8	11	31	18	49
	ROTAVIRUS								0	5	5
	TOTAL VIRUS	1	10	0	0	0	8	11	31	23	54
IDENTIFIED		226	132	58	89	51	464	133	1153	633	1786
UNIDENTIFIED		143	114	31	25	17	277	136	743	669	1412
TOTAL		369	246	89	114	68	741	269	1896	1302	3198

(* Information from 22 countries in the Americas.

Table 20
**Results of the Survey on the National Epidemiological System
 for Foodborne Diseases in 14 Countries, 1998.**

QUESTIONS	ARG	BAR	BOL	BRA	COL	DOR	ELS	ECU	GUT	MEX	NIC	PAR	PER	URU
Is epidemiological surveillance of FBD incorporated into the National Epidemiological Surveillance System of the Ministry of Health?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Has the staff involved in epidemiological surveillance of FBD at the national, state, provincial, regional, and local levels received specific training?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Is reporting of FBD carried out on a regular basis?		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Is the reporting for both outbreaks and cases of FBD?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Are outbreaks of FBD investigated?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Are laboratory facilities available to conduct testing on foods and patients involved in outbreaks of FBD?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Are samples and specimens regularly collected from food and people for identification of the causal agent?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Has the analysis of the data generated by the National Sys. for Epid. Surv. of FBD been used for the timely application of measures to control and prevent outbreaks?				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Has the country received cooperation and technical information from PAHO for the implementation and management of the system?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
From other international organizations?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Are the data on FBD published regularly in the National Epidemiological Bulletin or some other journal in the country?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Do the Representative Office and the national authorities receive the publication "INPPAZ en las Américas" with the information on FBD?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Are cooperation activities coordinated with the PAHO staff members responsible for epidemiology?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>

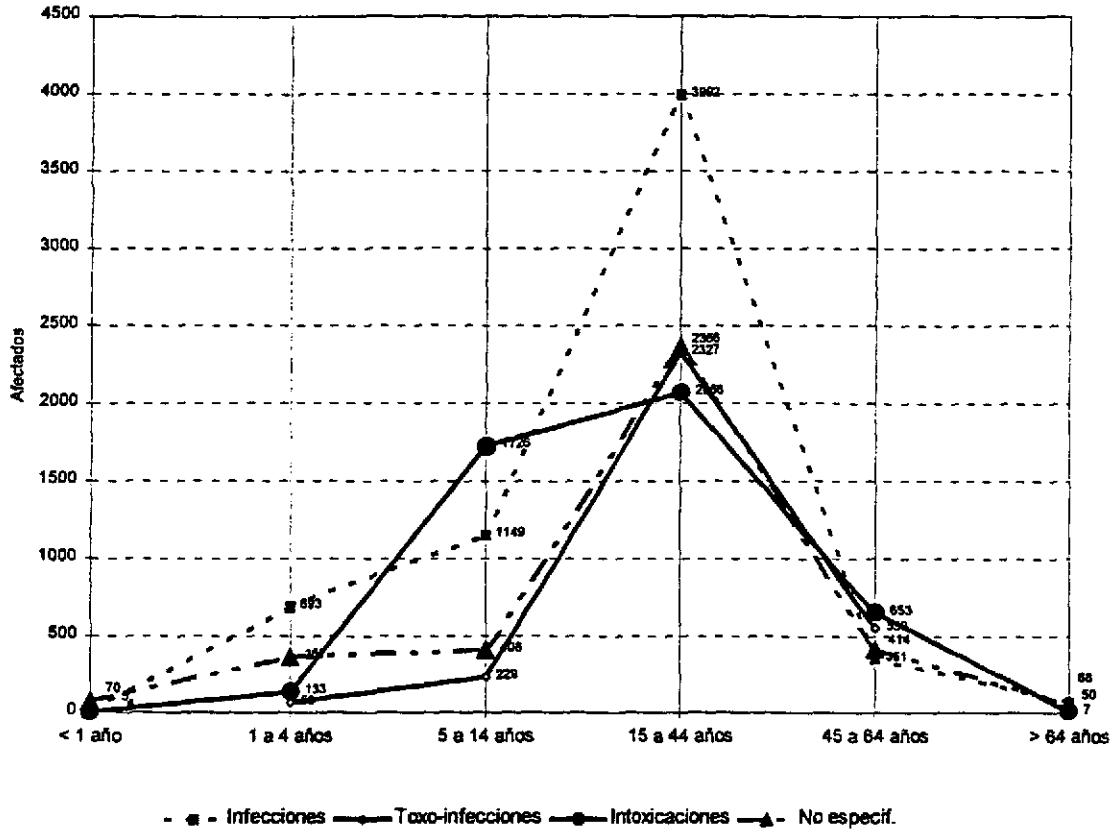
Yes

Table 21
**Outbreaks of Foodborne Disease
 Reported to SIRVE-ETA and the Survey on Epidemiological
 Surveillance of FBD, 1997-1998.**

Country	1997		1998	
	SIRVE-ETA	Survey Epid. Surv. - FBD	SIRVE-ETA	Survey Epid. Surv.-FBD
ARGENTINA	33	—	1	—
BARBADOS	—	0	1	12
BOLIVIA	—	0	—	2
BRAZIL	—	509	—	0
COLOMBIA	—	—	—	82
DOM. REPUBLIC	19	11	13	19
ECUADOR	8	34	4	45
EL SALVADOR	10	10	3	5
GUATEMALA	—	—	—	13
MEXICO	144	158	24	55
NICARAGUA	32	185	21	205
PARAGUAY	13	13	16	5
PERU	6	20	15	9
URUGUAY	17	20	18	15

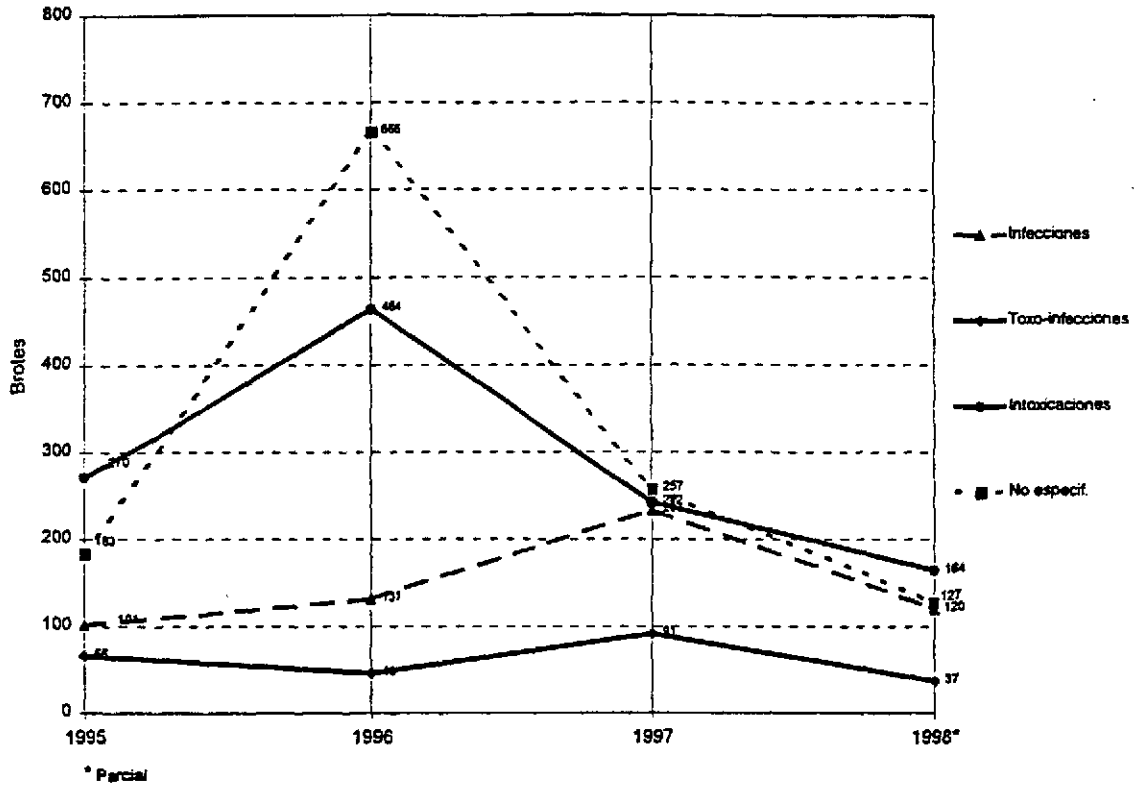
--- No data

Figure 1
 SIRVE-ETA
 Outbreaks of Foodborne Disease by
 Pathogenesis and Age Group, 1997 (*).



(* Information from 13 countries in the Americas.
 (Figure available only in Spanish.)

Figure 2
 SIRVE-ETA
 Outbreaks of Foodborne Disease by Pathogenesis, 1995-1998 (*).



(* Information from 22 countries in the Americas.
 (Figure available only in Spanish.)

ANNEX I

**REGIONAL EPIDEMIOLOGICAL INFORMATION SYSTEM FOR
FOODBORNE DISEASES (FBD)
QUARTERLY REPORT ON CASES / OUTBREAKS OF FBD**

1. COUNTRY: _____ 3. QUARTER: _____

2. FECHA: _____

4 CONTROL NO. FOR OUTBREAKS (B)/CASES(C)	5 DATE	6 CITY	7 DISEASE / ETIOLOGIC AGENT	8 FOOD	9 TYPE OF LOCALE	10 AGE	11 NUMBER	
							CASES	DEATHS

INSTRUCTIONS FOR COMPLETING THE FORM FOR THE QUARTERLY INFORMATION REPORT ON CASES/OUTBREAKS OF FBD

OBJECTIVE: To determine the number of **cases and outbreaks** of foodborne disease (**FBD**) at the regional level in order to inform the countries by means of a special bulletin. In addition to reporting on the diseases found, to convey information on the food implicated and the age of the patients.

OPERATING PROCEDURE

RESPONSIBLE PARTIES: The staff of the unit designated by the country.

DESTINATION: Send a copy of the duly completed form to the PAHO/WHO Representative Office in the country. The Representative Office will forward the form to **INPPAZ**.

PERIODICITY: This form should be utilized quarterly to compile information at the central level on the cases or outbreaks of **FBD** reported by the health system.

COMPLETING THE FORM

1. Country: Self-explanatory.
2. Date of the report: Fill in the date on which the report is sent.
3. Quarter: Indicate with Arabic numerals the quarter corresponding to the information period.
4. Number: Assign a number to identify cases and outbreaks. number will be maintained throughout the year. Below the number, indicate with a letter in parentheses whether a case (C) or an outbreak (B) is involved.
5. Date: Note the date that the patient became ill or the outbreak occurred.
6. City: Indicate the city in which the case or outbreak occurred.
7. Disease/ etiologic agent: Report the disease diagnosed in the case or outbreak, indicating whether it was confirmed by laboratory (L) or clinically (C). e.g.: hepatitis A (L) if confirmed by laboratory; and typhoid fever (C), if diagnosed without laboratory confirmation. In cases where the etiologic agent was isolated and classified, indicate, for example, salmonellosis (L): *S. enteritidis*.
8. Food implicated: The food suspected on the basis of the case history or the food confirmed by laboratory analysis. If the food was confirmed by laboratory, note the food and below it (L); in cases where it is suspected, note (S). e.g.: water (L) or milk (S).

9. Type of locale: Indicate the type of locale where the implicated food was sold or consumed. E.g.: school lunchroom, nursing home, food stand, etc.

10. Age: for **cases**, note the age of the patient in years. For children under 1 year, indicate the age in months, adding the letter "m" in lower case. For example, 11m.

For **outbreaks**, note the most frequent age category, using the following classification:

- A) < 1 year
- B) 1 to 4 years
- C) 5 to 14 years
- D) 15 to 44 years
- E) 45 to 64 years
- F) \geq 65 years

11. Note the number of cases and deaths in the respective columns.

SURVEY BY THE NATIONAL INFORMATION SYSTEM FOR EPIDEMIOLOGICAL SURVEILLANCE OF FOODBORNE DISEASES

QUESTIONNAIRE

1. **Country:**.....

2. **Is epidemiological surveillance of FBD an integral part of the national disease surveillance system of the ministry of health?**
Yes..... No.....

3. **Institution in Charge of National Epidemiological Surveillance of FBD**

Name:.....

Address:.....

Telephone..... Fax..... E-mail.....

Responsible Party (Focal Point):
.....

4. **Legal Framework**

Indicate the laws, decrees, and regulations governing epidemiological surveillance of FBD in the country. Annex a copy of the respective legislation.

.....
.....
.....
.....

5. Structure and Operation of the System:

Organization chart of the institution or unit responsible for epidemiological surveillance of FBD (annex copy)

Which FBD are reported?

.....
.....
.....
.....

Information flow chart (annex copy)

.....
.....

What are the primary sources of the reports; are they identified?

.....
.....

Do the personal involved in epidemiological surveillance of FBD in the national area, state, provincial, regional, and local areas receive specific training? Yes.... No....

Indicate the number of people trained at each level:

.....
.....
.....

6. Execution of Activities in Epidemiological Surveillance of FBD

Is the reporting of FBD carried out on a regular basis? Yes.... No.....

Is the reporting for outbreaks only?.....

Or for outbreaks and cases of FBD?

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How frequently does the local (municipal) level report to the state, provincial, or regional level?

Weekly..... Monthly... .. Quarterly..... Other.....

How frequently does the state, provincial, or regional level report to the national level?

Weekly..... Monthly... .. Quarterly..... Other.....

Are outbreaks of FBD investigated? Yes..... No.....

If investigations are conducted, how many outbreaks were investigated in 1997?.....and in 1998?.....

and what is the ratio of outbreaks investigated to reported outbreaks?

1997:.....% 1998:.....%

Who conducts the activities and coordinates the team that investigates the outbreaks?

Epidemiological Surveillance?.....

Health Surveillance?

Laboratory?.....

Are there laboratory facilities to study the food and patients involved in outbreaks of FBD?

Yes..... No.....

If so, are samples from food and people regularly collected for identification of the causative agent? Yes..... No.....

Have the analyses of the data generated by the national information system for epidemiological surveillance of FBD been utilized in the timely application of control measures and the prevention of outbreaks? Yes.....No... ..

7. Technical Cooperation

Has the country received technical cooperation and information from PAHO for the implementation and management of the System? Yes.....No... ..

From other international agencies? Yes.....No... ..

What cooperation activities are considered a priority for improving the epidemiological surveillance system for FBD in the country?

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What are the principal obstacles to setting up the system in the country?

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What suggestions do the PWR and the national counterparts have for improving the technical cooperation of INPPAZ/PAHO to the countries?

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What technical and teaching materials does the country feel should be developed to support cooperation activities for the implementation and/or operation of the national system for epidemiological surveillance of FBD?.....

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8. Dissemination of Information:

Are data on FBD published regularly in the National Epidemiological Bulletin or some other journal in the country? Yes..... No.....

If so, to indicate the name (reference) of the publication

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Do the Representative Office and the National Authorities receive the publication "INPPAZ en las Américas" with the information on FBD? Yes..... No.....

9. Interprogram Coordination.

Are the cooperation activities coordinated with the PAHO staff responsible for epidemiology activities? Yes..... No.....

10. General Observations.

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We thank the PAHO/WHO Representative Office and the national personnel working in epidemiological surveillance of foodborne diseases in the country for providing the information requested in this questionnaire.

Please return the form to the Pan American Institute for Food Protection and Zoonoses, via fax or E-mail, as indicated below.

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