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**PROGRESS REPORT ON THE REGIONAL PAHO/WHO PROGRAM  
FOR TECHNICAL COOPERATION IN FOOD PROTECTION  
PERIOD 1993 - 1994**



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*Pan American Sanitary Bureau, Regional Office of the*  
**WORLD HEALTH ORGANIZATION**

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**BACKGROUND**

Food protection in Latin America and the Caribbean has in recent years received priority attention due to growing concern about safety and international trade. Microbiological and chemical contaminants in food can cause serious diseases, death, and can lead to high costs for health care and in lost productivity. Food losses due to contaminants and other causes can have serious economic and nutritional consequences in the developing countries. In addition, the rejection of food imports due to these problems can have serious economic repercussions for the exporting countries of the Region.

The contamination of food continues to be a serious problem in the Americas, although its magnitude is only partially known due to the lack of food protection programs and information systems. Some of these deficiencies were dramatically evident during the cholera epidemic affecting most of the countries of the Region.

To cope with this serious problem, the Pan American Health Organization formulated and implemented a Regional Program for Technical Cooperation in Food Protection, and its respective Plan of Action, designed to consolidate the food protection programs in the countries of the Western Hemisphere. The program was developed as a result of a recommendation approved by the IV Inter-American Meeting, at the Ministerial Level, on Animal Health and a mandate approved by the XXXI Meeting of the Directing Council of PAHO, both held in 1985. Also in that year, at the Inter-American Conference on Food Protection held at PAHO headquarters, the technical representatives of the entire Region met to deal with the problems of food protection in the Americas. The participants recommended that PAHO and the FAO develop a plan of action to consolidate food protection programs in the Region. In 1986, the Pan American Sanitary Conference approved the PAHO/WHO Regional Program for Food Protection and its respective plan of action, for the period 1986-1990.

Among the specific objectives of the Technical Cooperation Program was the establishment of national food protection programs in each country of the Region, with appropriate infrastructures, legal mechanisms, and information systems, as well as inspection, laboratory and of epidemiological surveillance systems. The goal was to reduce the incidence of food-borne diseases and the adverse socioeconomic consequences of inadequate protection from them. Based on these objectives, the

Veterinary Public Health Program of PAHO established five components for the action, namely:

1. Organization of national food protection programs to include planning, evaluation, information systems, legislation and regulations as well as appropriate infrastructures;
2. Strengthening of laboratory services;
3. Strengthening of inspection systems;
4. Establishment of epidemiological surveillance systems for food-borne diseases;
5. Promotion of food protection through community participation.

The plan of action was evaluated in 1991 through a survey in each country to compile the information specifically related to the components of the Program. The document from this evaluation was presented at the VII Inter-American Meeting, at the Ministerial Level, on Animal Health (RIMSA VII) and approved by the Ministers of Agriculture or their representatives under Resolution III. Given that this Resolution also requests the Director of PAHO to "...formulate a new food protection program to consolidate the achievements made and incorporate the new goals and actions...", a new Plan of Action has been formulated for the period 1991-1995.

In the new plan of action, it has been decided to retain the same components as in the previous plan, principally in terms of the recommendation "...to consolidate the achievements reached..."

The technical cooperation program has been implemented utilizing the general strategies of PAHO for technical cooperation in its general public health mission, including *formulation of policies, mobilization of resources, dissemination of information, training, direct technical assistance and promotion of research activities.*

During the effective period of the current plan of action, it has been possible to note that numerous national and international organizations, the food industry and universities have participated with PAHO, the authorities of the countries and technical professionals throughout the Region in creating widespread awareness of the importance of food protection to promote health and economic development.

The execution of the plan of action is the responsibility of PAHO staff members in cooperation with national institutions and international organizations. PAHO is also promoting the participation of national authorities in activities related to the *Codex Alimentarius* and supports the efforts of the committees on the Codex. PAHO is working with WHO and FAO to organize and support regional meetings; in addition, it promotes the goal of improving food hygiene in the entire Region.

In September 1991, the Directing Council of the Pan American Health Organization approved the creation of a new center whose objective is to provide technical support to strengthen food protection activities and the struggle against zoonoses. Recognizing the problems and the opportunities related to food safety and international trade of food, PAHO, with the support of the Argentine Government, proposed the creation of the Pan American Institute for Food Protection and Zoonoses - INPPAZ, located in Martínez, Province of Buenos Aires. The Institute began to work with the member countries of PAHO in reference, research, technical cooperation, training and information tasks related to food protection, zoonoses and public health laboratories.

## **SUMMARY OF ACHIEVEMENTS DURING THE PERIOD 1993 - 1994**

### **1. Integrated Food Protection Programs**

Thanks to national political decisions and cooperation from PAHO, various countries of the Region have already taken the first steps to organize their integrated national food protection programs, with the participation of all institutions concerned.

However, it is important to note that atomization of responsibility among different institutions, conflicts over jurisdiction in the area of food protection, processes of institutional modernization that are under way in various countries, and turnover of personnel in recent years are barriers that still exist and should be changed to achieve the objective of integration.

It must be emphasized that consolidation of infrastructures and inter-institutional cooperation within countries, updating of legislation and compliance with laws and existing regulations, and development of effective information systems are essential factors in achieving and establishing integrated food protection programs.

Although it is true that in most countries the conflicts mentioned above must still be resolved, the good experience of Guatemala is worth mentioning. In that country, it has been possible to establish an Interinstitutional Coordinating Committee, that will soon become an official Coordinating Commission. The Commission will have two levels: the political, which will define the lines of action for the country, and the technical, where the mechanisms for execution of the national food protection policies will be discussed. Uruguay is another case in which the various official entities with some role in the control of food have been grouped into a Technical Commission that will work under the orbit of the Ministry of Public Health to advise the government of that country on all issues related to dietary questions.

In cooperation with the FAO, PAHO has conducted a Seminar-Workshop on Dietary Legislation for the countries of the English-speaking Caribbean. The workshop was held in Kingston, Jamaica, October 4-8, 1993. During that workshop, the participants had the opportunity to describe the dietary legislation situation in their countries, and discussed some proposals on model legislation, presented by consultants from FAO and PAHO. To that end, the participants developed a model Basic Food Law, to be used by the countries of the Subregion.

Also in the area of dietary legislation, PAHO has initiated, in a joint effort of the Pan American Institute for Food Protection and Zoonoses (INPPAZ) and the Latin American and Caribbean Center on Health Sciences Information (BIREME) a project to develop a database with dietary legislation from all countries of the Region. To cooperate with the recently created MERCOSUR, the inclusion of legislation from ARGENTINA, BRAZIL, PARAGUAY and URUGUAY has been defined as a priority. The database will be set up with the complete text of legislation to facilitate comparison of specific subjects. In the next stage of that project, legislation will be collected from El Salvador, Guatemala, Honduras and Nicaragua, members of the CA-4 group, for the same purpose.

During the period, PAHO promoted a meeting of the Directors of the Collaborating Centers of WHO in the Region, with activity in food protection. The purpose of the meeting was to learn about their activities and discuss the role they could perform in technical cooperation, and was also used to coordinate their activities with those of INPPAZ.

Playing its role of providing direct technical assistance to the countries, PAHO has acted specifically with the health authorities of the European Union to remove non-tariff barriers imposed on food products produced by Colombia, Ecuador and Peru, in relation to the cholera epidemic that has affected the Americas.

In cooperation with the International FAO/IAEA Group for Consultation on Irradiation of Food, in 1994 PAHO began a Coordinated Research Project with some countries of the Region, to study the use of irradiation as a public health measure in the control of food-borne diseases, specifically to interrupt the taeniasis/cysticercosis cycle and to prevent the spread of diseases caused by *Vibrio* through consumption of raw fish and shellfish. Research institutions throughout the Region have been invited to participate in the project and 12 (twelve) of them presented research projects. Those projects were analyzed and evaluated at a meeting at Louisiana State University in September 1994, and are now in the implementation phase. Over the next five years, the hope is to generate sufficient information to measure the effectiveness of that technology.

## 2. Strengthening Laboratory Services

Almost all countries in the Region have one or more national laboratories involved in the analysis of food, and most of them also have some regional or local laboratories. During the period, training has been provided through INPPAZ to a considerable number of laboratory personnel.

For the purpose of generating scientific information on the microbiological quality of food sold on the street in the countries of the Region and to relate the occurrence of diseases to consumption of such food, PAHO sponsored a study in 15 cities of Latin America. The study has received financial support from the PAHO/IDB Agreement on treating the cholera epidemic and the Centers for Disease Control and Prevention (CDC) of the United States of America and has collaborated in the review of epidemiological aspects of the epidemic. At that time, almost all the laboratories involved in the study concluded the sample analysis stage and the results are now being prepared statistically for interpretation and analysis.

In preparation for the study, PAHO sent consultants to the laboratories where the samples of food would go for subsequent analysis in order to evaluate their physical and personnel situation, to train the analysts, if necessary, and to establish a system of analytical quality assurance. This has been considered an aspect of capital importance for the study, since the analyses would be performed in installations with varying degrees of sophistication and without quality assurance it would not be possible to consider the results valid or even to compare them. The in-service training of the food microbiologists has benefitted the countries in several respects but most important has been the training in

methodologies for isolating and identifying emerging microorganisms such as *Escherichia coli* O157:H7, *Listeria monocytogenes* and others.

The program for intra- and inter-laboratory quality assurance that has resulted from the effort mentioned above is in the medium-term perhaps more important than the results of the study. This is because for the first time the food microbiology laboratories, at least those involved in the study, have at their disposal an instrument that allows them to know their own operational condition and to guarantee that the results of their analyses are true. This initial quality assurance nucleus is coordinated regionally by INPPAZ and will be expanded, over time, to all the countries.

Another achievement of the period was a workshop on the Control of Residues in Meats that took place in Sao Paulo, Brazil, in September 1993. The workshop was carried out with the support of the Food and Drug Administration (FDA) and Food Safety and Inspection Service (FSIS/USDA) of the United States of America. The status of programs to control residues was discussed in the countries of the Region and, at the end of the workshop a model program was arrived at for control of residues in meats for those countries where it had not yet been developed.

### **3. Strengthening Inspection Services**

The traditional procedures to guarantee food safety have put emphasis on traditional inspection, where samples of the final product are submitted to laboratory control to establish the level of compliance with regulatory standards. That system, when identifying health risks to the consumer, does not allow actions to be taken on the food that has the problem, since the time required by the laboratory is longer than the period during which food portions can be kept ready for consumption. In addition, the traditional system of meat inspection, conceived in the United States of America at the beginning of the century, is not effective in public health protection because it is based almost entirely on timely and correct organoleptic inspection and no longer able to ensure that invisible dangers such as pathogenic microorganisms and chemical residues do not reach consumers and threaten their health.

Information from public institutions in the United States of America indicates that pathogenic microorganisms are responsible for 7 million cases of disease every year, due to consumption of food in poor condition. It is estimated that in that same period, there were nearly 4,000 deaths from that cause.

In addition, the system of risk analysis and critical control points, known as HACCP, is a relatively new scientific system and has been developed by the food industry specifically to identify and control potential dangers of physical, chemical and/or biological origin at critical points in the production chain. The HACCP system is based on determining those critical points where the dangers of contamination in the different operations are going to be controlled and on identifying control mechanisms to prevent each type of contamination. Also critical in the HACCP system is the continued monitoring of operations to assure that it is operating under appropriate conditions and that information is being recorded to permit later verification of these controls.

Considering that the most important food markets in the world, such as the European Union and the United States of America, are about to adopt the HACCP as the essential requirement in controlling food exported to those countries and in the medium term food for domestic consumption, it is certain that in the very near future all countries of the world will have to adapt their inspection systems, basing them on this approach.

Considering all the aspects pointed out above, and also the great usefulness of the methodology as an additional tool in the control of small-scale food production, food sold on the street, food in restaurants and industrial dining rooms, etc., PAHO has made great efforts to disseminate information about the HACCP system in several training courses conducted in different countries of the Region such as Argentina, Belize, Colombia, Mexico, the Turks and Caicos Islands, and others.

Mention should also be made, under the category of strengthening inspection services, of PAHO's fulfillment of the most important recommendation of the International Seminar on Food Hygiene in Airline Catering, held in Lima, Peru, from April 8 to 10, 1992. PAHO has prepared the Manual on "Hygienic Management of Food--Airline Catering," which has been submitted for technical review to the Food and Drug Administration (FDA) of the United States of America. It is hoped that national authorities and catering companies in general will utilize it as guide to direct their activities.

#### **4. Establishment of Epidemiological Surveillance Systems for Food-borne Diseases**

The system for epidemiological surveillance of food-borne diseases (FBD) is inadequate in most countries of the Region and the limited information generated in these countries is only communicated after several years of delay, making it

impossible to have up-to-date knowledge of the situation or to utilize it to take actions to prevent outbreaks.

In the United States of America, the country with the best information system in the Region, reporting of occurrences of FBD covers only 20% of cases according to official estimates. Based on this, the Centers for Disease Control and Prevention (CDC) estimate that cases of FBD in that country number around 7 million, which would result in nearly 8,000 deaths. Of that total, it is estimated that *Campylobacter* and *Salmonella* bacteria are each responsible for 2 million cases per year. Third place in terms of the number of people affected goes to poisoning caused by *Staphylococcus aureus* (at 1.5 million cases/year) and fourth place to *Streptococcus* group A (at 500,000 cases/year). If we consider that in the USA the average cost for a case of FBD (hours not worked, hospital expenses, medical expenses, drugs, etc.) is about US\$750.00, it is not an overstatement to say that food-borne diseases alone are responsible for annual expenditures of about US\$5 billion.

*Escherichia coli* O157:H7, a microorganism which was first identified as involved in the occurrence of disease in man in 1982, has been playing an increasingly important role since then. Several outbreaks of FBD caused by this microorganism have been reported since then and are related to consumption of fruit juices, mayonnaise, hot dogs, melon, lettuce, and dried salami. In 1993, the microorganism was the agent responsible for an outbreak that involved nearly 300 people in two states on the west coast of the United States of America, as a result of eating contaminated hamburgers that were undercooked.

*Listeria monocytogenes* is a microorganism widely distributed in nature. It is common knowledge that the bacterium causes disease in animals and has already been found in all types of food and environments. In the 1980s, it was determined that food could constitute a source of infection for man and, since then, many foods have been implicated in human outbreaks; these include cheeses, ready-to-eat dishes, ice creams, sausages, potato salad, smoked fish, sausages, ham, guacamole, avocado pulp and others. Recent isolates of this microorganism in food samples in some South American countries indicate its potential for causing disease as a result of food consumption.

Considering the timeliness of the subject, cholera deserves treatment independent of the other FBDs. Studies conducted in some countries of the Region have verified the role of food in the transmission of *Vibrio cholerae*. It must be pointed out that the sale of food on the street represents the greatest risk, primarily

because of dubious conditions in food handling at home or on the street and the handlers' basic lack of knowledge about hygiene.

While street foods are dangerous, processed foods are quite safe because of the quality control measures frequently adopted by organized industry. However, it must be emphasized that food prepared on an industrial scale can also present risk of transmission of cholera if the respective Good Manufacturing Practices are not adopted. An example is the outbreak that occurred in 1992 among passengers of an Argentine Airlines flight that caused 75 passengers to become ill and ultimately led to one death. In the same year, another outbreak was reported at a hospital in Santiago de Chile, affecting 20 people as a result of the consumption of cooked beets that were recontaminated by other raw beets that had been washed with wastewater.

Considering that epidemiological surveillance of FBDs is the tool for measuring the effectiveness of a food protection program as well as the instrument for collecting indispensable information for acting at points where disease-causing foods have been produced, in 1993 PAHO prepared and published the Guide to Epidemiological Surveillance of Food-Borne Diseases - GUIAVETA. That document constitutes the basis upon which countries of the Region can strengthen or establish their national VETA systems.

During 1993 and 1994, several courses on the subject were conducted with the participation of representatives from Argentina, Bolivia, Brazil, Chile, Colombia, Guatemala, Nicaragua, Paraguay and Uruguay.

In March 1994, a document was distributed with the guidelines for implementing the information system on the occurrence of FBDs in the Americas. The document established the responsibilities of national health authorities and PAHO in this area.

So far, 16 countries (Argentina, Bolivia, Colombia, Costa Rica, Chile, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Uruguay and Venezuela) have designated their Focal Points and begun to collect information on food-borne diseases. Although the information obtained so far is still not uniform, it is evidence of the great response of the countries to this PAHO initiative. Another document distributed in this RIMSIX (Regional Information System for Epidemiological Surveillance of Food-borne Diseases) shows the breakdown on information received from the countries.

As part of the effort to implement epidemiological surveillance of food-borne diseases, PAHO has combined forces with the University of Miami to promote a workshop on food poisoning of marine origin with special emphasis on ciguatera. The workshop was postponed until May 1995 and its purpose will be to strengthen diagnostic capacities and epidemiological aspects for officials in the affected countries.

#### 5. Food Protection through Community Participation

It seems clear that a high percentage of the cases of food-borne diseases result from inadequate handling of food on the part of the community. The fact stands out that diarrheal diseases in infants are to a large extent due to the ingestion of contaminated food; according to WHO studies, 70% of the cases of acute diarrheal disease are food-borne diseases.

Thus another important element appears as part of the concept of the comprehensiveness of food protection: the consumer. In fact, non-hygienic handling of food at home leads to quite a few cases of disease and to this must be added the high volume of marketed foods that come from family kitchens or street vendors, all of which points to the need to target the consumer, who also fulfills the dual role of food handler.

Several activities have been developed as part of PAHO's cooperation in this field:

PAHO was invited by the International Life Sciences Institute (ILSI) to participate in the meeting "Street Food: Epidemiology, Management and Practical Approaches," held in Beijing, China, 19-21 October 1993. The following documents were presented: "Operations in the Street Sale of Food in Latin America" and "Street Food: PAHO perspective."

The Organization was also invited to make a presentation at the 11th International Symposium of the World Association of Veterinarians in Food Hygiene held in Bangkok, Thailand, 24-29 October 1993. The following documents were presented: "PAHO Plan of Action 1991-1995 for Technical Cooperation in Food Protection in Latin America and the Caribbean" and "Street Sale of Food in Latin America: Some Considerations on its Sociocultural and Public Health Implications."

In collaboration with the FAO, PAHO sponsored the Latin American Workshop on Sanitary Control of Food Distributed on Public Roads held in Montevideo, Uruguay between May 9 and 13, 1994. The participants had the opportunity to discuss

recent advances in the control of street sales of food and proposed strategies to strengthen their control.

Taking into consideration the results of the study conducted by the Center for Disease Prevention and Control in Guatemala, which showed that the training of street vendors is not sufficient to reduce the transmission of diseases transmitted by food, PAHO decided to encourage the countries of the region to consider educating and informing the consumers.

In this regard, a project was developed with the collaboration of the Universidad Catolica Bolivariana which will serve as a guide for action in this field. Its guidelines emphasize that the cultural aspects of the target population should always be given serious consideration when selecting the means to be utilized and the types of messages to bring to the population.

With the support of the Government of Sweden, PAHO is conducting a study in four Peruvian cities to evaluate the impact of training for street handler/sellers on the reduction of contamination from street foods. Samples of these foods are being analyzed before and after the intervention actions in order to compare their results.

## LIST OF FOOD PROTECTION DOCUMENTS

1993-1994

1. MANUAL ON HYGIENIC MANAGEMENT OF FOOD: AIRLINE CATERING. DOCUMENT PAHO/HCV/94.13
2. GUIAVETA. GUIDE FOR THE ESTABLISHMENT OF SYSTEMS OF EPIDEMIOLOGICAL SURVEILLANCE OF FOOD-BORNE DISEASES (VETA) AND RESEARCH ON OUTBREAKS OF FOOD POISONINGS. DOCUMENT HPV/FOS/103/93
3. REPORT OF THE FAO/PAHO LATIN AMERICAN SEMINAR-WORKSHOP ON CONTROL OF FOOD SOLD IN THE STREETS. MONTEVIDEO, URUGUAY, 9-13 MAY 1994.
4. REPORT ON THE FAO/PAHO JOINT WORKSHOP ON FOOD LEGISLATION IN COUNTRIES OF THE ENGLISH-SPEAKING CARIBBEAN. KINGSTON, JAMAICA, 4-8 OCTOBER 1993
5. RECOMMENDATIONS OF THE TECHNICAL WORKING GROUP ON WHO COLLABORATING CENTERS IN FOOD SAFETY. MADISON, WISCONSIN. 4-5 OCTOBER 1993.
6. STREET SALE OF FOOD IN LATIN AMERICA. ARAMBULO III P., ALMEIDA C.R., CUELLAR J., BELOTTO A. IN BULLETIN OF THE PAN AMERICAN HEALTH ORGANIZATION. VOLUME 28. NUMBER 4. DECEMBER 1994.