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How INCAP supports maternal and child health in Central America

INSTITUTE OF NUTRITION
OF CENTRAL AMERICA AND PANAMA INCAP



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INCAP's Mission

The Institute of Nutrition of Central America and Panama (INCAP) is a regional scientific and technical organization created in 1949. Its purpose is to contribute to the development of the science of nutrition, promote its practical application and strengthen the technical capacity of member countries to solve their food and nutrition problems (INCAP member

countries include the countries of Central America, Panama, and, most recently, Belize). To achieve its purpose, INCAP carries out activities in research, human resource development, technical assistance, communications and information dissemination, as part of technical cooperation programs in member countries.

Maternal-Child Health

Infectious and contagious diseases are still one of the major causes of infant morbidity and mortality in the region. The effect of diarrhea in the deterioration of nutritional status is well documented. A vicious circle is thus created, which increases the susceptibility of the child to acute infections, severe malnutrition and death.

To contribute to the solution of this problem, certain maternal-child health actions are being strengthened. Among these are pre- and post-natal controls, oral rehydration therapy, growth monitoring, nutritional rehabilitation and the promotion of both breastfeeding and adequate infant and child feeding practices.

The Child Survival Support Project

In 1985, INCAP expanded its technical cooperation activities in food and nutrition through a program that supported actions aimed at improving child survival. An important part of these activities was supported through a project known as, "Oral Rehydration Therapy, Growth Monitoring and Primary Health Care Education." This six-year project was funded by the Agency for International Development (AID) through the Regional Office for Central American Programs

(ROCAP), as well as by WHO/PAHO and INCAP itself. The aim of the project was to reduce infant and child morbidity, mortality and malnutrition, through the use of simple, low-cost technologies, such as the prevention and treatment of diarrheal diseases, growth monitoring, the development and promotion of breastfeeding, and adequate maternal-child feeding practices.



Description of the Oral Rehydration, Growth Monitoring and Education Project

The main activities of the project include technical cooperation and funding to member countries to strengthen maternal-child health activities in the areas of:

- Promoting, developing and implementing effective child survival plans and strategies;
- Supporting the planning and strengthening of health service delivery and information systems;
- Strengthening the capacity of community health and education staff;
- Increasing the availability of scientific and technical information;
- Controlling the quality of oral rehydration salts;
- Controlling vitamin A deficiency; and

- Basic and applied research.

To develop these areas, INCAP has assembled a group of professionals that include medical doctors, public health specialists, bacteriologists, biochemists, statisticians, systems analysts, microbiologists, epidemiologists, nutritionists, educators, sociologists, anthropologists, administrators and communications specialists. In addition, a permanent INCAP delegation (Basic Technical Group) has been assigned to each country. This group collaborates in the identifications of technical cooperation needs and coordinates the support provided by the Institute and by other cooperation agencies in the country.

Major Project Components

Support to the Planning and Strengthening of Maternal-child Health Plans and Strategies

Regional and Interagency Coordination

Since the project began, INCAP has worked in coordination with UNICEF and WHO/PAHO as an active member of the Interagency Technical Focus Group. The purpose of this group is to coordinate the technical cooperation activities of each agency with national and regional maternal-child health efforts. INCAP has also

participated in the Ad-Hoc Technical Committee, which is composed of the national child survival coordinators of the Central American countries. The main responsibility of this Committee has been to program, monitor and evaluate regional child survival activities.

Private Sector Support

Through the project, INCAP has supported non-governmental organizations (NGOs) and professional associations (Physicians, nutritionists, pharmacists and nurses) with a view to promoting their participation in child survival programs. Support included technical and financial assistance, training, educational materials development and information

dissemination. INCAP has also collaborated in the organization of workshops and seminars in the areas of major interest of these groups, including program management and social marketing. As a result, INCAP has developed methodologies and guidelines. Included are guidelines to evaluate maternal-child health and nutrition programs developed by NGOs.

Basic Research

In all of the countries in the region, INCAP supported diagnostic studies and follow-up of the maternal-child health situation. These studies made it possible to improve health service delivery and training, which increased the effectiveness of child survival programs. Among these were anthropological knowledge, attitudes and practices (KAP) studies of health service providers and users, as well as national surveys on the maternal-child health and

nutrition situation. Among these methodologies, INCAP, in conjunction with the University of California at Los Angeles, developed and promoted Rapid Assessment Procedures (RAP), which made it possible to use anthropological methods to assess health behavior rapidly at family level, as well as interactions among service providers, both modern and traditional, and users.

Strengthening National Service Delivery and Information Systems

Evaluation of Maternal and Child Health and Nutrition Systems

INCAP provided technical and financial support to promote the use of the "evaluation of the conditions of effectiveness" methodology, developed by the WHO/PAHO, to evaluate the operational capacity of health services delivery.

This methodology has made it possible to obtain information rapidly that can be used to identify and eliminate constraints to effective service delivery.

Specific Research

INCAP carried out periodic research on specific subjects, which contributed to improving the planning and evaluation of national and regional programs. Included were national nutrition surveys, and national maternal-child health and nutrition surveys. Through these studies, reliable and valid information on infant morbidity and mortality in the region was obtained. In addition, changes in nutritional status, and the effects of child survival

interventions were assessed. One of the most successful methods promoted by INCAP was the First Graders' Height Census. During the years 1985-90, this method, which had been developed previously, was extended to all the Central American countries. In addition, the height census methodology was integrated into nutrition surveillance systems in Costa Rica and Panama.

Sentinel Surveillance Systems

In some member countries, INCAP gave technical and financial support to the establishment of sentinel surveillance systems. These systems consisted of a network of sentinel areas (communities) and sites (establishments), where information was collected on health, morbidity and mortality, the nutrition situation and socioeconomic and cultural factors in the population. This

information subsystem supports the routine health information system, providing low-cost information for the purposes of local programming and of process and impact evaluations of child survival activities. This methodology is being applied by other international agencies in various Central American countries, with excellent results.

Information Systems

Another important activity was technical assistance in strengthening health information systems. INCAP worked together with national institutions to improve the type and quality of information collected, introduce new technologies and promote compatible systems through which users could share information and make comparative information analyses between countries.

As a result, INCAP developed the SIMAP computer software, a computer mapping system, which has been distributed and used widely both within and outside of Central America. Through this program, users can integrate information from many sources, update it and analyze it easily through the use of graphs, maps and tables. It also can make population projections.

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Strengthening the Capacity of Community Health and Education Personnel

Education Program Integration

INCAP participated in activities of the Regional Training Project for Maternal-Child Health Personnel, which was designed jointly with PASCAP, and with UNICEF and WHO/PAHO support. In accordance with the focus of this project, INCAP collaborated in the development of activities in the areas of academic program development, continuing education, community education and education-assistance integration, so that academic training would respond to the requirements of assistance programs. In addition, INCAP promoted the intraregional exchange of professional staff and public health

service providers, and in the revision of curricula in universities, professional schools and in public health service provider training programs (Ministries of Health and Social Security). Regional and national workshops and conferences, were carried out to promote this objective. As a consequence, the teaching of nutrition and of the components of child survival were strengthened in training schools for medical, nutrition and nursing professionals, well as in primary and secondary education programs.

Educational Reference Centers

The project supported the establishment of educational reference centers in the most important training hospitals in each member country. These centers train health professionals in maternal-child technologies, standardize health services in accordance with national norms, convey technical information and provide high-quality treatment to mothers and children. The centers have made possible

better integration between education and assistance initiatives, an increase in the number of maternal-child health components in health professional training programs (for doctors, nutritionists, nurses, social workers and others), and in-service training of individuals who have replicated the attention and educational model to other levels of implementation.

Regional Education Units

INCAP also supported the development of regional education units. These units, located in country health regions, train regional and local-level personnel, promote community-level health education and provide maternal-health

services. As a result, area or regional-level results have been obtained that complement those of the educational reference centers, and community-level health education models have been developed and tested.

Special Health and Nutrition Units

Technical assistance was provided for the creation and strengthening of nutrition and health units with specific purposes within the educational centers mentioned. Included were units on oral rehydration therapy, growth monitoring and treatment of the malnourished child. The units, located in hospitals, schools,

and health centers or posts, contributed to improving attention to specific problems, increasing coordination in the integration of levels of attention, training volunteers and service users, especially mothers, and testing methods, procedures and transferable educational materials.

Training Methods

In collaboration with Ministries of Health, INCAP developed and tested integrated training modules in each country on child survival. The modules are related to national maternal-child health plans and norms, and to public sector programs. These modules are technical reference guidelines for central, regional and local-level personnel. Applicable support materials were developed by INCAP to facilitate

and promote their use. Over 500 people throughout the region were trained using the child survival modules. The materials also served as the basis for the revision of curricula and the development of a module for the training of primary school teachers. Presently, non-governmental organizations are also using these materials to develop training activities for their own staff.

Educational Materials

One of the strategies used to transfer technical information and research findings to the operational level was the design, testing and production of educational materials for the community and volunteer health personnel. Using anthropological information, audiocassettes were developed with illustrated brochures on oral rehydration therapy and growth monitoring for mothers and health

workers. This methodology was evaluated, and was found to have caused a positive change in the level of mothers' knowledge. Another successful methodology was the SILOGUIA, a guide for planning, developing and evaluating educational activities at the local level. This guide was developed as a pilot test for a specific group in El Salvador, and is being transferred to other sectors using distance learning techniques.

Increasing the Availability of Scientific and Technical Information

ASI Bulletin

INCAP published 25 issues of the bimonthly bulletin entitled, **Progress in Child Survival (ASI)**, to inform users of child survival activities carried out in the region, and to provide basic technical information to health providers ASI was distributed to more than 8,000 technical people in the region, together with the Spanish version

of the bulletins, **Mothers and Children, Dialogue on Diarrhea and IRA News.**

Towards the end of the project, this bulletin was replaced by the institutional bulletin entitled, **Progress in Food and Nutrition**, which included general information on INCAP's institutional purpose and on food and nutrition subjects.

Distance Learning

With a view to updating the knowledge of health providers in aspects of maternal-child health, INCAP used the distance learning method. It developed two courses in Guatemala, one on management of the malnourished child and the other, and the other on monitoring the physical growth of children. Both courses were endorsed by the Association of Medical Doctors and Surgeons and the Guatemalan Pediatrics Association. In light of the success of this

methodology, which has made it possible to update of the knowledge of professionals without their leaving their work, a third course on nutrition during pregnancy and breastfeeding is being developed. The expertise acquired has been used by INCAP to present a proposal for developing a regional distance learning course. Moreover, the materials produced are being transferred to the other countries for adaptation and use.



Packets of Technical Documents

Every quarter, INCAP produced and distributed information packets with important articles and bibliographical summaries on child survival. These packets were sent to 1,000 users in the region. In addition, technical packets were

developed that contained documents on maternal-child feeding and nutrition. These documents reflected INCAP's position, as did reference materials for more than 80 national and regional seminars.

Information Requests

The INCAP information Clearinghouse responded annually to about 900 information requests from individuals and institutions on maternal-child health. It also responded to requests for reference materials on the control of diarrheal diseases, growth monitoring and

child feeding. Many of the latter came from training and education programs. Through this component, INCAP distributed over 400,000 documents in the Central American region.

Quality Control of Oral Rehydration Salts

Quality Control

Ensuring the quality of oral rehydration salts (ORS) was a service provided by INCAP to all member countries. INCAP collected samples of salts being used in both public and private sector programs and available commercially.

These samples were then analyzed in INCAP's laboratories using WHO-approved procedures. The results were sent to Ministries of Health for their information and follow-up.

Basic and Applied Research

Operations Research

Under the project, INCAP promoted operations research to identify and solve specific problems in the delivery of health services to mothers and children in Central America and Panama. Standardized methodologies and instruments were developed to provide training and technical assistance to national researchers developing operations research projects for funding by INCAP and other donors. Operations research

was carried out in growth monitoring and in the prevention and management of diarrheal disease. As a result, the capacity of country professionals in carrying out operations research was strengthened. It could thus be better used as a tool for helping to improve service delivery. It also became possible to institutionalize operations research as an INCAP programmatic area.

Basic Research on Risk of Peri- and Neonatal, and Maternal Mortality

Five interrelated basic research projects were developed in one of Guatemala's health areas to determine the biological, environmental and sociocultural factors related to high-risk pregnancy, low birthweight of newborns and inadequate post-natal growth. These studies were jointly carried out with the Guatemalan Ministry of Health. They showed the following:

- The most sensitive factors for predicting low birthweight are maternal anthropometry (arm circumference) and a history of other low birthweight children.
- Traditional cooking methods produce toxic

levels of CO₂ in the home and in women, as shown by toxic levels of Carboxyhemoglobine, which could affect fetal growth.

- For the first time, the positive effect of food supplementation for malnourished nursing mothers in increasing milk production in the first six months of breastfeeding was clearly shown.
- In addition, specific problems that affect maternal and peri- and neonatal mortality were determined. Based on this information, a preventive intervention model is being developed which will include the joint development of activities by local and hospital staff.

Dietary Management of Children with Diarrhea

Through studies funded under this project, it was shown that the use of various foods commonly consumed in homes, such as corn flour or tortillas, cooked rice, black beans or Incaparina (corn flour and cotton seed cakes) does not increase the severity or duration of diarrhea in children one to three years of age. Moreover, some of these foods reduce the duration of the illness. In a clinically controlled study in a hospital, children were given an Incaparina drink and a cornmeal, black bean and vegetable gruel from the time they entered the hospital. The foods were well tolerated by the children, and nutrition and food energy absorption was relatively high, which suggests that prompt use of these foods will prevent or diminish the nutritional damage caused by the illness. In addition, these high-fiber foods reduced the duration of the illness by an average of 3.5 days, compared to foods used

more frequently by children with diarrhea. These results were the basis for other studies done by INCAP scientist in hospital centers and at community level funded by other organizations. These studies have confirmed the tolerance of many common foods by children with acute or persistent diarrhea and their positive effect on the duration of acute diarrhea. At the end of 1991, various studies which provided additional information on the effect of acute or persistent diarrhea on child nutritional status were completed. Furthermore, these studies and the results of anthropological-nutritional studies spawned a multicenter study, funded under this project, to evaluate the customs and foods used in various Central American countries when children have diarrhea, as well as the economic and cultural feasibility of improving these feedings habits.

Multicenter Study the Management of the Feeding of Children with Acute Diarrhea

This study was carried out in Costa Rica (Limon), El Salvador (San Salvador), Guatemala (Quetzaltenango), Nicaragua (Esteli) and Panama (Chiriqui), with the participation of multidisciplinary groups of local researchers and under the supervision and with the support of INCAP scientists. The groups of local researchers included nutritionists, medical doctors, educators and social workers, who received basic training in a seminar-workshop at INCAP, based on which they developed a common work protocol. In addition to stimulating the participation of professionals in research pertinent to their own countries, this

study sought: (a) knowledge of the beliefs and practices of women with few economic resources related to child feeding when children are healthy and when they have diarrhea; (b) to compute the nutritional value of these diets and the possibility of improving them with food available in the home; and (c) to explore whether mothers accept the idea of modifying household diets and to carry out practical food preparation demonstrations. The results made it possible to test efficiency and effectiveness, using the most adequate diets acceptable to mothers and children of each locality.



14

Persistent Diarrhea

INCAP carried out a longitudinal study that included field studies and laboratory analysis of infants and small children whose diarrhea lasted two weeks and was resistant to known treatments, including ORT. The aim of the studies was to determine the causes and nutritional consequences of persistent diarrhea. The results of these studies confirm that children under six months and malnourished

children older than two are at greater risk of persistent diarrhea, and that the greater the number of infections, the greater the risk of persistent diarrhea. The preventive focus has thus been extended to improving health conditions and environmental sanitation as a way of reducing the high incidence of persistent diarrhea.

Control of Vitamin A deficiency

Food Fortification

Since the 1960s, INCAP has been developing the technology for fortifying sugar with Vitamin A, which has reduced the incidence of Vitamin A deficiency from 25% to 10%. Through the

project, INCAP channeled funds for the development and transfer to El Salvador of machinery for the rapid and effective fortification of sugar with Retinol Palmitate.

Vitamin A Information Dissemination

Manuals and videocassettes on the techniques of Vitamin A fortification of sugar, bibliographic compilations with updated information on this subject were developed, and, in coordination

with ISTI/VITAL, INCAP organized a Latin American meeting of strategies for improving the Vitamin A situation in the region.

Project Accomplishments

In the six years of project activities, the INCAP Child Survival Project has contributed greatly to the development of national maternal-child health programs, as well as to the implementation of adequate strategies for improving long term maternal-child health.

- Close coordination was established at regional and national levels with WHO/PAHO, UNICEF, USAID and other bilateral and international agencies.
- The development and implementation of national member country maternal-child health plans were promoted.
- Regional evaluation systems were developed, and national information, monitoring and evaluation systems were strengthened.
- The dissemination of scientific and technical

information on child survival was strengthened.

- INCAP contributed to the strengthening of institutions through the development of their managerial capacity to establish priorities, adapt technologies and establish administrative infrastructure.
- INCAP promoted the development and implementation of regional and national maternal-child health training and education activities.
- INCAP's image as a source of technical expertise in maternal-child health and of collaboration for Ministries of Health in the region was strengthened.
- The process of decentralization and deconcentration of INCAP's technical assistance to member countries was supported.

Institutional Capacity After the End of the Project

As a result of the project, the INCAP's technical cooperation capacity in aspects of maternal-child health was strengthened. In recognition of this fact, the INCAP Board of Directors, in its 1991 annual meeting, requested that INCAP coordinate regional activities in this area. In addition, in all member countries, a professional responsible for technical cooperation in maternal-child health has been established. He/she will coordinate his/her actions with those of other professionals who are members of the Basic Technical Groups. The support of AID/ROCAP to this and other projects, as well as the cooperation of other regional projects, definitely contributed to the establishment of the Basic Technical Groups in each country, with the strategy of strengthening the transfer of

knowledge, methodologies, technologies and guidelines from INCAP Headquarters to member countries.

The decentralization process supported by this project has continued at country level through the formation of technical groups that are supporting local health systems or their equivalents in various countries. This development is particularly noticeable in Guatemala, El Salvador and Honduras, in which the project has supported decentralized cooperation actions.

At regional level, the participation of INCAP, with project support, contributed significantly to the strengthening of regional activities and programs in maternal-child health and to interagency coordination of these efforts.



Project Team

The project was an institutional effort, carried out by professionals from various coordination units and divisions of INCAP. The multidisciplinary team was integrated by the following, in alphabetically order:

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- Lus Octavio Angel (until 1989)
- Hernán L. Delgado (beginning 1989)
- Juan Rivera
- Carlos Samayoa
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- American Public Health Association (APHA)
- Manoff Group, Inc.
- MSH
- Pan American Health Organization (PAHO)
- PATH
- PRICOR
- Technologies for Primary health Care (PRITECH)

- United National Childrens Fund (UNICEF)
- World Health Organization (WHO)

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