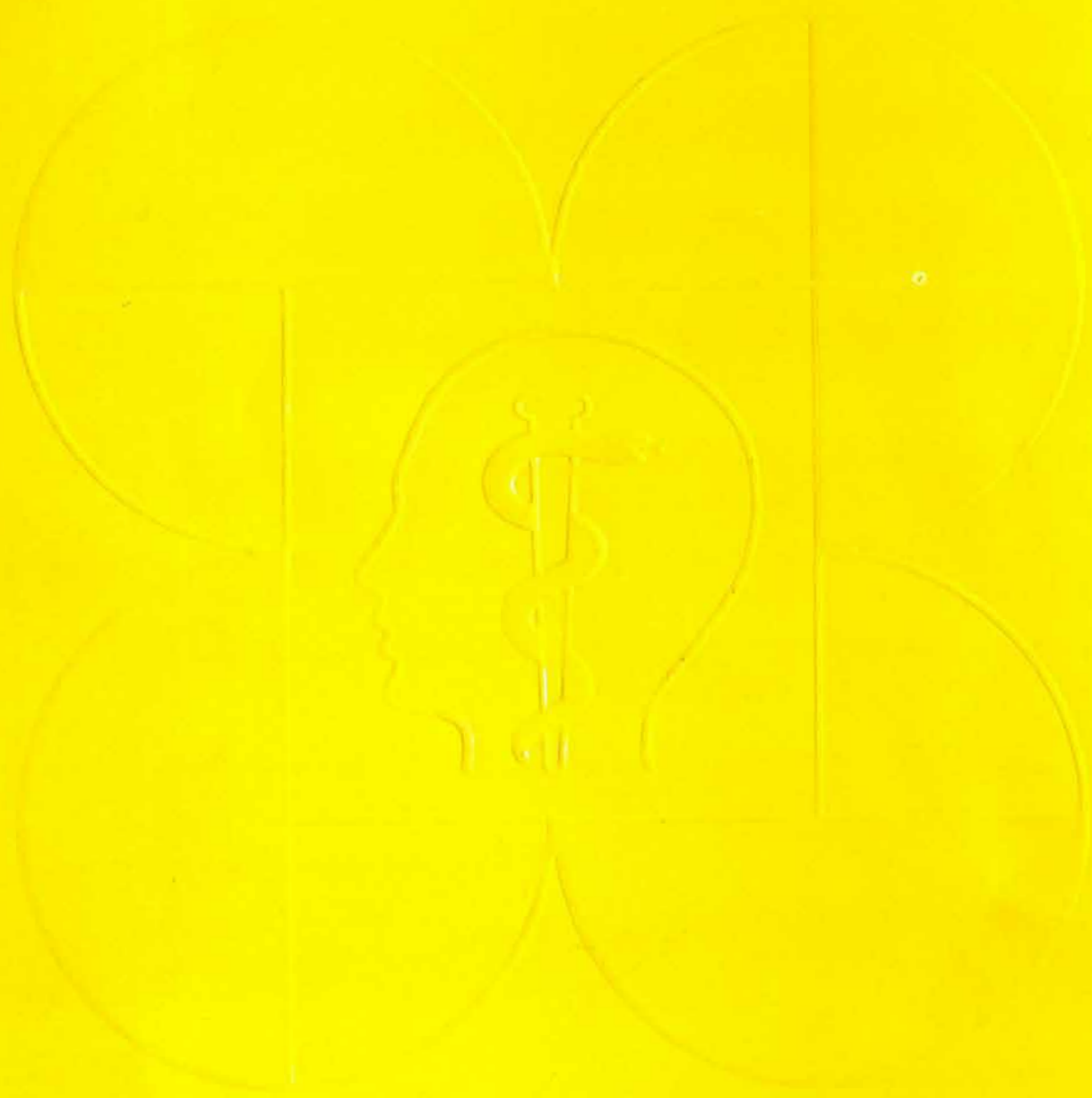


**Annual Report
1985**



**PHILIPPINE COUNCIL FOR
HEALTH RESEARCH AND DEVELOPMENT**
National Science and Technology Authority

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Message



This year under review, which was PCHRD's fourth, engendered a renewal of our commitment to relevance in health R & D for the country. The success of the Second Triennial Congress held this year and the consequent restructuring of the National Health R & D Plan attested to this.

Also, amidst the tight climate of 1985, the Council managed to transcend some of the expectations embodied in the plans and programs set for the year. Those accomplishments, which in turn enhanced the Council's position in the local R & D scene, are described in this report.

Like previously, we thank deeply those institutions and individuals who were behind us for this another year of fruitful collaboration. With them we share the achievements of the past year with a commitment that those will continue to inspire us to work hard and serve sincerely the Filipino nation.


ALBERTO G. ROMUALDEZ, JR., M.D.
Executive Director

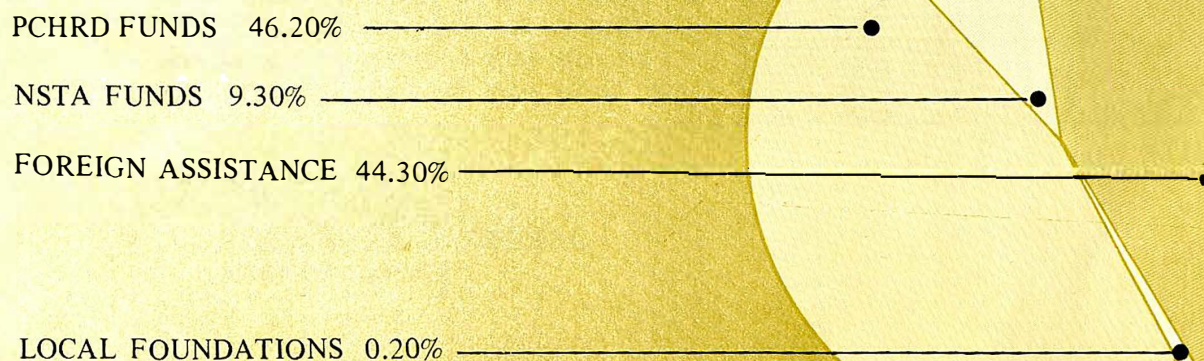
Financial

PCHRD FUNDING SOURCES

Total funding released for the year was ₱20.04M which came from:

- a) PCHRD funds with a contribution of ₱9.26M or 46.20% of the 1985 total budget.
- b) NSTA funds with a contribution of ₱1.86M or 9.30%.
- c) Foreign Assistance with a contribution of ₱8.88M or 44.30%.
- d) Local Foundations with a contribution of ₱0.04M or 0.20%.

FIGURE 1
Distribution of Funding by Sources
CY 1985



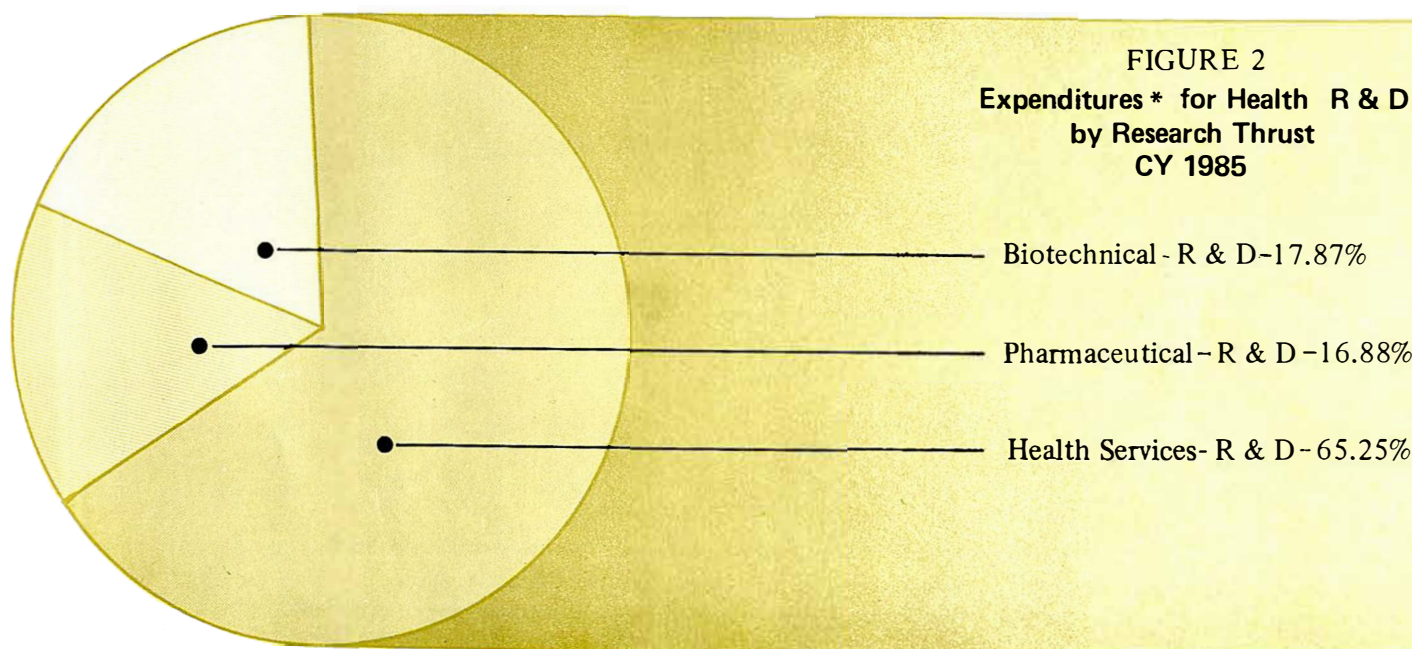
Highlights

EXPENDITURES FOR HEALTH RESEARCH AND DEVELOPMENT BY RESEARCH THRUST

The total R & D-expenditures for this year was ₱14.25M* distributed as follows:

- a) Biotechnical R & D expenditures was ₱2.54M or 17.87%
- b) Pharmaceutical R & D expenditures was ₱2.41M or 16.88%
- c) Health Services R & D expenditures was ₱9.30M or 65.25% of the total R & D budget in 1985.

FIGURE 2
Expenditures * for Health R & D
by Research Thrust
CY 1985



*Total R & D expenditures of ₱14.25M was exclusively from the GIA. R & D expenses charged against the Secretariat fund were not included here.

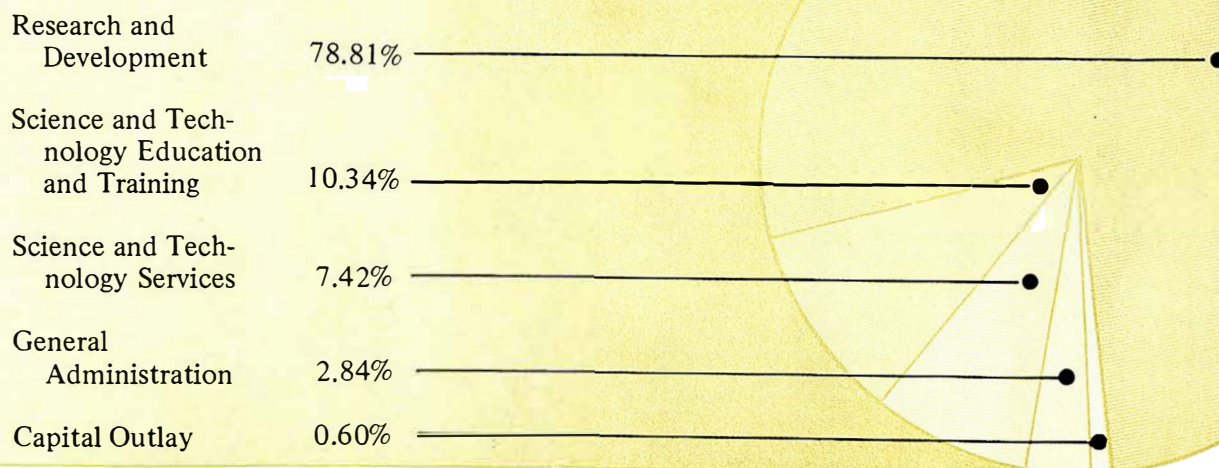
EXPENDITURES FOR HEALTH RESEARCH & DEVELOPMENT BY S & T ACTIVITY

The total expenditures of PCHRD amounting to ₱20.04M were spent on the following S & T activities:

- a) Research and Development – ₱15.79M* or 78.81%.
- b) Science and Technology Education and Training – ₱2.07M or 10.34%.
- c) Science and Technology Services – ₱1.43M or 7.42%.
- d) General Administration – ₱0.57M or 2.84%.
- e) Capital Outlay – ₱0.12M or 0.60%.

FIGURE 3

PCHRD Expenditures by S & T Activity CY 1985

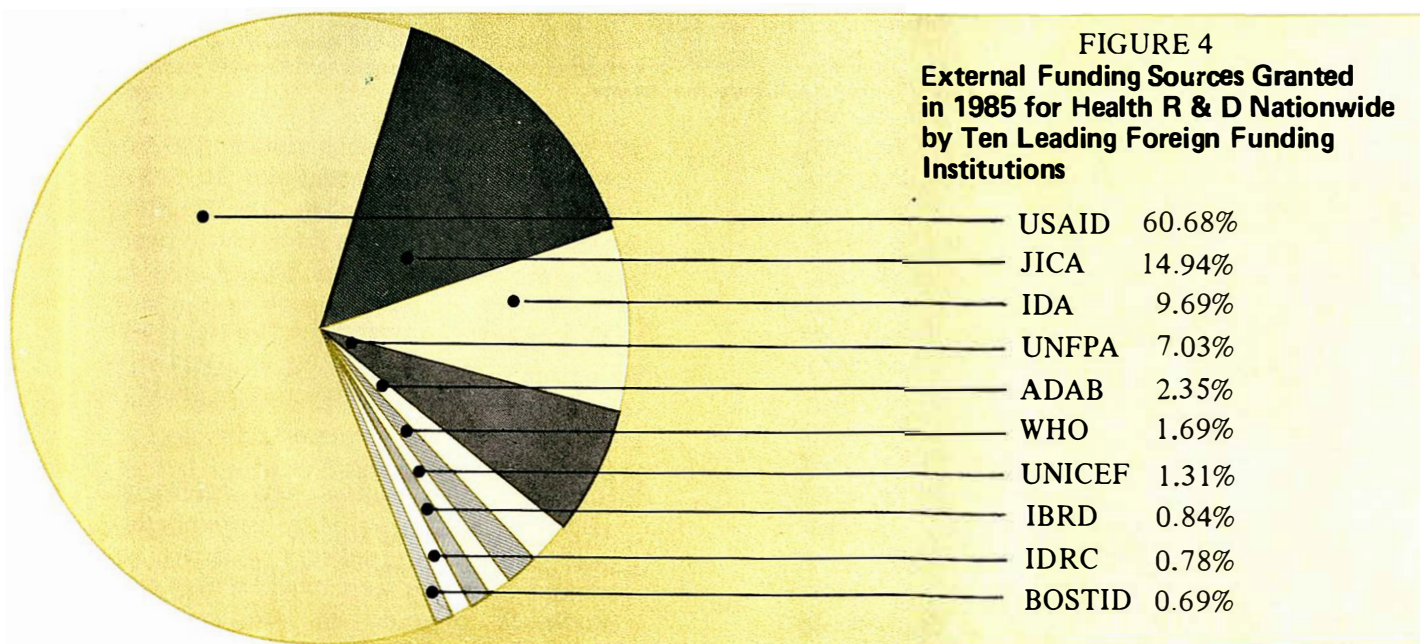


*Amount reflects not only R&D expenses from GIA (₱14.25M) but also R&D expenses charged against the Secretariat.

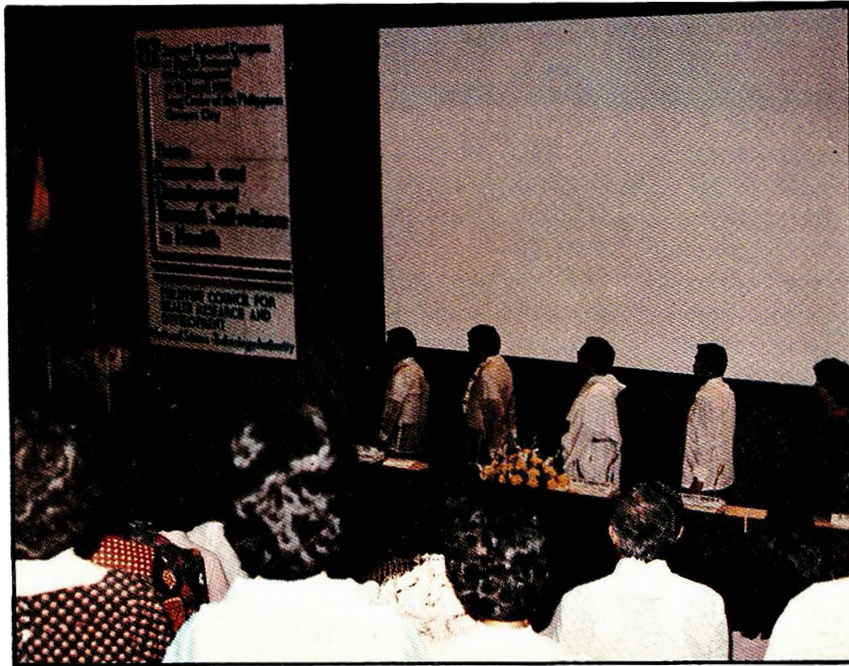
EXTERNAL FUNDING SOURCES FOR HEALTH RESEARCH AND DEVELOPMENT

For the year under review, a total of \$13.34M was extended for Health R & D projects nationwide by ten leading foreign funding institutions. The USAID & JICA ranked highest among the donor institutions. These institutions which granted financial assistance to different agencies nationwide were: USAID (United States Agency for International Development) – \$8.12M or 60.68% of total grant; JICA (Japan International Cooperation Agency) – \$2M or 14.94%; IDA (International Development Assistance) – \$1.3M or 9.69%; UNFPA (United Nations Fund for Popu-

lation Activities) – \$1.94M or 7.03%; ADAB (Australian Development Assistance Bureau) – \$0.31M or 2.35%; WHO (World Health Organization) – \$0.23M or 1.69%; UNICEF (United Nations International Children's Emergency Fund) – \$0.17M or 1.31%; IBRD (International Bank for Rural Development) – \$0.11 or 0.84%; IDRC (International Development Research Center) – \$0.01M or 0.78% and BOSTID (Board of Science & Technology for International Development) – \$0.09M or 0.69% of the total grant.



KEY EVENTS IN 1985



Speakers and participants stand in attention in opening ceremonies of the 2nd National Health R & D Congress.

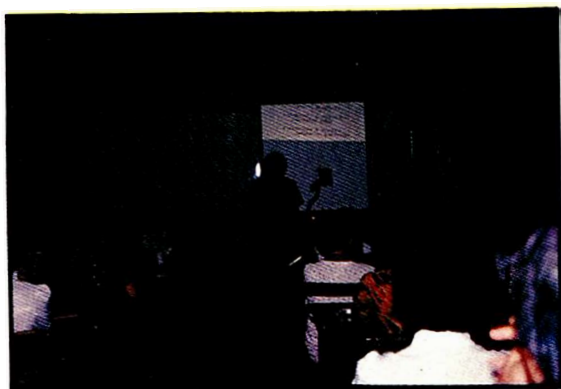


Typical site of the Botika sa Barangay in communities.

- 1) The Second National Health R & D Congress in March 1985 approved the restructured National Health Research and Development Plan for 1985-89. 1985 saw the enthusiastic implementation of this plan. Broad categories such as Biotechnical Development, Pharmaceutical Development and Health Services Development reflected a plan attempting to comprehensively align program areas with set priorities.
- 2) Policy studies under USAID's PHC Financing Projects improved community efforts at promoting viable and effective strategies in community medical service, linkages and the provision of needed drugs to depressed communities. Projects like the

Botika sa Barangay and the District Hospital contributed to a better understanding of how community participation could be increased.

- 3) Schistosomiasis control was heightened with the success of the wonder drug praziquantel and delivery systems and control measures were realized in a mass treatment program in schisto-infested Leyte communities.
- 4) The comprehensive investigation of the prevalence, incidence, and prevention of liver cancer has elevated local medical efforts. Attention was given to promoting multi-disciplinary approaches to effectively treat a national problem.



Cebu consultative workshop in full swing.



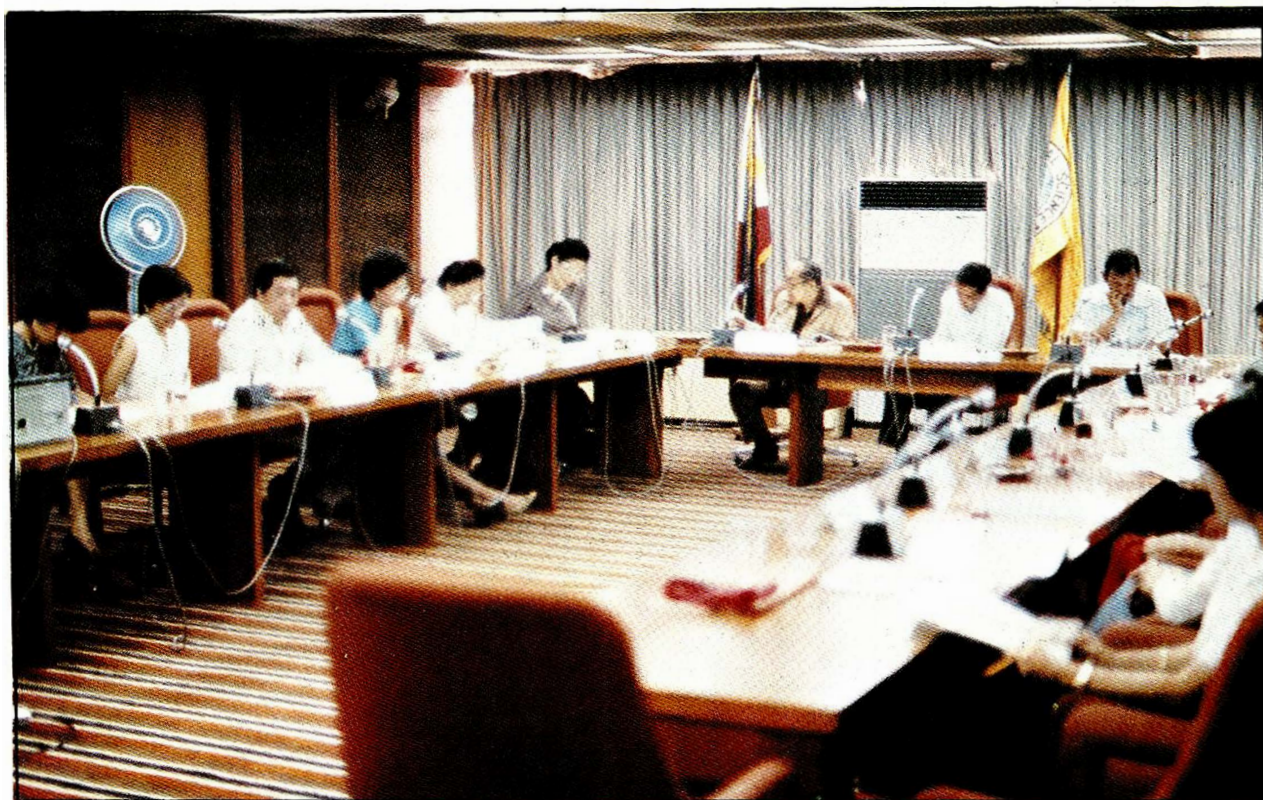
Dr. Josefina Cruz—first professorial chairholder in pharmacology.



Ermita Health Science Community forum in celebration of NSTW draws researchers from various agencies and schools.

- 5) Accomplishments in a year's time in the form of seminar-workshops, congresses, publications and library centers have been conducted/established by Regional Health and Development Committees in Central Visayas (Region VII), Eastern Visayas (Region VIII), and Southeastern Mindanao (Region XI), in consonance with the Council's Research Network Development Program. Approaches were geared towards linking health researchers and institutions, promoting resource sharing and facilitating research utilization for more dynamic regional interaction.
- 6) With the heightened attention to the cause of herbal medicine research, the health community witnessed the lecture of the First Professorial Chairholder from the Dept. of Pharmacology of the University of the Philippines College of Medicine. A private organization, the Marsman Foundation, Inc. donated the chair.

- 7) With the operationalization of the Ermita Health Science Community (EHSC), members of the community's Executive Committee have set plans for the promotion of research findings and for the conduct of training programs to further knowledge and skills capability of health researchers especially in the conduct of research and the development of methodology. These will continuously assure a core of key health researchers in Manila's centers of excellence.
- 8) The use of NSTA's herbal medicine technology was accelerated with MOH's adoption of the technology with the establishment of three regional production plants, and order of half a million tablets of *lagundi* and *tsaang gubat* in various parts of the country.
- 9) Commercialized production of medicinal plant was also finalized with the signing of a Memo of Agreement between the PCHRD and the Philippine Herbal Group.



PCHRD's Governing Council makes decisions on researches elevated to them for approval.

- 10) The Governing Council approved the National Guidelines for Biomedical Research Involving Human Subjects formulated by the National Ethics Committee.
- 11) The data banking system for the health research network is now in full swing with a comprehensive and rapid entry of some 3,000 researches into PCHRD's computer files, providing the health research community with available documented information. The signing of the Memo of Agreement of the HERDIN likewise supported the library network operations.
- 12) For the benefit of health researchers, the PCHRD has produced a sizeable number of publication materials, both technical and popular, to make research findings accessible to defined clientele. A series of press conferences and regular releases boosted the gains of health research and increased PCHRD's visibility.



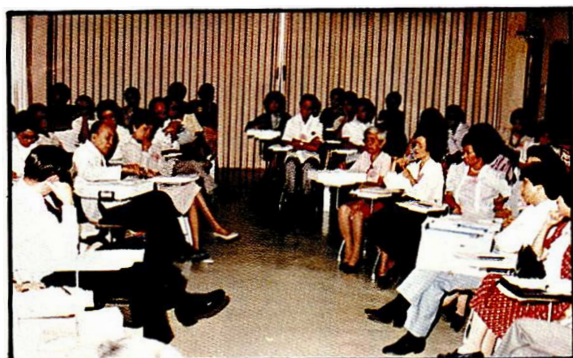
Health writers from various media interview diabetes expert Dr. Augusto Litonjua in Agham Ugnayan press conference.

- 13) Local and international linkages to further promote health research consciousness resulted in continued USAID and ADAB support to on-going projects. An observation trip to the People's Republic of China, recognition of the Council of the IDRC, information exchange pledge from the Soviet Socialist Republic, local support from the Economic Support Fund, and research awards by the DAP were realized with liaising efforts.

RESEARCH MANAGEMENT AND DEVELOPMENT



Second National Congress tackles health research priorities for the next five years.



Medical experts discuss key issues in Congress workshop.



Dr. Tomas Maramba shares his views in one of the plenary sessions during the Congress.

A. Restructured Research and Development (R & D) Plan

The restructured National Health R & D Plan 1985-1989 was presented before the Second National Health R & D Congress held last March 1985. The Plan is realigned with the MOH's health program for the country within the next five years. Priority projects were also identified giving emphasis on Biotechnical R & D, Pharmaceutical R & D and Health Services R & D.

B. Completed (▲) and On-going (●) R & D Projects

A total of 37 on-going projects and 18 new projects were supported and monitored. Under the USAID's Primary Health Care (PHC) Financing Project, six special studies were implemented, of which two were completed. Ten new proposals for financing schemes were reviewed, of which four were approved. On the other hand, the NSTA-UP Integrated R & D Program C at UP Manila, supported and monitored five on-going and nine new projects. The different projects monitored were as follows:

BIOTECHNICAL R & D

Infectious Diseases

● *MENINGITIS AMONG FILIPINOS: CLINICAL FEATURES, DIAGNOSIS AND MANAGEMENT*

de
Lita Crisologo-Vizconde, M.D., RITM

A. Acute Suppurative Meningitis

A total of 196 cases admitted to RITM with the diagnosis of acute suppurative meningitis (ASM) based on clinical manifestations and initial laboratory tests were enrolled in the study. Of these cases, 96 had confirmed diagnosis based either on positive blood and/or cerebrospinal fluid (CSF) culture or positive counter immunoelectrophoresis (CIE) or both.

Majority of the 96 cases that were analyzed were in the 3-11 months age group, with most cases due to *Streptococcus pneumoniae* and *Haemophilus influenzae*.

The outcome of treatment of cases showed that 73.0 percent fully recovered, 11.0 percent had mild sequelae, and 16.0 percent died.

Mortality was noted mainly in children 3-11 months of age. Deaths were mostly due to delay in treatment, late recognition of disease prior to admission and other associated diseases.

B. TB Meningitis

A total of 121 patients diagnosed clinically as TB meningitis was entered in the study. Of these cases, 21 (17.3%) had possible TB meningitis based on autopsy and/or serology. The other 30 cases had probable TB meningitis based on clinical manifestations, CSF findings, CT scan and/or response to anti-TB therapeutic trial.

Majority of these cases (58.0%) belonged to the age group 0-4 years with

4 months as the youngest case and 59 years as the oldest.

The most common presenting signs and symptoms were neck rigidity, seizure and fever in younger children as compared to vomiting, headache and sensorial change in older children and adults.

Twenty seven patients had mild to severe hydrocephalus as proven on CT scan. Fifteen of these cases required ventriculoperitoneal shunt, while the rest responded to medical management alone. Five of those who were shunted died; the remaining ten patients had relatively fair to good outcome.

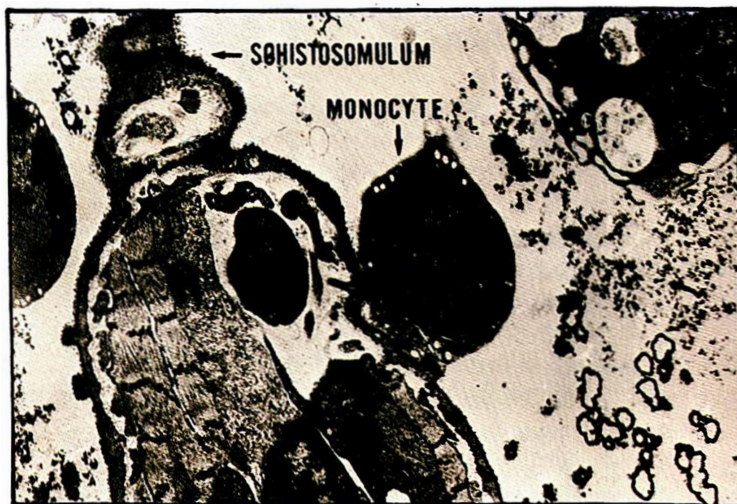
● *ULTRASTRUCTURAL STUDIES ON SCHISTOSOMA JAPONICUM*

Normando C. Gonzaga, M.D., RITM

This study covers the in-vitro portion on the effect of praziquantel on the parasite tegument.

Life cycle of the parasite was maintained by alternate passage through vertebrate and invertebrate hosts. Adult worms obtained from infected mice were incubated with several concentrations of praziquantel.

Examination of male adult treated with $\mu\text{g/ml}$ showed a distinct pattern of tegu-



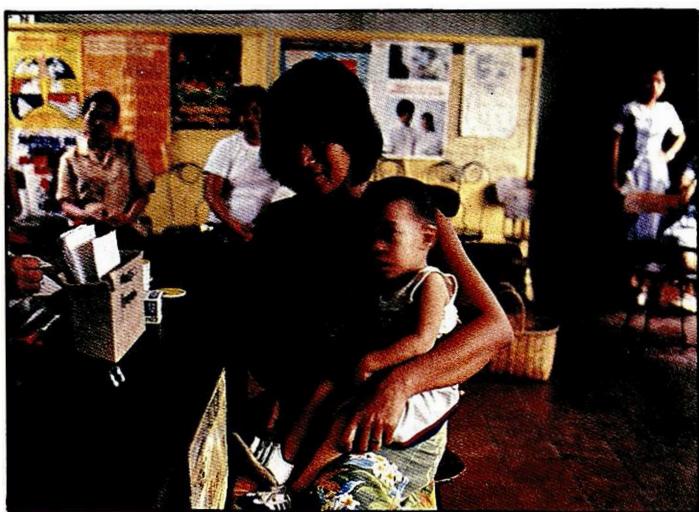
RITM medical researchers conduct ultrastructural studies on schistosoma japonicum.

mental destruction. Focal areas of disorganization and sloughing of membrane folds were also seen in the external surface. All control specimens remained essentially unaltered when examined at the same time points.

● A STUDY OF THE EPIDEMIOLOGY OF DIARRHEAL DISEASES

Mediadora C. Saniel, M.D., RITM

This project aims to determine the morbidity patterns of diarrheal diseases in children less than five years of age and to study the enteropathogens and risk factors associated with diarrheal episodes in the study population.



Children are most prone to diarrhea attacks.

In the peri-urban community of Alabang, morbidity in 453 children less than five years of age as well as associated bacterial and viral agents were monitored by bi-weekly household visits. Overall incidence was low at six episodes per 100 childmonths or 0.8 episode per child per year, with peak periods occurring during the rainy season and during the cool dry months of January and February. Diarrhea attack rates were highest at six to eleven months of age among the children of the poorest families. Other risk factors included male sex, severe malnutrition (second and third degrees), low level of

education of mothers, absence of sanitary latrines, and partial/no breast-feeding (as opposed to exclusive breast-feeding). An enteropathogen was identified from rectal swabs taken during diarrhea in 35.0% of episodes and from 23.0% of cultures taken from asymptomatic matched controls. *Salmonella* (10.1%), ETEC (9.4%), EPEC (6.4%) and *Shigella* (4.1%) were the five most frequently isolated pathogens in association with episodes. However, only with rotavirus, *Shigella* and EPEC was a significant difference in isolation rate between cases and controls observed.

● EXPERIMENTAL INFECTION OF MOSQUITOES WITH MALARIAL PARASITES

Nelia P. Salazar, Ph.D., RITM

The project continued attempts to colonize malaria vectors for experimental purposes. Likewise, the infectivity of local vector species with malarial parasites under laboratory conditions were determined.

Continuing field collection of mosquitoes using carabao-baited traps was conducted. Sixteen species, mostly represented by females (since males are not hematophagous) were identified.

On account of the paucity of admissions of malaria cases at the RITM and affiliates in the Malaria Study Group, blood surveys were organized in endemic areas in Tayabas, Quezon. The slide positivity rate was 21.0%; the parasite distribution was: 4.2% *P. falciparum*, 55.8% *P. vivax* and mixed infections, 0%.

● MICROBIAL CONTROL OF MALARIA VECTOR A RELATED SPECIES OF MOSQUITO LARVAE IN PALAWAN USING PG-14 BACILLUS THURINGIENSIS

Leodegario E. Padua, Ph.D.
UP Los Baños

The study aimed at evaluating the effectivity of PG-14 *Bacillus thuringiensis* as a larvicide against malaria vector and related



Mosquito collection is done for malarial parasite experiment.

species of mosquito larvae in Palawan.

Notable findings were:

- A total of 64 kilogram of powder formulated PG-14 was produced from the mass production activity.
- The number of spores and yield were not affected by the working volume of the fermentation medium.
- Storage in the freezer or in the refrigerator was found to be necessary to maintain insecticidal activity or prevent rapid deterioration of the formulated product.
- Varied formulations did not affect the rate of application. Since each formulation elicited mortality, the use of any of the different levels of formulation is suggested.
- Presence of vegetation in the experimental set-up did not significantly affect the activity of the formulated product regardless of the amount of insecticide applied. Mortality was observed highest using three grams of insecticidal preparation.

Ten successive applications were conducted in stream trials in Bacungan, Puerto Princesa, Palawan aimed to determine the ideal concentration and frequency of application during the rainy season. An application rate of 2.5 grams/linear meter apparently reduced the larval density by 59.0 % after four successive applications.

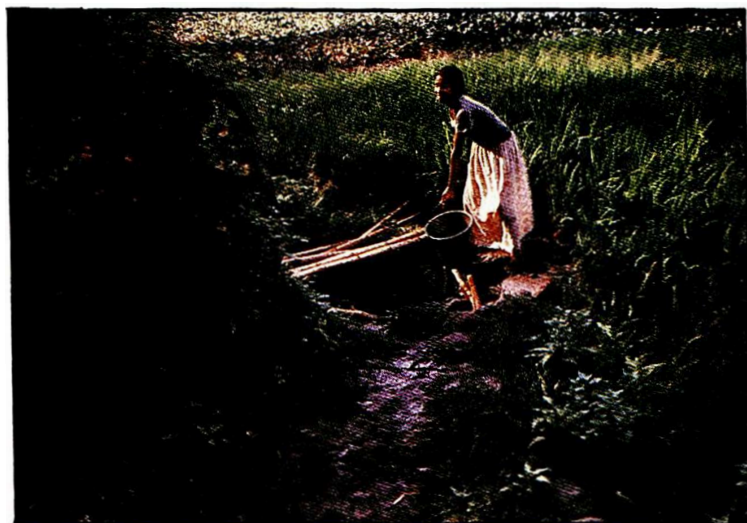
● **GLUCOSE-6 PHOSPHATE DEHYDROGENASE DEFICIENCY IN HOSPITAL PATIENTS WITH MALARIA AND IN A MALARIA ENDEMIC COMMUNITY**

Marietta C. Baccay, M.D., RITM

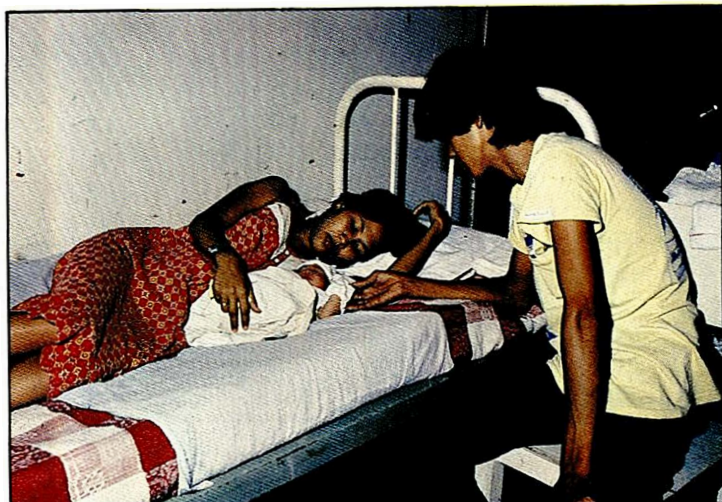
Determination of the prevalence of glucose-6-phosphate dehydrogenase (G-6-PD) deficiency in hospitalized malaria patients and in a malaria endemic community was continued. Quantitative assay was used to determine the enzyme deficiency for hospitalized malaria patients. In community patients, qualitative screening tests, such as cyanide ascorbate and methemoglobin reduction tests, were used. The average prevalence rate of G-6-PD deficiency in confined malaria patients was 11.1% (6/54). In the endemic areas of Tayabas and Antipolo, the average prevalence rate was 4.6% (10/217).

Results obtained in hospital patients showed a higher rate than those obtained during the 1983-1984 studies (5.9%) while results in malaria endemic communities were lower than the early studies (5.0%).

The over-all G-6-PD prevalence rate for hospital cases of malaria for the period 1983 to 1985 was 7.97% (11/138). Subjects from endemic communities showed an overall prevalence rate of 4.9% (27/556). In non-endemic areas, the prevalence rate of G-6-PD deficiency was 2.2% (3/134).



Swampy streams like this are good breeding places for malaria.



Infants of HBsAg positive mothers usually exhibit a high HBsAg positivity.

Immunology

● *INTERRUPTION OF MATERNAL-CHILD HBV TRANSMISSION*

Augusto L. Lingao, M.D.
UP-PGH

A total of 827 mother-pairs comprised the study subjects.

Findings revealed that:

- There was a high HBsAg positivity (30.4%) utilizing heel prick at birth of infants of HBsAg positive mothers. This was especially true among infants (43.0%) of HBsAg positive mothers.
- Forty four percent (44.0%) of HBsAg positive mothers were HBsAg(+) on follow-up, of which nearly one half were persistently positive. Seventy-five percent (75.0%) of the infants of the HBsAg positive mothers became HBsAg positive, all persistently, while most of the infant HBsAg seroconverters of HBsAg negative mothers were only transiently HBsAg positive.
- A smaller but significant number of infants of HBsAg negative mothers became HBsAg positive at 1 year old. Preliminary evidence suggested that they may have been infected by other HBsAg positive members of the family.

● *LOCAL HEPATITIS B VIRUS SURFACE ANTIGENS (HBsAg) PRODUCTION FOR RESEARCH AND VACCINE USES*

Augusto L. Lingao, M.D., RITM

A total of 1,792 persons from Laguna, Batangas, Vigan and Iloilo were screened for HBsAg. From these areas, a total of 1,490 ml of plasma were collected giving an average of 0.83 ml plasma/screening test done.

Screening of 1,170 Philippine National Red Cross (PNRC) blood donors since 1984 resulted in the identification of 106 (9.1%) high-titered HBsAg positive subjects from whom a total of 9,085 ml of plasma/screening test was obtained which is higher than the value obtained in population-based screening.

In view of the above consideration and the high cost of population-based screening, the primary target source of plasma for this project were PNRC blood donations. Eventually, all the PNRC blood donations in the country would be tested in regional laboratories. The chances of obtaining HBsAg positive plasma would likewise increase.



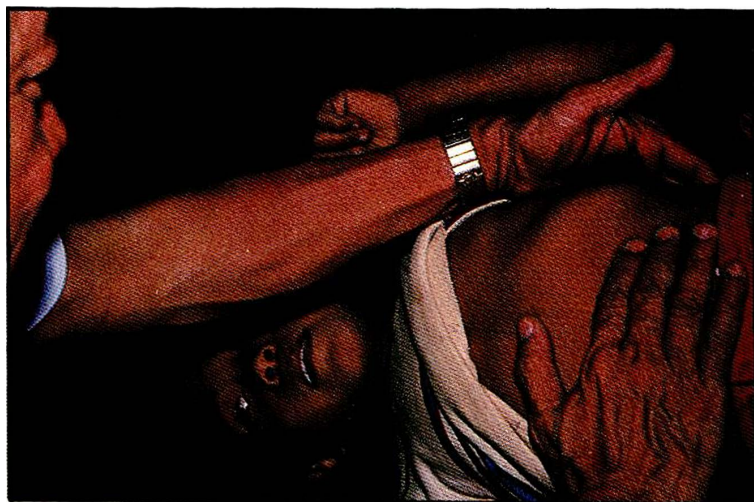
Patient undergoes blood test for hepatitis.

● **INNATE AND NON-SPECIFIC
RESISTANCE TO SCHISTOSOMIASIS
JAPONICA**

Remigio M. Olveda, M.D., RITM

Initial investigations compared the degree of susceptibility to *Schistosoma japonicum* infection of mice (BALB/C) and outbred rats by a primary infection of cercariae and subsequent recovery of adult worms. The contributions of mononuclear phagocytes, specifically monocytes from humans and macrophages from mice and rats, to innate resistance using an in-vitro system were also compared.

Monolayers from human peripheral blood mononuclear cells, monolayers from pooled peritoneal exudate cells of normal mice and macrophages from individual outbred rats were found to induce significant schistosomula killing.



Doctor conducts spleen examination on patient with hepatosplenic schistosomiasis japonica.

● **MODULATION OF IMMUNE RESPONSE
IN CHRONIC HEPATOSPLENIC
SCHISTOSOMIASIS JAPONICA**

Remigio M. Olveda, M.D., RITM

Mitomycin-C treated splenic cells from each patient were cultured in 1:1 ratio with each of three sets of responder cells.

Preliminary results showed that spleens from most patients with advanced hepatosplenic schistosomiasis japonica contained cells suppressing 3H-thymidine incorporation of splenic and peripheral blood mononuclear cells. The relevant splenic suppressor cell was a non-adherent T-lymphocyte. These T-cells depressed responses induced by phytohemagglutinin (PHA). Suppression of antigen-induced blastogenic responses were still to be determined.

Nutrition

● **ANTHROPOMETRIC STANDARDS
FOR NUTRITIONAL AND CLINICAL
EVALUATION**

Rodolfo F. Florentino, M.D.,
Ph. D., et al., FNRI

This one-year project of FNRI was conducted in cooperation with the Philippine Pediatric Society, the National Nutrition Council and the Ministry of Education, Culture and Sports.

The objective of the research was to develop anthropometric standards for nutritional and clinical evaluation of Filipino infants, children and adolescents.

The study covered all regions of the Philippines except Regions IX and XII. A four-stage stratified cluster sampling was utilized in defining the study population. The 0-6 and 17-19 year old subjects were taken from the randomly selected households, while 7-16 year old subjects were measured in the randomly selected school classes/sections. Using standard methods, weight, height/length, mid-upper arm circumference (MUAC), head, chest circumference and skinfold thickness (triceps and scapula) were carefully taken and recorded from the reference target population.

An estimated 26,988 actual target population were examined which was 96.4% of the targetted sample size. As of Dec. 27, 1985, collected data on healthy subjects have been edited, coded and prepared for computerization. Descriptive statistics for height and weight of 0-6 years old

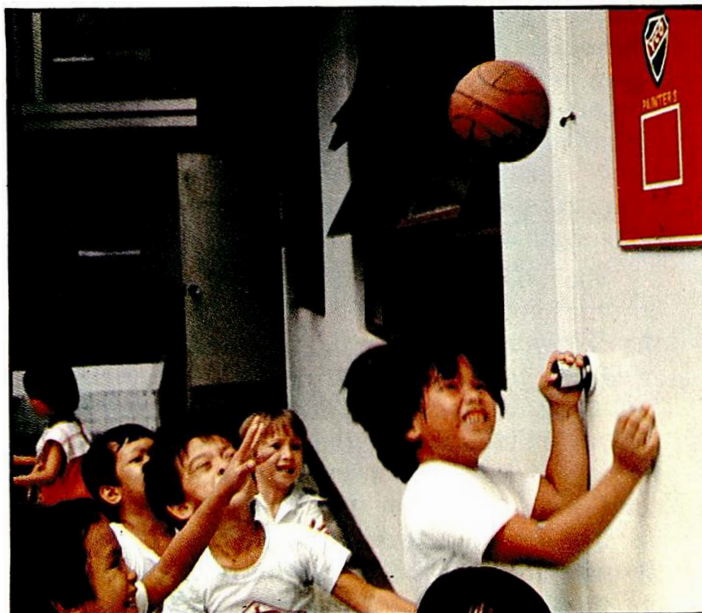
children were tabulated and counterchecked. Preliminary smoothing of results and plotting of curves for height and weight of 0-6 years old children were likewise done. Desk validation of all anthropometric measurements for all ages is in progress.

● *A STUDY OF THE ENERGY
EXPENDITURE AND DIETARY
INTAKE OF ONE TO NINETEEN
YEARS OLD CHILDREN*

Ma. Patrocinio E. de Guzman, et. al.
FNRI

The study was aimed at a) determining the energy expenditure of children aged one to nineteen years; b) providing data on the energy cost of activities of children; c) determining the percentage of time spent by the children in various activities performed during the day; and d) relating daily food intake with energy expenditure.

Energy expenditure was assessed through actual time and motion studies and interviews. A detailed account of the activities performed during the day of each child was recorded daily for one week. Predicted values were used to determine energy cost of activities among younger children (1-12 years). Actual gas measurements using the Kofranyi Michaelis respirometer are carried out for children ages 13-19 years. Expired air was analyzed using the Beckmann E₂ oxygen analyzer. Food intake was weighed for seven days with the use of dietetic spring balance.



Children use up so much energy in their daily physical activities.

To date, a total of 271 children have been observed. Out of this total, 42 were observed during the report period CY 1985. Of this number, 22 were males and 20 were females. Activities performed by the children during school days included classroom and sports activities. Activities at home included playing, watching t.v. and studying. To complete the total target, 40 more subjects need to be observed.

Environmental Health, Safety and Rehabilitation

● *A CONTROLLED STUDY ON THE PULMONARY EFFECTS OF DUST IN A COPRA MILL*

Benito R. Reverente, Jr., M.D., POIMA

The study aims to determine whether chronic exposure to copra dust predispose to the development of respiratory diseases.

Two groups of workers representing those exposed and unexposed to copra dust were studied. Results showed that prevalence of some respiratory symptoms and conditions were more frequently observed in the exposed group, while wheezing, dyspnea and all types of asthma were more common in the control group. However, none of these trends were statistically significant. Copra dust exposure and cigarette smoking did not significantly affect spirometric values obtained.

It may be concluded that chronic exposure to copra dust did not seem to increase the risk of acquiring pulmonary symptoms and diseases. However, detrimental pulmonary effects from copra exposure may have been possible since exposure hazard may have been low and the exposure-disease relationship may have been weak.

● *ASSESSMENT OF THE WORK ENVIRONMENT AND HEALTH OF WORKERS IN THE PLASTIC MANUFACTURING INDUSTRY*

Quintin L. Kintanar, M.D., Ph. D.,
et. al., NIST

The study aims at assessing the work environment and health of workers in the plastic manufacturing industry and to provide scientific data which will serve as basis for formulating policies, regulations and recommendations for the improvement of work environment.

A total of 312 letter surveys were sent to firms using vinyl chloride monomer (VCM), polyvinyl chloride (PVC), styrene or polystyrene, polyethylene (PE) and acrylonitrile. Selected were 22 companies which were subjected to inspection of physical facilities and working conditions.

Medical records were reviewed. Measurement of work environment in these plants showed presence of VCM, styrene, PE and acrylonitrile but within permissible levels. Physical, laboratory and radiological examination among selected employees from both exposed and unexposed group were performed but have not shown significant findings so far.

A retrospective study of angiosarcoma which is reportedly linked to exposure to VCM and other monomers was conducted.



Chronic exposure to copra dust may predispose one to respiratory diseases.

● *ASSESSMENT OF ADEQUACY OF PROTECTION OF PESTICIDE HANDLERS*

Nelia P. Cortes-Maramba, M.D.
UP Pharmacology

The study aims to ensure the health of farmers and workers highly exposed to pesticides through an in-depth study of proper protective clothing and equipment adaptable to local setting, optimum working conditions and health monitoring.

The first phase of the study dealt with occupational health and safety and environmental hygiene surveillance among 145 workers in seven formulating plants. Physical examination showed cardiovascular dysfunction as the main abnormality observed. Laboratory examination showed increase in abnormal low erythrocyte cholinesterase values attributed to lack of compliance to safety measures such as use of personal

protective equipment, engineering controls and rotation of workers in high risk areas. Hematologic studies showed that the most common abnormality is eosinophilia caused by exposure to toxic chemicals, malnutrition and poor medical management.

Various recommendations were made to further improve existing conditions in the different pesticide plants.

The second phase of the study dealt with occupational exposure of 100 farmers to pesticides in five barrios. Hematologic and biological parameters were all within normal limits except for eosinophils. No statistically significant difference in the red blood cell (RBC) cholinesterase during the first and second visits was noted.

It was recommended that an occupational health programme be undertaken in collaboration with the Ministry of Health, the Ministry of Agriculture and the Ministry of Labor and Employment.



Farmers and workers in factories are most prone to pesticide exposure.



PHARMACEUTICAL R & D

● PHARMACOLOGICAL AND TOXICOLOGICAL STUDIES IN ANIMALS OF PHILIPPINE MEDICINAL PLANTS

Horacio R. Estrada, M.D.
UP Pharmacology

The project aims to undertake pharmacologic and toxicologic studies on listed priority plants and other plants of medicinal value.

Following establishment of lethal dose (LD_{50}) of the four priority plants namely: *lagundi*, *tsaang gubat*, *yerba buena* and *sambong*, bioassay procedures (ED_{50}) have been developed for *lagundi* and *tsaang gubat*. Screening for LD_{50} batches of *sambong* and *lagundi* raw materials was also done.

Results of bioassay of 41 fractions of *lagundi* as bronchodilator showed 14 fractions positive for relaxation.

MOH personnel were trained on pharmacological and toxicological studies of medicinal plants.

● BIOASSAY OF INDIGENOUS PLANT PRODUCTS USED IN TRADITIONAL FOLK MEDICINE IN THE PHILIPPINES

Romeo F. Quijano, M.D.
UP Pharmacology

The project aims to set up a bioassay laboratory for medicinal plant products and to develop bioassay procedures for determining pharmacologic potentials of plant products.

Bioassay procedure for antitussive effect of *lagundi* is being developed using a locally designed and constructed cough chamber. Satisfactory induction of coughs in guinea pigs isolated in cough chamber using citric acid has been observed.

Tsaang gubat and mangosteen bioassay using charcoal tracing method initially show anti-diarrheal activities.

Results of tests for analgesic effect of *yerba buena* raw materials and fractions generally indicate that *yerba buena* exhibits analgesic effect.



The versatile *lagundi* — commonly used in traditional folk medicine.

● CLINICAL SCREENING OF INDIGENOUS PLANTS USED IN TRADITIONAL FOLK MEDICINE IN THE PHILIPPINES

Nelia P. Cortes-Maramba, M.D.
UP Pharmacology

The study aims to verify in selected patients the folkloric claim regarding the efficacy of indigenous plant products used in traditional folk medicine.

Phase III Open clinical trial on *lagundi* tablet is being undertaken and preliminary data indicate relief of cough within two to four days of treatment. *Lagundi* syrup is also being compared with Bromhexine for efficacy and palatability. The taste was generally acceptable to patient-volunteers.

Niyog-niyogan nuts were tested as anthelmintic in Phase II – Comparative study (vs. Piperazine citrate). Of those given *niyog-niyogan*, 21 (55.3%) reported expulsion of ascaris while among those given Piperazine citrate, 20 (51.3%) reported passage of ascaris.

Phase II Open clinical trials for *tsaang gubat* (anti-colic) and *akapulko* lotion (anti-fungal) were started.

The project conducted 32 workshop-seminars and had given assistance to RITM projects and interested physicians regarding clinical trials of medicinal plants.

● DOSAGE FORMULATIONS FROM PHILIPPINE MEDICINAL PLANTS

*N*atividad F. de Castro, Ph.D.
UP Pharmacy

The study aims to formulate and manufacture pharmaceutically elegant, safe, stable and effective dosage forms from medicinal plant materials; utilize indigenous pharmaceutical excipients or additives in formulation; set specifications for raw materials, processes and finished products.

Formulation trials were done in the following plants: *Lagundi* pediatric syrup, *sambong* suspension, *yerba buena* pediatric

syrup, *niyog-niyogan* chewable tablet, *niyog niyogan* suspension, *akapulko* lotion, *buhok ng mais* syrup and *luya* tincture.

Tests for stability in years (at room temperature) were undertaken for *lagundi*; *sambong* tablet; *sambong* suspension; *yerba buena*; *tsaang gubat*; and *niyog-niyogan* tablet.



Tablets of priority medicinal plants undergo tests for stability.

Lagundi, *sambong*, *yerba buena* and *tsaang gubat* tablets were relisted with the Bureau of Food and Drugs (BFAD). Data have also been collected to establish the standard specifications for the four priority plants.

Twelve MOH pharmacists were trained on dosage formulations and pilot production of medicinal plants. The project members also participated in exhibits, lectures, seminar-workshops and a TV presentation.

● PHYTOCHEMISTRY OF VITEX NEGUNDO L. (LAGUNDI); ISOLATION OF PHARMACOLOGICALLY ACTIVE PRINCIPLES

Fabian M. Dayrit, Ph.D., PIPAC
Ateneo University

The project aims to isolate and purify the various chemical components of *lagundi*; identify the pharmacologically active consti-



The medicinal plant *sambong* is an effective diuretic.

tients; develop simple and reliable methods of chemical determination and quantification of the active constituents; and develop the most effective and simple method of extracting the active principles.


Procedure for fractionation and purification of extracts were developed to enable fractionation into distinct groupings; and to produce larger quantity of fractions.

Based on bioassay analysis of fractions, the tentative hypothesis that can be drawn is that there may be three types of active constituents; in *lagundi*.

Analysis of water decoction extracts revealed that water does not extract significant amounts of the nonpolar compound.

Metal contents of 1985 batches of *lagundi* materials were analyzed. Spectral data has been collected for preliminary characterization of active fractions.

● STUDIES ON THE NON-VOLATILE CONSTITUENTS OF YERBA BUENA

 Magdalena C. Cantoria, Ph.D.
UP Pharmacy

The project aims to isolate, characterize and identify the non-volatile constituents of *yerba buena* with analgesic and antipyretic activity and to develop an efficient method for determining the amount of constituents present in finished dosage forms.

Extraction of the raw material is done by percolation and by continuous extraction using chloroform and ethanol solvents. Fractions were separated using immiscible solvents and by column chromatography.

The total chloroformic extract of *yerba buena* leaves was found by pharmacologic studies to have analgesic activity.

The best developing solvent for TLC (thin layer chromatography) on silica gel for ethanolic extract was determined.

Metal analyses of powdered plant materials, decoction of fresh and dried leaves showed presence of metals in concentrations which are within safety and tolerable limits.

● MUTAGENICITY AND ANTIMUTAGENICITY POTENTIAL OF DRUG PREPARATIONS FROM PHILIPPINE MEDICINAL PLANTS PRODUCED BY THE NSTA PILOT PLANT

Clara Y. Lim Sylianco, Ph.D.
UP Chemistry

The project aims to study the mutagenicity and clastogenicity potential of drug preparations; the anti-mutagenic potential against mutacarcinogens of non-mutagenic preparations; and the reduction of mutagenicity potential of mutagenic preparations.

Findings revealed that *lagundi*, *tsaang gubat*, *yerba buena* and *sambong* tablets produced at the NSTA pilot plant do not possess DNA damaging capacity and are not mutagenic before and after metabolic activation. These tablets also have anti-mutagenic properties by reducing the formation of micronucleated polychromatic erythrocytes induced by mutacarcinogens.

Experiments on 50.0%, 70.0% and 100.0% decoction of fresh leaves of *akapulco* showed that these preparations are non-mutagenic. Cassava starch, used as excipient, was also found to be non-mutagenic.



Experiments with decoction of fresh leaves of *akapulco* showed the preparations to be non-mutagenic.



UPLB takes the lead in the establishment and maintenance of an herbal garden and production farm.

● ESTABLISHMENT OF A MEDICINAL PLANTS GARDEN AND PRODUCTION FARM AT UPLB

Rodel G. Maghirang
UP Los Baños

The project aims to establish and maintain a garden and production farm of medicinal plants.

Plant materials were propagated, collected, harvested, and delivered to the research projects under the NSTA/PCHRD Herbal Program.

Studies on selection, propagation, cultural management practices and pest control showed the following findings:

- Two accessions of *niyog-niyogan* were prolific and resistant to insect pests.
- *Yerba buena* rooted well in 1:1 rice hull compost beds.
- *Yerba buena* had higher yield with zero weeding than zero weed treatment but resulted in higher pest damage.
- Lannate proved to be effective in reducing pest damage. A preliminary study indicated *Melia* sp. and *makabuhay* extract sprays to be very promising for insect pest control. *Ipil-ipil* fertilization also helped minimize insect pest damage.
- Fertilization tended to increase height and decrease branch number.
- Nitrogen fertilization in *niyog-niyogan* was non-productive and not favorable for fruit production.

● ESTABLISHMENT AND MAINTENANCE OF GENE BANK FOR POTENTIAL MEDICINAL PLANTS

Rene Rafael C. Espino, Ph.D.
UP Los Baños

The project aims to establish, collect and maintain systematic planting of various species/varieties of medicinal crops and evaluate its initial productive potential.

A total of 486 accessions of medicinal plants were planted at the gene bank.



Seed germination in gene bank – promoting better propagation of medicinal plants.

Seed storage experiments to determine the best condition for maintaining viability was done on seven species of plants. Findings showed that *burbutak*, *solasi* and *estrella* seeds stored in glassine envelopes or in glass bottles had higher percentage of germination compared to seeds stored in the refrigerator and at room temperature. In contrast, *amarillo* and *roselle* seeds stored in the refrigerator have higher percent germination rate than those stored at room temperature and in envelopes. For seeds of *kamantigue*, a high germination percentage was observed in those stored at room temperature.

A study on the effect of packing materials on the survival of *lagundi* cutting revealed a high percentage of survival in those packed in sphagnum moss.

● ESTABLISHMENT OF MEDICINAL PLANTS GARDEN AND PRODUCTION FARM

Filomena F. Campos, Ph.D.
CLSU

The project aims to set up a pilot farm for the production of selected Philippine medicinal plants.

A four-hectare production area planted with *lagundi*, *tsaang gubat*, *yerba buena*, *sambong*, and *niyog-niyogan* is being maintained.

Intercropping of leguminous crops (soybean, cowpea) to *lagundi*, *sambong* and *tsaang gubat* showed that *sambong* performed significantly when intercropped with cowpea; the highest yield was obtained from *lagundi* without intercrop; and *tsaang gubat* performed better with soybean as intercrop.

Mulching using rice straw prolonged the life span of *yerba buena*.

Major insect pests found to infest *lagundi*, *sambong*, *tsaang gubat*, *yerba buena* and *niyog-niyogan* were identified.

Preliminary findings revealed that the average cost of producing a kilogram of semi-processed (dry) raw materials for *lagundi* and *tsaang gubat* were ₱60 and ₱50 respectively.

● SELECTIVE HARVESTING AND STORAGE OF MEDICINAL PLANTS PARTS

Ernesta G. Quintana,
UP Los Baños

The study aims to determine the effects of age of tissue, source, time of harvest, drying methods, and storage treatment on the quantity of active constituents of priority medicinal plants.

Studies revealed the following:

- Twelve-months storage did not change the amount of volatile oil content of *lagundi* leaves. Leaves from flowering plants gave more volatile oil than non-flowering plants. Total alkaloid content was highest when air dried followed by oven drying then sun drying.
- The first six pairs of *yerba buena* leaves yielded more volatile oil than mature leaves. Plants grown during the dry season yielded the highest volatile oil.
- Leaves of three-month old plants yielded more volatile oil content than six-month old plants.
- Refractive index, specific gravity, taste, odor, moisture content and fixed oil content of *niyog-niyogan* were not significantly affected by a year of storage.



Leaves of medicinal plants are packed and labelled prior to storage treatment.

HEALTH SERVICES R & D

Infectious Diseases

● *MASS TREATMENT AGAINST SCHISTOSOMIASIS IN LEYTE*

Juanito C. de la Cruz, M.D.

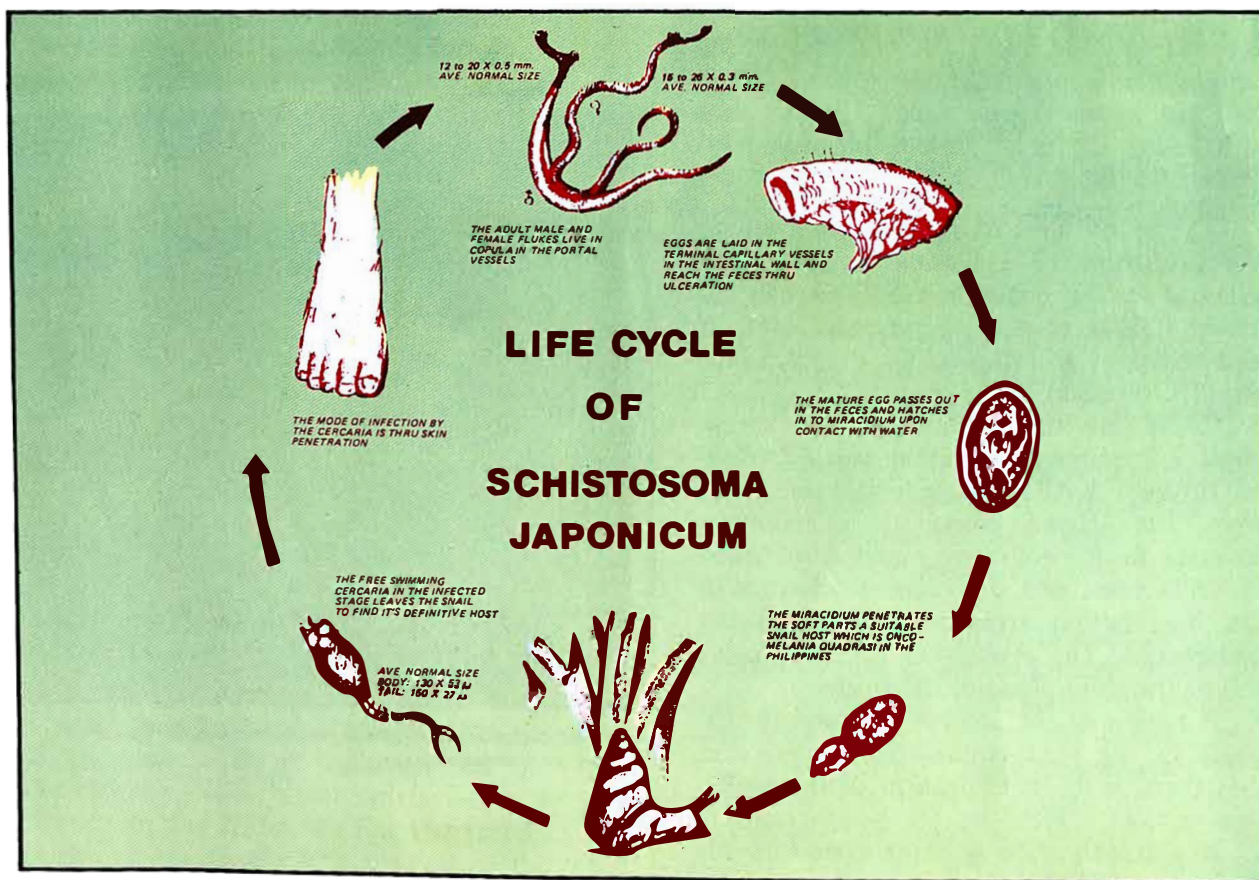
MOH, Palo, Leyte

This project determined the effect of praziquantel on the prevalence, incidence and intensity of infection of schistosomiasis japonica in the province of Leyte using a mass treatment program. After three years of implementation, findings of this project showed an estimated prevalence rate of 9.2% from the 10.6% prevalence rate in 1984 or a reduction of 13.3%.

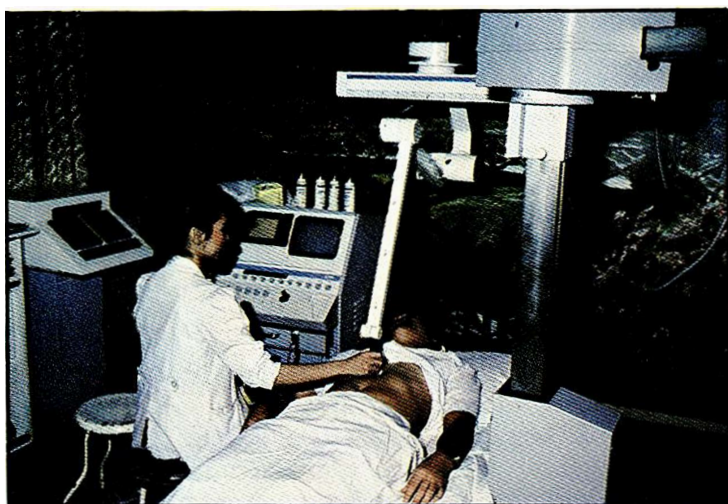
Analysis of existing data to determine age specific and sex specific prevalence rates

and incidence rates were undertaken. Likewise, the effect of the drug on the intensity of infection in index barangays was determined.

Meantime, delivery system and follow-up examinations were intensified. Training programs on collection of specimens, microscopy and treatment procedures were conducted on various levels of the hospital staff and personnel of the Schistosomiasis Control and Research Project (SCRCP) of the Ministry of Health. Likewise, existing units and teams in the SCRCP were strengthened and reorganized to support this project. Microscopists and support staff were fielded in various strategic hospitals or rural health units (RHU) throughout the province. Existing barangay organizations and community health centers were utilized for specimen collection and follow-up examinations.



Degenerative, Metabolic and Mental Disorders



Heart patient is checked for CVD.

● COMPREHENSIVE CARDIOVASCULAR COMMUNITY CONTROL PROGRAM (CCCP)

Jose V. Yason, Jr., M.D.
Philippine Heart Center for Asia

The study aims to develop and evaluate the prototype of a feasible control programme for the common cardiovascular diseases (CVD) at the community level. It also envisions to integrate the program into the PHC program of the country.

There are three phases to the study. Phase I, baseline information, was established through KAP and epidemiological surveys. The second phase—the intervention covering health education, active treatment of CVD cases and surveillance activities in the intervention areas are presently being undertaken. The evaluation of the project will be the third phase of the study.

A review of the records of Rural Health Units in the study municipalities revealed that there is under-utilization of the health care services offered by the health centers.

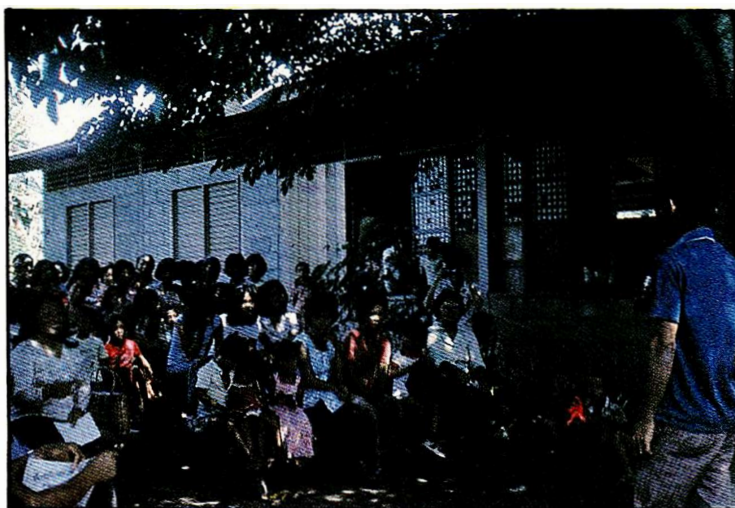
Health education is being done through the Primary Health Care structure, thus the

project helped in organizing the communities into puroks. In preparation for purok teaching, the Household Teaching Manual for *Purok* teaching of BHWs were prepared in Tagalog while hand-outs were made in Ilocano. *Purok* teaching was already done in 15.0% of the *puroks*. Skills training for *purok* teaching of 60.0% of 863 BHWs was undertaken.

The project is working on the inclusion of CVD preventive measures and some aspects of the physiology and anatomy of the circulatory system in the school curriculum of both elementary and high school students. A workshop-seminar participated by MECS and MOH officials in the district level had been undertaken to plan out this scheme.

The CVD clinics in the two intervention municipalities had so far accommodated consultations of 479 patients, 297 (62.0 %) of whom are confirmed CVD cases. RHU physicians underwent continuous education and training on CVD diagnosis and management.

Mortality validation study aimed at validating the accuracy of reporting of causes of morbidity and mortality was started.



Health education is conducted in puroks through the Primary Health Care structure.

Primary Health Care Financing Project

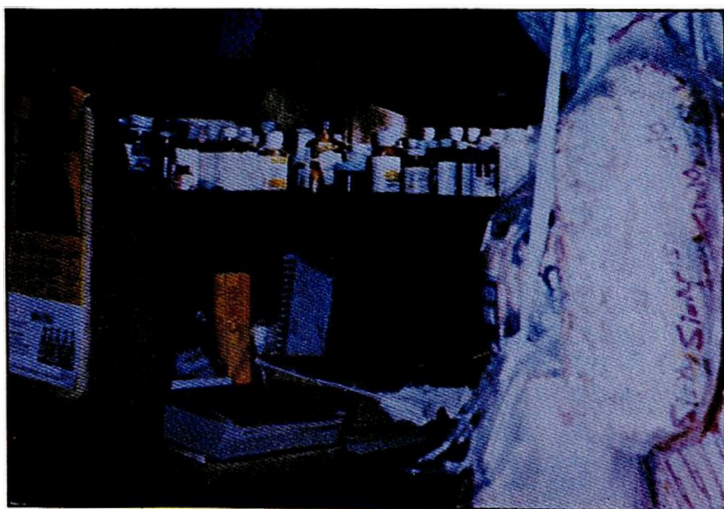
*** Special Studies**

▲ STUDY ON BOTIKA SA BARANGAY (BSB) OPERATIONS

Emmanuel S. Sison
Advertising Research
Communications Associates

The study aims to determine the strategies that will make the *Botika sa Barangay* (BSB) more viable and effective in the provision of needed drugs in the community.

The project, completed in July 1985 revealed that majority (67.0%) of the 561 barangays had BSBs; 64.0% of these BSBs were still functional or operational at the time of the survey. Sales and operating expenses were found to have a direct influence on the BSB's viability. Sales in turn is influenced by accessibility of the BSB to its target consumers, client satisfaction (adequacy of service), sufficiency of BSBA's knowledge on medicines, conduct of sales (whether or not the BSB is part of a variety



The Botika sa Barangay may be part of a variety store in rural communities.

store) and management policies (on credit and mark-up). Initial capital given to the BSB also has a direct influence on the BSB's viability. Sales, client satisfaction and efficiency of the BSBA are likewise factors that contribute to the effectiveness of the BSB.

A significant conclusion drawn from the study is that the BSB should be treated as business enterprise to ensure its community operations. The service and business orientation of the BSB can be reconciled by limiting the mark-up on cost of medicines to 25.0%.

● ASSESSMENT OF DISTRICT HOSPITALS REFERRAL FACILITIES

Cecilia A. Sanchez
Leverage International
(Consultants), Inc.

The project aims to assess the capability of district hospitals to provide support functions to primary health care in terms of their medical services and provision of referral linkages with Rural Health Units and provincial hospitals.

Based on the results of the survey conducted in five district hospitals (3 standard and 2 substandard) from each of the 12 regions, conclusion and recommendations were drawn. These were focused on the capabilities of district hospitals to handle referrals and provide technical assistance versus set standards; technical and administrative problems; and costs of operating a district hospital.

● A STUDY OF HEALTH MANPOWER DEVELOPMENT PHASE I – THE STUDY OF THE MEDICAL COLLEGES

Commission on Medical Education
Foundation for the Advancement of
Orthopedics and Other
Sciences, Inc.

The project is an in-depth study of the 27 medical schools in the Philippines. It aims to study the quality and status of medical education in the light of the current performance/quality of medical graduates produced by the present system of medical education. The study would cover various aspects such as governance of medical schools, responsiveness to actual health

needs and problems in the country, manpower and financial resources, facilities, studentry, curricula.

Survey in 23 medical schools was completed. Secondary data gathering from the Ministry of Education, Culture and Sports, Ministry of Health, Professional Regulations Commission, Association of Philippine Medical Colleges, Securities and Exchange Commission, and Specialty Boards were undertaken. Analysis of data gathered had been started.

● *ANALYSIS OF THE PERFORMANCE
OF MIDWIVES AND BARANGAY
HEALTH WORKERS IN PRIMARY
HEALTH CARE*

Amaryllis T. Torres, Ph.D.
Population Center Foundation

The study aims to determine the effectiveness of midwives and barangay health workers (BHW) in the performance of their functions as an integral component in the implementing structure of primary health care.

Based on a literature review, a reconceptualization of the project's framework was effected, wherein the set of variables for study and their indicators were revised. Interview schedules for the Barangay Health Station Midwife (BHSM), BHWs, community residents, and program implementors were designed and subsequently pretested in selected model barangays in Bulacan and Nueva Ecija. Sampling of regions, provinces, and districts for the field survey was likewise undertaken. Field survey will commence in 1986.

● *FORMULATING A COMPREHENSIVE
AND SUBSTANTIAL DEVELOPMENT
CONCEPT FOR THE ALABANG
COMPLEX*

Andres A. Angara, M.D.
Integrated Health Care
Services, Inc. (INTERCARE)

The project aims to study the development of the Alabang Complex for the provision of adequate supply of vaccines and other biologicals, reagents and diagnostic materials. Likewise, the project will render support to the clinical diagnostic research and training activities of the MOH and other institutions involved in the development and preparation of vaccine and other biological products.

Primary and secondary data gathering and analysis are still being undertaken. To date, INTERCARE has developed a list of vaccine/biologicals that can be considered for manufacture in the Philippines. The study is expected to be completed by April 1986.

*¹ **Health Care Financing Schemes**

● *HEALTH CARE FINANCING SCHEMES
PROJECT*

Antonio P. Perlas, M.D.
UP Manila

The project aims to generate information relevant for the development of approaches to the provision of health care services and to develop prototype health financing schemes.

To carry out this objective, a Management and Evaluation Committee was created

to review and evaluate proposals on Health Care Financing Schemes and to develop a framework for the evaluation of on-going health care financing systems. Technical assistance to individuals or groups interested in initiating or expanding a health financing scheme is extended by the project.

● *ESTABLISHING A MINIMART TO AUGMENT THE INCOME OF THE MEDICARE COMMUNITY HOSPITAL*

Enrico R. Dasal, M.D.
Dumarao Medicare Community Hospital

The project aims to improve and expand the scope of health services being delivered by the hospital to the community and to generate more funds to support hospital operation.

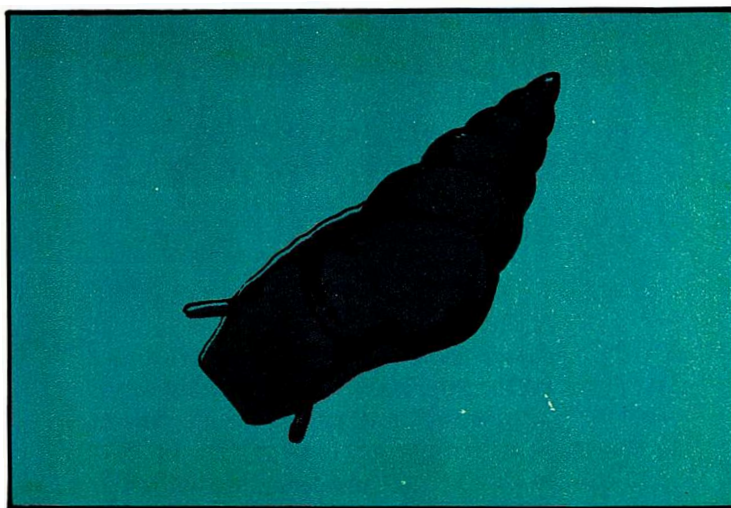
The members of the Medicare Phase II program formed a cooperative for the purpose of putting up a minimart to service the members as well as other town residents at discounted purchases. The actual Minimart operations was initiated on 10 October 1985.

Part of the minimart's earning will be channeled to the Community Health Fund which will cover laboratory expenses, the increase in medicine allowance, professional fees and the hospital expenses of confined members. A portion of the fund will be utilized to cover additional cost for the repair of the instruments used in the delivery of the health care services to the cooperative members.

NSTA-UP INTEGRATED RESEARCH (PROGRAM C)

BIOTECHNICAL R & D

Communicable Diseases



The oncomelania quadrasi snail.

● *ISOLATION OF BACTERIAL MOLLUSCIDES FOR THE BIOLOGICAL CONTROL OF ONCOMELANIA HUPENSIS QUADRASI SNAIL HOST OF SCHISTOSOMA JAPONICUM*

Antonio V. Jacalne, Ph.D.
UP-IPH

The project seeks to isolate and identify bacterial pathogens from other gastropod snails which have the capacity to infect *Oncomelania hupensis quadrasi*, the snail host of *S. japonicum*. Initial

activities included collection of fresh-water snails which serve as possible sources of bacterial pathogens and isolation and identification of bacteria obtained from the snails. To date, bacteria belonging to the following genera were isolated: *Bacillus*, *Clostridia*, coliforms (*Escherichia*, *Aerobacter*, *Serratia*, *Alcaligenes*). *Micrococcus*, *Pseudomonas*, *Vibrio* and Chromogenic *Myxobacteria*.

● *ISOLATION AND IN-VIVO
ENTEROTOXICITY TESTING OF
CAMPYLOBACTER*

Nidia M. Manuson
UP-IPH

The project seeks to isolate campylobacter from gastroenteritis cases, determine sensitivity pattern to the most commonly used antibiotics, determine entero-toxicity of the isolates by *in-vivo* method using ligated loop techniques, determine the best medium and conditions necessary for optimum toxin production and correlate enterotoxicity with antibiotic resistance of campylobacter.

Out of 58 stool specimens collected from children admitted with diarrhea, five were positive for *campylobacter jejuni* based on the morphological, cultural and biochemical characteristics of the isolates. The stools were characterized as yellowish, mucoid, watery or soft. Some were foul smelling.

Degenerative Diseases

● *PRELIMINARY STUDIES ON THE
FETAL CORD BLOOD (FCB) AS A
MEANS FOR EARLY DETECTION
OF METABOLIC DEFECTS*

Marita T. Reyes, M.D.
UP College of Medicine

The project is designed to establish baseline serum electrophoretic patterns, enzyme

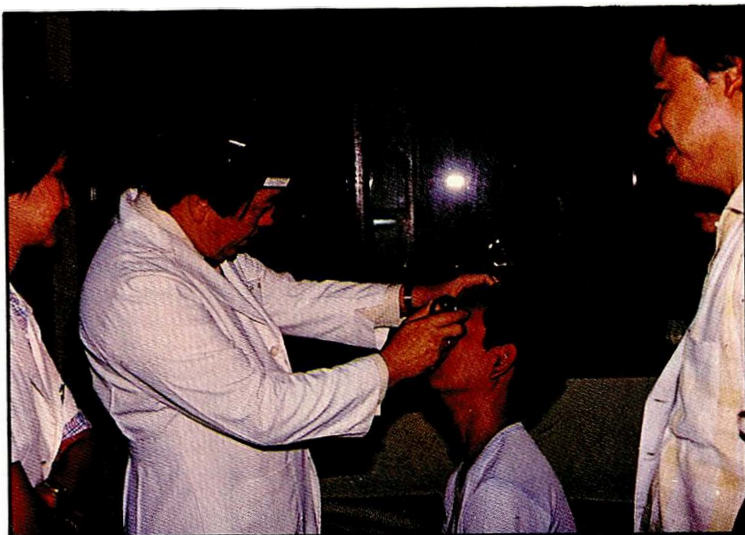
levels and isozyme patterns in fetal cord blood, identify unusual patterns and correlate these unusual patterns with the clinical picture of both the mother and the child in order to establish guidelines for the use of fetal cord blood assay as a means of early detection of metabolic defects. The first six months activities of the project concentrated on the development of maternal information sheet and standardization of assay procedures. Collection of samples started in November 1985.

● *A STUDY OF THE EVOLUTION OF
OPTIC NEURITIS CAUSED BY
ETHAMBUTOL IN RABBITS*

Rosie Reyes Noche, M.D.
Institute of Ophthalmology

The project demonstrates histologically the sequence of events that lead to optic neuritis due to prolonged intake of ethambutol. It also hopes to characterize biochemically the substance(s) that could be involved directly or indirectly in inducing optic nerve injury.

Optic neuritis was induced in adult albino rabbits by oral administration of different concentration of ethambutol. Neuritis developed increasing in severity with time and as the concentration of ethambutol was increased. This was shown by haziness and blurring of the optic disc on retinoscopy and fundus photographs of the eyeballs two weeks after the start of administration of ethambutol. Histopathological and ultrastructure studies likewise showed changes in optic nerve structures compared to controls. Zinc and copper serum levels decreased from a baseline level of 1.0 Mg/ml and 2.0 Mg/ml, respectively to 0.5 Mg/ml. Determination of Vitamin A level is still on-going. Initial electrophoretic pattern showed changes in some protein structure of the optic nerve as neuritis progresses.



Doctor conducts eye examination of patient for potential cornea opacification.

● *INHIBITION STUDIES ON ENZYMES
ASSOCIATED WITH CORNEA
DAMAGING ACTIVITIES OF
PSEUDOMONAS AERUGINOSA*

Salvador R. Salceda, M.D.
Institute of Ophthalmology

Previous studies showed that a hyaluronidase-like enzyme and a protease are the enzymes most probably associated with the opacification factors from *Pseudomonas aeruginosa*. While the organism invades the corneal tissue, the enzymes destroy the corneal structure by degrading the proteoglycan ground substance.

The present study is undertaken so that if enzyme inhibitors can be found, these inhibitors will be used with antibiotics against the microorganism.

A strain of *P. aeruginosa* isolated from patients of the Institute of Ophthalmology showing the highest cornea opacification activity is being used in inhibition studies against hyaluronidase, elastase and protease.

▲ *A COMPREHENSIVE STUDY OF
PRIMARY CARCINOMA OF THE
LIVER IN THE PHILIPPINES AND
OTHER RELATED LIVER
DISEASES*

Ernesto O. Domingo, M.D.
UP-PGH

Hepatocellular Carcinoma (HCC)

The clinical profile of HCC, the significance of common laboratory tests, the role of invasive and non-invasive procedures and pathologic features were established.

The roles of hepatitis B virus infection and aflatoxin intake in the pathogenesis of HCC were established.

The role of HLA genetic determinants and hormone levels in the blood and tissue hormone receptors in the etiopathogenesis of HCC still needs further studies together with the depressed immune state in HCC. A possible mechanism of HBV induction of HCC was elaborated.

Studies on different modalities of treatment showed that resection is the best although applicable only in 0.6% of cases.

Chemotherapy produced only 20-30% partial response by whatever route of administration.

Cancer registry and surveillance for HCC was established in Capiz and Cebu. From these locations, an incidence of 40 cases per 100,000 per year was established.



A patient is finger-pricked to secure blood to test for presence of viral hepatitis.

Viral Hepatitis

Seroepidemiologic studies revealed that HBV is highly endemic in the country particularly in rural areas. Factors contributing to high prevalence were established. Modes of transmission via vertical from mother to child, lateral within the family and transfusion of blood unscreened for HBV were established.

The extent of asymptomatic HBV infection in a rural community has been determined. The relative distribution of HAV, HBV and HANB in acute icteric hepatitis

was studied in 191 cases. The natural history of acute hepatitis with particular attention to those progressing to chronic hepatitis was studied together with the role of treatment using cyanidol. The HBV profile of cirrhosis and chronic active hepatitis was also investigated.

A simple technic using finger prick blood and HBsAg determined by reverse passive hemagglutination as surrogate marker for HBsAg in pregnant women was developed.

▲ *A COMPREHENSIVE STUDY OF GLOMERULONEPHRITIS IN THE PHILIPPINES USING A MULTIDISCIPLINARY TEAM APPROACH*

Marietta B. de Luna, M.D.
UP-PGH

The clinical and pathologic features of glomerulonephritis were studied. Evaluation of therapeutic modalities was undertaken using steroids only or in combination with immunosuppressive drugs. Dietary management through reduction of protein and phosphorous intake is under evaluation.

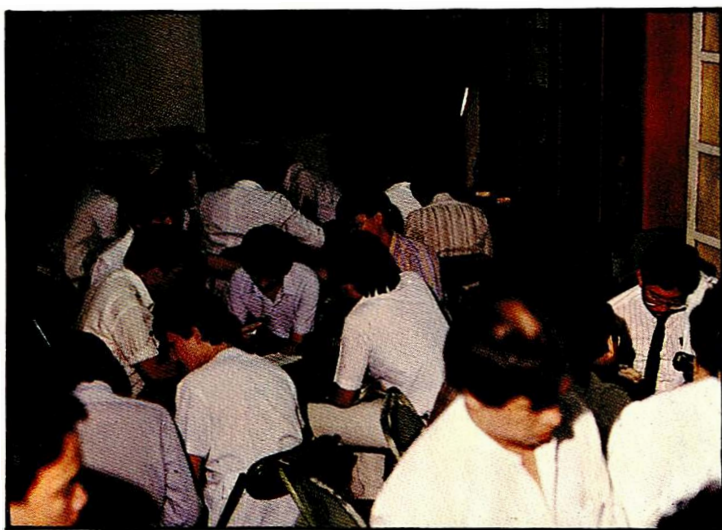
▲ *THE PREVENTION AND CONTROL OF RHEUMATIC FEVER RHEUMATIC HEART DISEASE IN METRO MANILA*

Andres L. Reyes, M.D.
UP College of Medicine

A registry of rheumatic heart disease was established composed of 1,013 patients from 1980 to 1985. Two hundred seventy-six were registered as rheumatic fever while 737 as rheumatic heart disease. Seven hundred thirty-six patients are on subsidized chemoprophylaxis; 968 received long acting benzathine penicillin injection while the rest are on oral erythromycin. Those given oral

erythromycin developed sensitivity reaction to the regular penicillin injection. For this reason, skin sensitivity testing is required every three months for all patients receiving benzathine penicillin.

In an effort to decentralize the registry, in-service training involving 58 physicians and 35 nurses from 50 health centers in Metro Manila were conducted on the proper administration of secondary prophylaxis. Nineteen health centers participated in the decentralization program.



Physicians huddle together in serious workshop discussion.

Immunology

▲ *STUDY OF DIAGNOSIS AND TREATMENT OF ALLERGIC DISEASES*

Benigno F. Agbayani, M.D.
UP-PGH Medical Center

The epidemiology of allergic diseases in an urban and a rural setting was completed. The clinical features of bronchial asthma, allergic rhinitis and atopic dermatitis were studied. The causes of fatalities of status asthmaticus were established and recommendations were

made re-management of status asthmaticus particularly in older age groups. Several modalities of treatment using different drugs were evaluated. Clinical evaluation of immunotherapy in asthmatics is still on-going.

Rehabilitation

● *STUDY DESIGN FOR FACIAL REANIMATION: SURAL NERVE GRAFT VS. HYPOGLASSAL CROSSOVER – A COMPARATIVE STUDY*

Zenaida G. Bagabaldo, M.D.
Dept. of Physiology
UP College of Medicine

The project compares the reanimation capability of sural nerve grafting and hypoglossal-facial nerve crossover in the management of facial nerve injuries using both clinical and electrophysiologic parameters. The electrophysiologic reanimation patterns after microsurgical repair of the nerve is hoped to be established. Initial activities are devoted to the establishment of normal evoked muscle action potentials and motor unit potentials in rabbits prior to the actual reanimation studies.

PHARMACEUTICAL R & D

● *ANTIBACTERIAL EFFECT OF BAYABAS' AND GINGER AGAINST DENTAL PATHOGENS – IN VITRO AND IN VIVO*

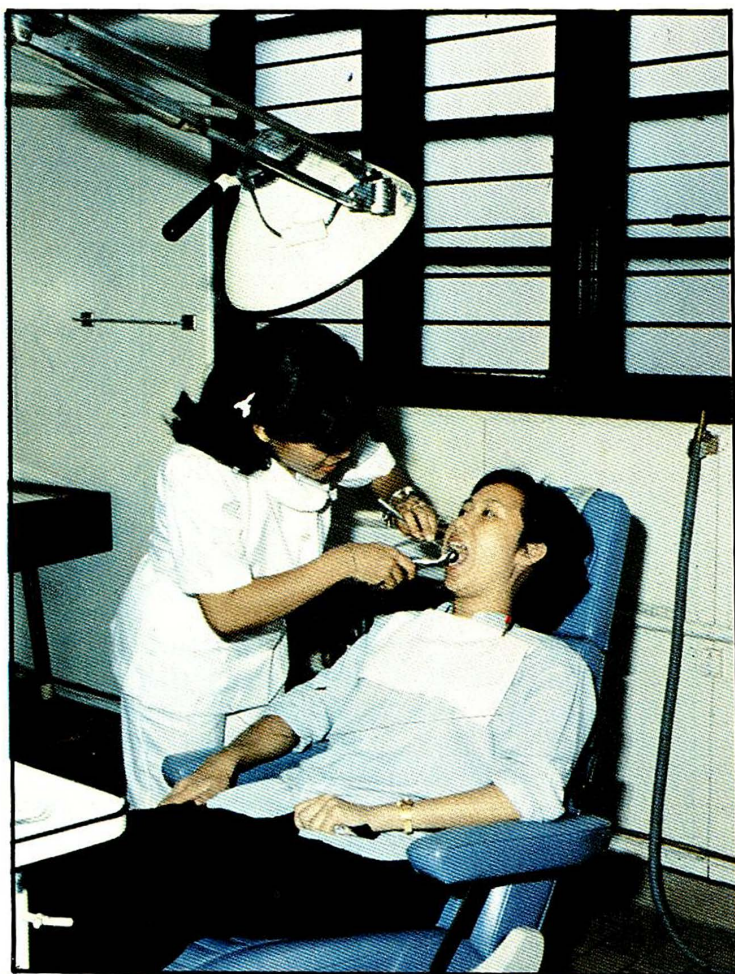
NE

Cristina Olivares-Javier, D.D.M.
UP College of Dentistry

The project elucidates the anti-microbial activity of guava and ginger extracts against common dental pathogens *in vitro* and *in vivo*, determine the effective concentration of plant extracts against dental

pathogens and investigate the antibacterial activity of the plants in clinical cases of dento-alveolar abscess in root canal therapy.

Initial activities undertook the isolation of dental pathogens from cavities of patients of the College of Dentistry clinic: *Staphylococcus pyogenes*, *Lactobacilli*, *Streptococcus mutans*, *Streptococcus salivarius* and *Clostridium perfringens*. Sensitivity tests of the extracts of bayabas and ginger using the isolated pathogens have been initiated.



Common dental pathogens from cavities of patients may be treated with guava and ginger extracts.

● **NOMENCLATURE OF AND COLORING PRINCIPLE FROM A SPECIES OF ZINGIBER RELATED TO Z. ZERUMBIT (L.) SM. (FAN. ZINGIBURACEAE)**

Magdalena C. Cantoria, Ph.D.
UP College of Pharmacy

The project deals with the identification and nomenclature of the species of Zingiber under investigation, isolate and identify the coloring principle of the rhizome and determine the utilization of the coloring matter in pharmaceuticals. Oil extracts from the powdered rhizomes were prepared. Isolation of the coloring matter will be done by thin layer and column chromatography.

HEALTH SERVICES R & D

▲ **PREVENTION AND CONTROL OF SELECTED COSTLY DISEASES: SOCIAL SCIENCE ASPECTS**

Dolores M. Recio, Ph.D.
UP College of Nursing

A training manual for use in training barangay health workers was developed and printed. Modules and IEC materials on common childhood ailments such as allergy, asthma, rheumatic fever/rheumatic heart disease for children to be incorporated in social studies syllabi, and in primary health care activities of the barangay health workers were prepared and pre-tested in 6 schools in Metro Manila. Comic type booklets were also prepared to further enhance the learning process. In addition, modules for common colds, fever, tooth decay, parasitism, diarrhea, measles, malnutrition, malaria and tuberculosis were prepared for children aged 8-11 years old.

C. R & D Special Studies

The Governing Council approved the National Guidelines for Biomedical Research Involving Human Subjects formulated by the National Ethics Committee.

Upon request from the Ministry of Labor and Employment, the PCHRD developed the R & D program for Occupational Health and Safety (OHS) which will serve as basis in operating the OHS Center, to be established jointly by MOLE and the Japan International Cooperation Agency (JICA).

A concept paper on Biotechnological R & D for Primary Health Care was developed responding to the problems of acute respiratory infection (ARI), diarrhea, tuberculosis, schistosomiasis, and malaria. The paper was submitted to USAID for consideration.

Preliminary analyses were done for the preparation of the State-of-the Art of selected subject matters on the three problem areas: Nutrition, Medicinal Plants and Communicable Diseases.

D. Health Researches from the Regions

▲ LABORATORY SCREENING OF POISONOUS PLANTS FOR MOLLUSCIDAL PROPERTY AGAINST THE SNAIL INTERMEDIATE HOST OF SCHISTOSOMA JAPONICUM (Completed May, 1984)

Cesar T. de los Reyes
UP Tacloban

Using the standard immersion technique, eleven species of poisonous plants found in northeastern Leyte were tested in the laboratory for molluscicidal activity against *O. quadrasi*, the snail intermediate host of schistosomiasis.

Crude water extracts from *Thevetia peruviana* seeds (Campanille), *Derris ellip-*

tica roots (Tubli), *Nerium oleander* leaves (Adelfa), and *Ricinus communis* seeds (Tangan-tangan) showed promising levels of molluscicidal action with LD₅₀ of 89 ppm, 90 ppm, 100 ppm, and 120 ppm, respectively against adult snails.

On the other hand, crude water extracts from *Allamanda cathartica* stem (Campañero), *Anarmita cocculeus* seeds (Lagtang), *Cerdiospermum halicacabum* leaves (Parol-parolan), *Dieffenbachia picta* stem (Dumb-cane), *Morinda citrifolia* fruit (Nino), *Tinospora rumphi* (Paliawan), and *Wedelia biflora* stem (Hagonoy) were not molluscicidal in nature since even at 500 to 1000 ppm snail mortality was very low at 3 to 7%.

In preliminary laboratory immersion tests, *T. peruviana* seed powder was found piscicidal with LD₅₀ of 68 ppm against tilapia fingerlings.

▲ COMMUNICATION RESEARCH SUPPORT TO THE DEVELOPMENT COORDINATION COUNCIL FOR LEYTE AND SAMAR (Completed June, 1984)

Lourdes Montilla-Añover
OMA Region VIII

The research is a four-part survey designed to gauge the opinions, attitudes and beliefs of the affected target populations on various OCCLS projects. The project's findings are as follows: a) Small Water Impounding Management (SWIM) Project and piloting the Barnagyan concept in Barangay Malugo, Canavid, E. Samar – Awareness and appreciation of the project was high but the people needed to be provided with more information about it and other agricultural productivity projects. The local population lacked the spirit of volunteerism and cooperation due to political differences which caused confusion and disunity among them; b) Media Preference and Availability in Three (3) Samar Provinces – Radio was the

most widely available form of mass media followed by magazines, comics, newspapers, televisions, movies and VTR, in that order. Station, announcer, time, language and program type preferences varied slightly among the three Samar provinces; c) Concerns of the Ministry of Agrarian Reform in Samar Island – Awareness of MAR programs (leasehold and operation land transfers) was low owing to the lack of an appropriate medium dissemination. Other media such as print and broadcast must be utilized to intensify information dissemination and thereby broadening the people's awareness of these programs; d) Social Services Concern in Samar Island – Only 34.0% of the respondents were aware of the social welfare program of the government. MSSD was the most commonly known social sector agency and 46.0% of the population perceived they benefitted from the agency.

▲ *AN EPIDEMIOLOGICAL INVESTIGATION OF SEAFOOD POISONING DUE TO THE RED TIDE PLANKTON IN SAMAR FROM JUNE-SEPTEMBER 1983 (Completed February 1984)*

Lilia O. Arteche, M.D.
IPHO Region VIII

Paralytic shellfish poisoning, with the causative agent, *Pyrodinium bahamensis* var. *compressa* which accumulated in the tissues of shellfish mainly tahong (green mussels), claimed the lives of 16 persons and caused the poisoning of 675 others who recovered. Thirteen municipalities, mostly situated along the coast of Maqueda Bay, were affected. Most of the victims developed symptoms ranging from gastrointestinal manifestations to severe paralysis of peripheral nerves and other nervous system affection thirty minutes to one hour after exposure to the food. Sixty eight percent of the victims who used coconut milk with sugar or coconut oil as antidotes experienced the least fatalities while those cases with no antidotes taken had the highest fatality rates. Thorough cleaning of the food prior to

cooking minimized the degree of intoxication in man.

▲ *A STUDY ON POSSIBLE NEUTRALIZERS OF THE TOXIN INGESTED BY THE TAHONG AND OTHER SHELLS FROM MAQUEDA BAY, WESTERN SAMAR*

Manuel G. Roxas, M.D.
RHRDC Region VIII

The mass food poisoning brought by ingestion of red tide contaminated shellfish found along Maqueda Bay in Western Samar during the latter half of 1983 had caused death and panic among the inhabitants of the affected areas. The cause of the panic was not due mainly on the appearance of poisonous plankton itself but more on the inavailability of effective antidotes to the toxic substance which the plankton produced.

To prevent a similar occurrence of red tide poisoning in the future, a research study on possible neutralizers of the toxic element was conducted by a team of researchers, doctors and research assistants from the Regional Health Office No. 8 for a period of about nine months.

Results of the study showed that activated charcoal, powdered coconut shell charcoal, coconut milk and medicinal plant, *urari* give positive antitoxic reaction to the poison.

▲ *FACTORS AFFECTING THE LEVEL OF PERFORMANCE OF COMMUNITY HEALTH WORKERS (CHWs) IN AN ARCHDIOCESAN COMMUNITY-BASED HEALTH PROGRAM*

Sister Leonor Barrion, OSB, M.D.
DWU College of Medicine

This was a study of the factors affecting the level of performance of 100 Community Health Worker (CHW) respondents in an

archdiocesan community-based health program (CBHP). The objectives of the study were 1) to classify the CHWs based on the performance evaluation by peers and staff; 2) to describe the health and non-health activities rendered by the CHWs and determine their degree of importance as perceived by the CHWs; 3) to determine whether the level of performance of the CHWs was affected by the following factors: i) training (formal/educational attainment and seminar content and strategies); ii) recruitment (process and length); iii) forms of supervision; iv) personal qualities such as age, civil status, occupation, location/residence and size of the family.

The interview schedule was used as the primary instrument for data gathering. The record of the performance evaluation of the CHWs by their peers and supervisors taken from the office file as well as observations rendered by the researchers while the CHWs were at work were also analyzed to determine the level of performance of the CHW respondents. The study showed the following major findings: 1) The respondents attached high importance to the health activities of the program. 2) There were 57.0% active, 24.0% semi-active and 19.0% drop-out CHWs based on the evaluation and observations of the staff, peers and a review of pertinent records. 3) Two factors affected significantly the level of performance of the CHWs namely: seminar training regardless of topics, and the residence or location of the respondents.

● *INFANTILE DIARRHEA STUDY IN DAVAO CITY FOR REGION XI*

Joon B. Ramas, M.D.
DMSF, Davao City

The project is envisioned to supplement the diarrheal program conducted by RITM with the study providing a different perspective (Davao being mainly rural). Like-

wise, the project will provide the opportunity to develop research capabilities in Region XI including developing a good regional laboratory for diarrheal research in Mindanao.

The project aims to identify the etiology of infantile diarrhea cases and their corresponding clinical features among infants aged 0-24 months in two major hospitals in the city.

Training of medical technologists by RITM staff have been done early this year to orient them with laboratory techniques.

● *DEVELOPMENTAL RESEARCH IN HERBAL MEDICINE IN REGION XI*

Asuncion A. Paraan, M.D.
MOH Region XI

Aside from developing regional research capabilities in herbal medicine in Region XI, the project aims to reduce drug importation through the manufacture of local drugs from indigenous sources in the region. The establishment of a herbal research and processing plant, the training of manpower for quality control, basic and clinical pharmacologic testing are components of the project. In addition to these is the setting up of a clinical pharmacology unit for in-depth studies on dosage formulations for proper dosage, and for proof of efficacy and safety.

Complementing the establishment of the Herbal Research and Processing Plant were successive training programs on basic pharmacologic techniques, clinical pharmacology, drug manufacture, and bio-statistics at the University of the Philippines provided to the research project personnel.

Acquisition of priority equipment of the plant will be completed this year. Since 1983, a total of 472,960 *tsaang-gubat* tablets (250 mg) and 371,500 *lagundi* tablets (300 mg) have been produced, of which 90.0% have been distributed to nearby provinces.

INSTITUTION DEVELOPMENT

Accomplishments of the Regional Health Research Development Committees

To promote and coordinate health research related activities in the regions, the RHRDC links together health researchers and institutions to facilitate regional health research activities attuned to regional health needs and in consonance with the Council's Research Network Development Program.

The RHRDC likewise establishes mechanisms to strengthen health research capabilities, encourages resource sharing between institutions and develops strategies to encourage and promote utilization of health research results in the region.

The National Health Research Network was strengthened and expanded with the establishment of two more Regional Health Research and Development Committees (RHRDCs) in Regions VII (Cebu) and XI (Davao) in addition to the one already existing in Region VIII (Eastern Visayas).

The additional RHRDCs provided stronger linkages in facilitating regional health research activities in accordance with distinct regional needs.

The RHRDC in Region VIII has organized five sub-committees which has undertaken activities like library enrichment, conduct of an R & D congress, publication of bulletins, and provision of financial assistance for its operations.

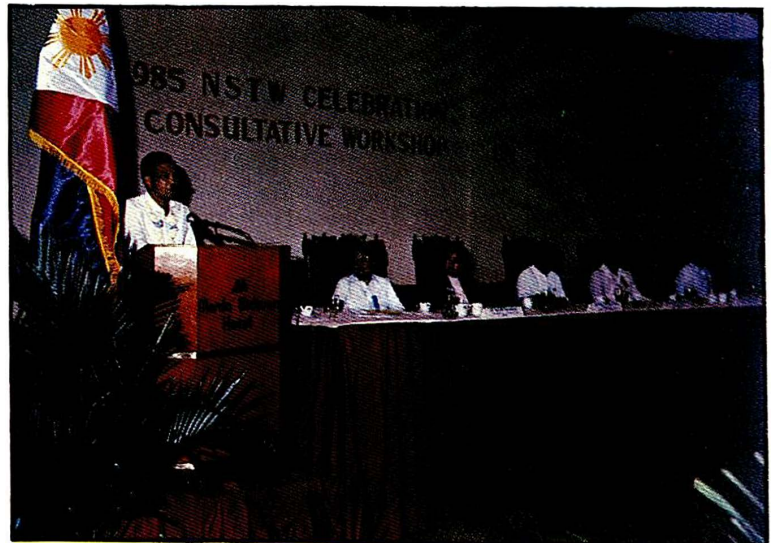
The newly-created RHRDC in Cebu City sponsored a Consultative Workshop on Health Research where regional health research priorities and manpower needs were identified. Said workshop catalyzed the formal organization of a committee to oversee health research activities in the region. A core of trainers likewise attended a training seminar on Research Methodology for Field Studies in Region VII.

An RHRDC was formed in Region XI, with Dr. Gelacio Maravilla as the head. For

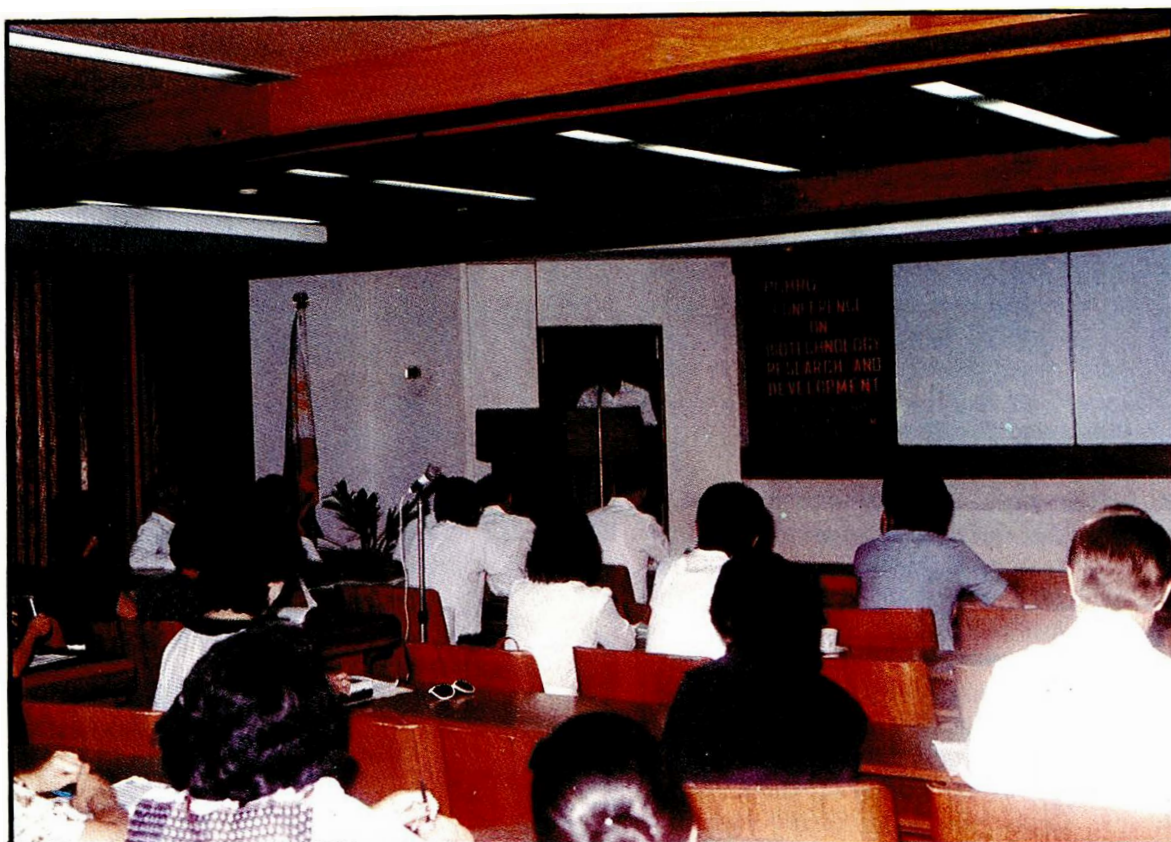
1985, the group sponsored the First Regional Health Research and Development Planning Seminar and a Conference Workshop on Health Research Protocol Development.

Formalization of the EHSC

On the other hand, the expected signing of the Memorandum of Agreement in early 1986 among the 11 member institutions will pave the way for the full operationalization of the Ermita Health Science Community (EHSC). This turn of events was the result of the Consultative Workshop of the Ermita Health Science Community at the Manila Midtown Hotel last July 10, 1985 where the mission and strategies of the EHSC among others were mapped out.



Minister Emil Javier addresses members of the Ermita Health Science Community in their July consultative workshop.



Dr. Ernesto Domingo moderates the lively discussion in the Conference on Biotechnology R & D in DAP, Pasig.

Institution Development Projects

Conceived as entry points of institutional development, several projects were either supported or monitored to ensure the effective implementation of said programs. These were:

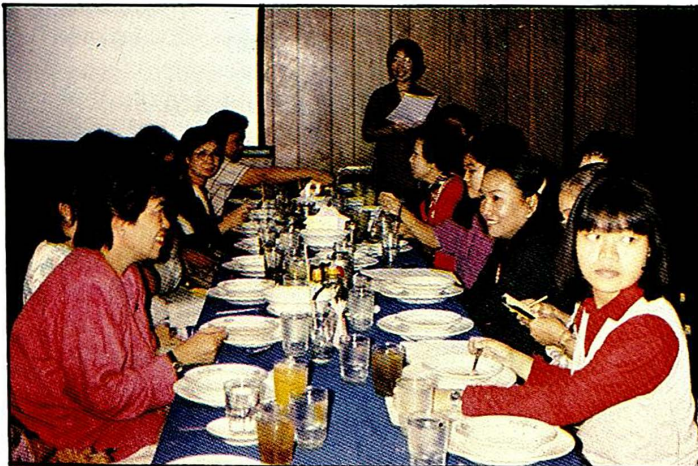
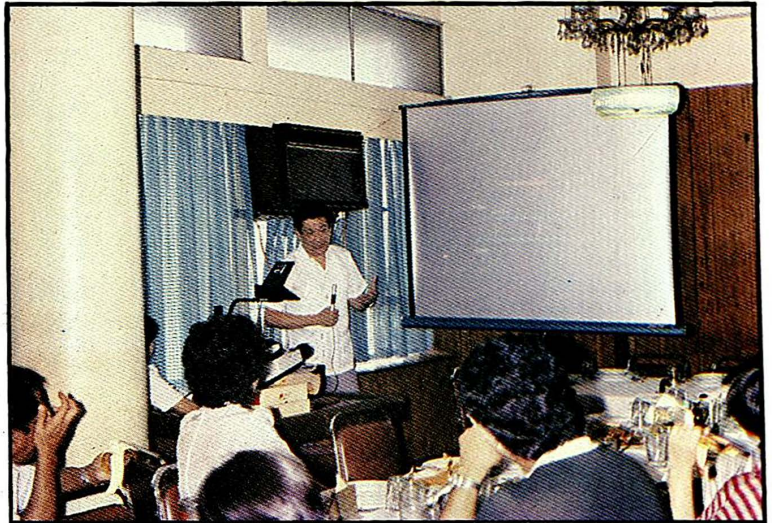
- (i) Conference on Biotechnology Research and Development held last September 14, 1985 at the Development Academy of the Philippines, which sought to assess the state of biotechnology R & D in the country with particular emphasis on the health sector;
- (ii) Technical Support to the Acute Respiratory Infection (ARI) Project based at RITM;
- (iii) Equipment and technical support for the manufacture of herbal drugs as well as the conduct of clinical trials for the Development Research on Herbal Medicine in Region XI;
- (iv) Comprehensive evaluation of the Infantile Diarrhea Study with the objective of identifying the etiology of infantile diarrhea cases admitted in two private hospitals in Davao City; and
- (v) Meeting of End Users of Scientific Equipment to identify common problems experienced.

SCIENTIFIC AND TECHNOLOGICAL SERVICES

Research Results Dissemination and Utilization

Research information dissemination was vigorously pursued through the facilitation of printed outreach materials to cater to prospective health research-oriented end-users. Two bodies, the Committee on Publications (COP) and the Committee on Health Research Information (CHRI), to this effect, were created to regulate, review and validate information to be released. The COP provides technical assistance to health and health-related publications and the CHRI ensures that no conflicting research results are disseminated to the public.

Regular news about the Council's activities were released to the media to keep the general public informed of developments in health research. A *kapihan*-style forum called "Agham Ugnayan sa Press" was introduced to boost the Council's health research visibility to the public by gathering research experts and leading journalists to discuss current issues within the field. Five sessions were held and topics discussed included: Filipinos' Nutritional Status vs. the Current Economic Crisis; the Liver Study Group's Researches on Hepatitis B; Sexually-Transmitted Diseases; Drug Fertility Regulation using Herbal Medicine; and Diabetes Mellitus. Such exposure merited an editorial and front page write-ups in leading national dailies indicative of a productive drive in this field.



The Agham Ugnayan Press conferences: Dr. Augusto Litonjua expounds on diabetes mellitus; Dr. Nelia Maramba discusses use of herbal medicine for drug fertility; Ms. Catherine Castañeda introduces speakers and writers in well-attended press conference.

This year's publication line produced a three volume inventory of health researches, both completed and on-going, for the period 1970-1984; two directories of health research manpower and institutions; documentations of proceedings of seven seminar-workshops; and four promotional and briefing materials to further the information drive of the Council.

PUBLICATIONS	COPIES
PCHRD Annual Report 1984	1,500
Brochure on How to Avail Research Grants	1,000
Brochure on How to Avail Scholarship/Thesis Grants	1,000
Health Research Institutions in the Philippines	1,000
Inventory of Completed Health Researches (1970-79)	500
Inventory of Completed Health Researches (1980-84)	500
Inventory of On-going Health Researches as of June 1984	500
Directory of Health Research Manpower	500
Proceedings of the Second National Congress on Health Research and Development	500
Revised PCHRD Briefing Materials	200
Proceedings of the Seminar-Workshop on Health Care Financing Schemes	150
Proceedings of the Consultative Workshop on the Ermita Health Science Community	100
Proceedings of the First Marsman Professorial Chair Lecture	75
Proceedings of the Training on Health Research Methodology for Region 7	75
Health Research and Development Plan for Region VII	60
Proceedings of the Consultative Workshop on Medical Journalism	30

Further, the Council's exposure was made possible through continued participation in health-oriented exhibits in selected regions as well as the production of sound slides and other audio-visuals for public consumption.

Simultaneously, while the research results were being disseminated, the appropriate utilization of said research outputs was strategically installed supportive of each other. A comprehensive communication program was developed to promote research utilization (RU) by establishing communication units in the regions; promoting research extension interface; and organizing and participating in special events. A technology utilization unit (TUU) was also created to ensure that information are properly transmitted to the right audience through proper channels.

On two separate occasions, research results were presented during scientific sessions convened with the academe and health science community practitioners on the findings of the studies on "Diabetes Mellitus Survey in the Philippines" and "National Tuberculosis Prevalence Survey."

The commercial significance and consequent production of medicinal plants gained impetus with the laying of the groundwork for a Memorandum of Agreement between PCHRD and the Philippine Herbal Group. The agreement covered the utilization of the developed technology for four species of medicinal plants that were considered commercially viable.

The nationwide acceptance of medicinal plants prompted the Ministry of Health to adopt the technology for their production through the establishment of three regional production plants in Regions II, VIII and XII. Furthermore, the Ministry requested orders of 500,000 tablets of *lagundi* and *tsaang gubat* from the NSTA Pilot Plant for testing in the regions.

Research Information Support System

The Council's computer system has been strengthened through the development of a comprehensive plan and the procurement of initial hardwares providing the necessary tools to implement the Council's Management Information System (MIS). The data banking system has gathered a sizeable amount of information on 3,000 local researches at varying degrees of completeness with approximately 25.0% already in the computer files. Realizing the importance of a vigorous information exchange network, the United Nations Educational Scientific Cultural Organization (UNESCO) is considering the Philippines, through the PCHRD as the national and regional nodes in the Regional Information Network for Aromatic and Medicinal Plants for Asia and the Pacific.

Meanwhile, to support the library information needs of the research community, the Health Research and Development In-

formation Network (HERDIN) has initiated a Memorandum of Agreement that will enable commencement of network operations expected to be firmed up early 1986. This agreement in cooperation with the MOH and UP Manila shall institutionalize the library system into a rich source of health research materials accumulated during the years. To improve strategies for the development of scientific publications and health libraries, consultative workshops were conducted on Medical Journalism and Information for Health Care providing directions to these goals.

The policies and guidelines pertinent to the assistance program for scientific and technological publications in health were formulated by the PCHRD Committee on Publications. To date, two proposals on the publication of a Philippine *index medicus*, and a union list of medical publications have been endorsed for funding in 1986.



Dr. Fernando Sanchez moderates one session in medical journalism workshop.



Mrs. Marissa Reyes shares PCF's experiences in Consultative Workshop on Information for Health Care.

LINKAGES



Student awardee is congratulated by PCHRD director Dr. Romualdez and DAP officials Col. Jose Cardenas and Dr. James Black.

Establishment of Local and International Linkages

The PCHRD's continuing efforts to establish firm institutional linkages resulted in contacts with numerous national organizations and private entities. This paved the way towards a stronger coordination, information exchange and technical assistance between and among these health research-conscious groups. As a result of continuous liaising, the PCHRD was able to solicit the support of the Drug Association of the Philippines for two Student's Summer Research Awards on Herbal Medicine at ₱15,000 per grantee. Negotiations with the Economic Support Fund Secretariat for the amount of P4M (1986-1987) was pursued to initiate the extension of the project "Selective Mass Treatment of Schistosomiasis in the Province of Leyte."

With the advent of sustained international liaison initiated last year, several projects with foreign funding requirements were realized. Foremost of these projects that were monitored were the 5-Year Primary Health Care Project Support from USAID; 10-Year ASEAN-Australia Diabetes Prevention and Control Program, and the Australian Development Assistance Bureau (ADAB) Support to the ARI Project in Bohol.



Dr. Augustus Damian, Jr. stresses a point in initial discussions with Japanese science envoy.



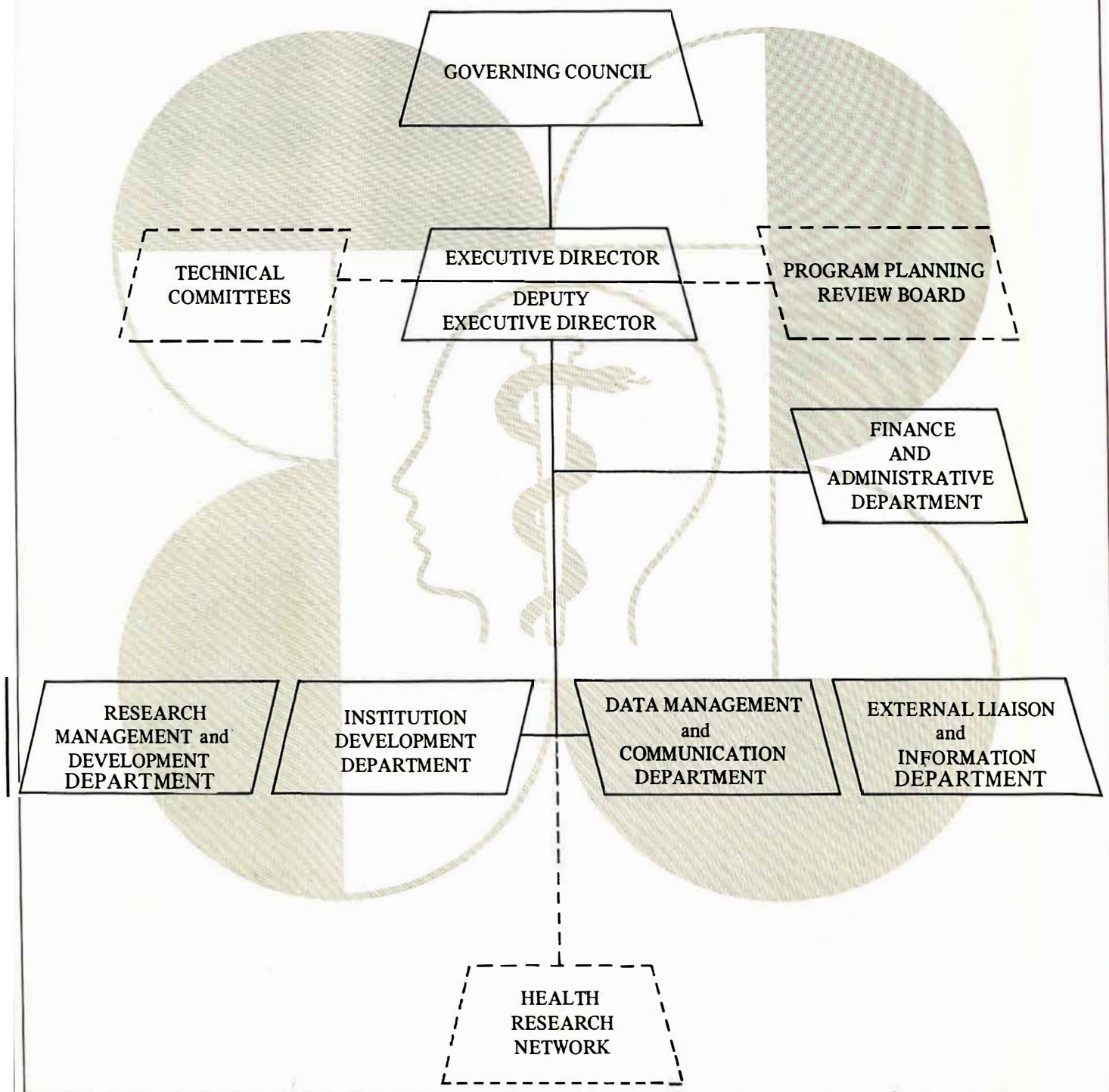
Mrs. Joy Riggs-Perla — USAID's direct liaison with the health research network in the planning and implementation of the Primary Health Care Project.

The year also ushered in international recognition to PCHRD's existence. Two Filipino medical researchers were sent to the People's Republic of China (PROC) to observe the use of herbal medicine in the Chinese Primary Health Care Program. The International Development Research Center (IDRC) through Dr. Dae Woo Han, recognized PCHRD's competence in the processing and evaluation of health science proposals for their funding. Likewise, an initial discussion with the IDRC representative Ms. Maria Ng on the financial assistance of the 3-Year project "Establishment of Health Research and Development Information Network (HERDIN)" that aims to improve the flow of health R & D information through resource sharing is gaining positive results.

Under the initiative of the PCHRD, the latest editions of medical books and journals are earmarked for distribution to the UPCM library under the aegis of the Soviet Embassy. The PCHRD has also established linkages with the Southeast Asian Medical Information Center (SEAMIC), Japan and the Population Center Foundation (PCF) which resulted to PCHRD's inclusion in their mailing list as regular recipient of their publications.

PCHRD ORGANIZATIONAL STRUCTURE

PHILIPPINE COUNCIL FOR HEALTH RESEARCH AND DEVELOPMENT ORGANIZATIONAL STRUCTURE 1985



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