# **PCHRD Annual Report**

1992

### **Our Council**

The Philippine Council for Health Research and Development (PCHRD) is the sectoral council of the Department of Science and Technology (DOST) committed to providing Filipino solutions to Filipino health problems through R & D.

Founded in 1982, the Council invests resources on scientific inquiries that capitalize on the country's indigenous raw materials and capabilities to generate appropriate health technologies.

For the last 11 years, PCHRD has supported demand-led studies on pharmaceuticals, biotechnology, and traditional areas of concern, namely communicable diseases, health problems of mother and child, malnutrition, degenerative and metabolic diseases, environmental health problems, policy research, and health economics.

It has achieved some solid breakthroughs that have been utilized in decision making, policy formulation, commercial production, and in households. Such technology application was made possible through the Council's careful and measured efforts at drumbeating, sales talking, packaging, persuading, and convincing, and by riding piggy-back on existing institutional structures, tapping interinstitutional arrangements, and using state-of-the-art information and communication technologies.

PCHRD recognizes and fills the need to develop the support infrastructure for technology development. By enhancing research capability through scholarships, thesis and dissertation assistance, training courses, research apprenticeship grants, faculty exchanges, and equipment grants.

The Council's business is putting world competitive health products and services in the economy. Its ultimate goal is social profit health for all through R & D.

This is the Council's reason for being.

### Chairman's Message

The health research community has been keeping itself online with the thrust of the Science and Technology Master Plan. Surprisingly, this sector, which describes itself as more of a producer of information-based or soft technologies, has been learning fast about user and market orientation, and of products and services that compete in the local as well as the world markets.

I am pleased with the sense of focus that the Philippine Council for Health Research and Development (PCHRD) is pursuing to advance the S & T



agenda. This is evident in the types of researches it supports, the distinct competencies it is building among its centers of excellence; and the services it renders to enhance technology transfer and research utilization.

However, I am also aware that, like the entire science community, the Council has to strive more to make its presence felt in the country's development efforts.

I am positive though that, with the dedication and professionalism of PCHRD's leaders and staffs, we can make health S & T work for the Filipino people -- to improve their lot and their quality of life.

RICARDO T. GLORIA Secretary, DOST and Chairman, PCHRD Governing Council

### **Executive Director's Report**

Dear Partners and Friends in Health R & D,

For the science community, 1992 was a year of continuity. It pursued its programs without letup despite the change by midyear in the national leadership, and, consequently, in the Department of Science and Technology.

I am pleased to present the 1992 accomplishment highlights of the Philippine Council for Health Research and Development (PCHRD).

Your active support and participation enabled the Council to achieve this level of performance.

#### **Going to Market**

The Council continued to orient itself to the concerns of the user community especially the business sector, matching the generation of technologies to the needs of the consumers.

Lessons were gained from the results of the feasibility study on the electromyograph (EMG). The feasibility study showed that EMG's profitability as a commercial venture is limited by the small size of its local market. Thus, we may have to consider exportation and adding on a



number of similar products to a taker company's lines. On the technical side, the local EMG's reliability as compared to an established brand has to be ascertained for the local product to be competitive worldwide.

Two feasibility studies on bone implants and cataract surgical sets were also ongoing last year.

Actual experiences in technology transfer honed our skills as technology broker as we assisted our technology adopters, Herba Pharm and MedTest, in their transactions with the Board of Investments; Bureau of Food and Drugs; Bureau of Patents, Trademarks, and Technology

Transfer; Department of Health; and Development Bank of the Philippines. These two companies are located at DOST's Technology Business Incubators in Bicutan.



MEDIEST

There was a better appreciation of intellectual property rights as we facilitated the patenting of our technologies.

Further, the Council supported the move of the two campuses of the University of the Philippines (Manila and Diliman) to establish a science park at Diliman which will, among other things, showcase health products. Tieups with Minnesota's Medical Alley, as possible investor, were explored.

#### Letting More People Know

Stronger ties with media improved the Council's visibility as evidenced by the frequency of PCHRD news releases in print, radio, and TV. These were results of the monthly press conferences, regular press releases and radio interviews, scientific symposia, exhibits, and publications.

At the same time, the participation of more institutions and individuals from the private and public sectors widened the Council's network of researchers, users, and supporters. Their involvement was felt in consultation meetings, seminars, workshops, and conferences. They also received one or more of the Council's 16 regular publications, of which 26,500 copies had been distributed.

#### **Improving Access to Information**

Thru the Health Research and Development Information Network (HERDIN), the Council, aside from the other HERDIN nodes, was able to serve 1,943 clients in terms of information search requests.

Direct marketing techniques were employed by the staff to increase the number of HERDIN subscribers. Last year, there were 65 subscribers to our online service. Among the specialty societies who actively promoted HERDIN was the Philippine College of Surgeons.

PCHRD was also named as the regional secretariat of the Asian-Pacific Information Network on Medicinal and Aromatic Plants (APIN-MAP). The executive director now acts as the secretary-general of this 14-



country network.

With PCHRD's experience in HERDIN, it has become a frequent study visit site of World Health Organization (WHO) fellows. Visitors from Malaysia, Indonesia, and Vietnam came in 1992.

#### Multi-agency R & D Projects

PCHRD actively participated in the development of the red tide R & D program. This program, for which a P2M funding has been earmarked, covers studies on causative organisms, environmental factors, health concerns, preventive aspects, and socioeconomic component, and is being utilized by the Philippine Council for Aquatic and Marine Research and Development (PCAMRD, DOST).

The Council encouraged the evolution of study groups, an informal aggrupation of researchers/experts, to continually assess the state-ofthe-art of the fields where these experts belong. The study groups on tuberculosis and malaria came up with their respective R & D programs.

In support of the Department of Health's (DOH) objective of integrating traditional medicine to the country's health care program, PCHRD coordinated the research component of the program which was approved by the cabinet level S & T Coordinating Committee.

#### **Alternative Technology Sources**

Two researchers, under the global technology search program, finished their missions in India and the US.



Dr. Modesto Chua (Philippine Institute of Pure and Applied Chemistry/Ateneo) was able to

obtain from India the production technologies of trimethoprim, metronidazole, and sulfamethoxazole (antibacterial), diclofenac sodium (antirheumatic), and nifedifine (cardiac drug). Two drug companies showed interest when these technologies were presented in a conference. A proposal for a pilot plant production of trimethoprim is being prepared.

Dr. Grace Ortega of UP-PGH, on the other hand, trained on the isolation and purification technique of *Mycobacterium tuberculosis* antigen Dalton 3000 from Case Western University. The antigen is used in ELISA test for the rapid diagnosis of TB.

#### **Promising Breakthroughs**

A total of 32 projects, with a total cost of P7M, were supported by PCHRD in 1992. Of these, 10 were new projects -- and four were completed.

Of note were the results on the projects on calf serum, cataract surgical set, and bone implants. The National Kidney Institute, Bureau of

Animal Industry, Natural Science Research Institute, and Biotech are now testing the six liters of calf serum produced by the project. Calf serum is used as a component in the preparation of mammalian cell culture medium.



Four of the six instruments in the cataract surgical set had been produced and are now ready for clinical trials. The commercial availability of these instruments, fit for Filipino ophthalmologists, will help about 1,566,000 people suffering from cataract. On the other hand, the local bone implants were found to be histologically compatible. It costs 84% lower than imported implants.

#### **Building Distinct Competencies**

In line with the thrust of developing the seven centers of excellence in health research, four medical schools received a total of P3.7M equipment grants to improve their research facilities. These were for the tissue culture laboratory of the University of Santo Tomas; microbiology and parasitology laboratories of the University of the East Ramon Magsaysay Memorial Medical Center and Manila Central University; and the medical research laboratory of the UP-Philippine General Hospital.

#### **Towards a Critical Mass**

During the year, we supported 26 scholars, and thesis, and dissertation grantees.

PCHRD also provided counterpart funds to Rockefeller Foundation to support scholars from the seven centers of excellence to train in clinical epidemiology at the UP Manila. The UP Manila, one of two ASEAN training centers, is part of the International Clinical Epidemiology Network (INCLEN).

Beginning researchers were assisted thru two modes of proposal generation, namely: thru the regional research fund (RRF), and thru proposals developed out of the training course on basic research methods. Both schemes benefitted 29 researchers.

RRF is a decentralized approach where Regional Health Research and Development Committees in Regions 6, 7, and 11 approve proposals coming from their regions.

To equip regional researchers on writing and presenting research

papers, interregional research presentation has been institutionalized. The third one was held this year in Iloilo.

Aside from conducting technical trainings, we also assisted researchers and administrators from 27 institutions in organizing their own ethical review committees as well as conducting ethical reviews.

Incentives to researchers came by way of awards from the yearly poster exhibit contests, as recipients of the Philippine Health Care Association's summer student awards, and endorsements to local and foreign trainings.

#### A Science Community Expands

The Ermita Health Science Community expanded with the addition of six new members -- UST, Far Eastern University, UERMMMC, MCU, Research Institute for Tropical Medicine-

DOH, and the Manila Health Department. The new community of 19 institutions is now called the Metro Manila Health Science Community (MMHSC).



#### Partners in R & D

Both local and international linkages were strengthened. PCHRD actively participated in DOH's Essential National Health Research Program and the UP-College of Public Health's Program on Health Systems Research.

A. forum with representatives of funding institutions like the World Health Organization, UNICEF, UNESCO, Japan International

Cooperation Agency, and Australian International Development Assistance Bureau acquainted researchers from within MMHSC to these donor agencies' thrusts and procedures.

#### **Resource Generation**

A total of P4.95M was generated by PCHRD from external sources which complemented its regular agency budget of P19.49M. Grants-in-aid in 1992 amounted to P9.2M.

The externally sourced fund supported projects to train pharmacists relevant to the National Drug Policy, as well as on information networking.

The Council also accrued income from its information services, publications, and trainings under the DOST Technology Training Center. This income formed part of the DOST revolving fund.

#### The Year Ahead

A greater challenge awaits us in the coming year as we strive to push the health S & T agenda in the mainstream of the national economy.

We are confident that, together, we can infuse the needed knowhow towards a competitive Philippines, Inc.

PACITA L. ZARA, M.D. Executive Director

### PCHRD-assisted Projects



Project Legend	
	Completed Ongoing New

#### **Biotechnology R & D**

Development of cheap, stable, serum/ plasma standards for common clinical chemistry determinations

> Rhodora C. Estacio, M.S. College of Medicine, UP Manila

A procedure for the preparation of human serum as control or standard for common clinical determinations was developed.

Alternative sources of standard/control serum from bovine and porcine serum, expired plasma, and placental serum were explored. Bovine serum was found to be the best alternative.

Fasting blood sugar level (FBS), BUN, creatinine, cholesterol and uric acid levels in pooled sera were monitored for stability.

Stability of these analytes in pooled sera was found to be affected by the following: (a) state; (b) use of preservative; (c) length of storage time; and (d) storage temperature.

Production of serum and alternative culture media using coconut water and eggyolk for mammalian cell cultivation  $\odot$ 

Pham Binh Chay, Ph.D. Biotech, UP Los Baños

Initial results of qualitative studies showed that temperature and length of storage did not significantly affect the quality of the serum. Serum samples were sent to three institutions for actual use in mammalian cell cultivation.

The use of latex agglutination test for the rapid diagnosis of tuberculous meningitis <sup>O</sup>

Manuel P. Macapinlac, M.D. College of Medicine, UP Manila

The developed latex agglutination test (LAT) was

tested for sensitivity, specificity, and predictive value using 26 cerebrospinal fluid samples with confirmed TB meningitis. Test results indicated a 23.8% sensitivity, 92% specificity and a 90.9% predictive value. Further assessment of the test's validity and reliability is recommended to obtain actual sensitivity and specificity values.

Cloning of the hepatitis B virus (HBV) deoxyribonucleic acid (DNA) and development of an HBV probe (Phase III)  $^{\bigcirc}$ 

Rhodora C. Estacio, M.S. College of Medicine, UP Manila

The Hepatitis B virus (HBV) deoxyribonucleic acid (DNA) was isolated from serum and cloned in the plasmid. The recombinant plasmid was then purified and later labeled with a non-radioactive nucleotide analog. An assay for detecting labeled recombinant plasmid DNA immobilized on to solid support was tested.

The next step involves the use of labeled recombinant plasmid DNA as probe for the detection of HBV DNA in serum samples.

Development of pregnancy kit: Anti-beta HCG monoclonal antibody-based testing in urine  $\ensuremath{\bigcirc}$ 

Felicitas L. Lacbawan, M.D. College of Medicine, UP Manila

The project aims to develop a fast, simple, and sensitive pregnancy test kit utilizing a sandwich method of enzyme-linked monoclonal antibody for

qualitative determination of beta human chorionic gonadotrophin (ßHCG) in urine samples. It hopes to standardize the developed pregnancy: test using the locally produced reagents.



Use of body fluids for the diagnosis of paralytic shellfish poisoning (PSP) - Phase I: Urine  $\triangle$ 

> Niño Ismael S. Pastor, M.D. Environmental Health Service, DOH Ma. Andrea Mendigo Marine Science Institute, UP Diliman

The study aims to detect the presence of paralytic shellfish poisoning (PSP) toxin in urine specimens of shellfish consumers showing symptoms of PSP. Specifically, the project will setup a PSP-specific high performance liquid chromatography (HPLC) system, pretest the system with toxin standards and spiked normal urine, and determine toxin levels of 30 PSP-implicated urine specimens.

#### Pharmaceutical R & D

#### **Biologicals**

Studies on the improvement of rabies vaccine: Phase I <sup>O</sup>

> Dolores M. Mercado Biological Production Services, DOH

The project aims to develop a tissue culture rabies vaccine using Rhesus fetal lung diploid cell Production activities will include cell culture. cultivation, inoculation, harvest filtration, inactivation, adsorption, concentration, preparation of final vaccine, and dispensing. The vaccine will be tested for sterility, safety, Mycoplasma, adventitious virus, potency, and assay for antigen, BPL, and AlPO,.

#### **Medicinal Plants**

Large-scale chemical extraction of quinine and other alkaloids from the bark of cinchona trees from the Bukidnon plantation (Part I. Bench-scale study)

> Fabian M. Dayrit, Ph.D. PIPAC, Ateneo De Manila University Ma. Assunta C. Cuyegkeng, Ph.D. Department of Chemistry, ADMU

The project developed a simple and efficient process for large-scale extraction of quinine. The developed process obtained an 8% yield of quinine from the cinchona bark.

Isolation, purification and characterization of a seed gum from ipil-ipil (Leucaena leucocephala (Lam.) de Wit) for the pharmaceutical industry

#### Irene M. Villaseñor, Ph.D., Benigno D. Peczon, Ph.D., and Ma. Vilma D. Faustorilla Institute of Chemistry, UP Diliman

Fractional precipitation of the aqueous extract of ipil-ipil seeds with ethanol followed by ion-exchange chromatography

using DEAE-cellulose yielded a protein-free polysaccharide. Physico-chemical and chemical studies showed that the pure gum has properties similar to that of galactomannan of guar gum. Investigations also showed that ipil-ipil seed gum appears to



be a good tablet binder.

#### Establishment and maintenance of a medicinal plants production farm $\odot$

Prof. Ernesta G. Quintana College of Agriculture, UP Los Baños

Several production sites covering a total area of were maintained through weeding, 3 hectares watering, and fertilizer application. The production sites were planted with Cassia alata L. (akapulko), Vitex negundo L. (lagundi), Quisqualis indica L. (nivog-nivogan), Blumea balsamifera (L.) DC. (sambong), and Carmona retusa (Vahl.) Masam. (tsaang gubat). Peperomia pellucida (L.) HBK. (ulasimang bato) was planted in the greenhouse.

Planting materials were maintained in the greenhouse for planting and replacement of dead plants in the farm.

A total of 37.2, 72.4, and 57.7 kg of ulasimang bato, sambong and akapulko, respectively, were delivered to UP College of Pharmacy for the various NIRPROMP projects.

# Pharmacologic and toxicologic studies of Philippine medicinal plants<sup>(3)</sup>

Horacio R. Estrada, M.D. College of Medicine, UP Manila

Results of the sub-acute dermal toxicity test on *akapulko* (Cassia alata Linn.) lotion showed that the lotion is non-toxic. Allergenicity testing showed that it is non-allergenic.

The  $LD_{s0}$  of *lagundi* (Vitex negundo L.) syrup is 0.8 ml compared with the standard for powdered leaves which is 1.15 ml. The difference between the test *lagundi* syrup and the standard does not make the test product unacceptable for use. The two batches of *lagundi* syrup bioassayed are recommended for clinical use.

Additional *lagundi* fractions/isolates must be submitted for more comprehensive studies on the cat tracheal chain for possible demonstration of its bronchodilating effect.

# Establishment of quality control bioassay standard procedures for medicinal plant products $^{\bigcirc}$

Romco F. Quijano, M.D. College of Medicine, UP Manila

Subchronic toxicity study on *lagundi* (*Vitex negundo* L.) tablets

A variety of clinical signs and symptoms were manifested by Sprague-Dawley rats in the *lagundi* treated groups, especially at the high dose level (3.98 g/kg). Weakness was the most prominent, occurring at all dose levels but more frequently at the high dose group.

Subchronic toxicity of sambong (Blumea balsamifera L.) tablets

The dose ranging phase has been completed. Results revealed that the dose range used is appropriate for the main subchronic toxicity study. No unscheduled deaths were found. The main part of the subchronic toxicity study on *sambong* is ongoing.

#### Bioassay of submitted samples of sambong

All seven batches of *sambong* tested showed positive diurctic effect.

Phase IV Community trial: Comparative, randomized, double-blind trial of *Vitex* negundo L. (lagundi) tablet among young patients (7-30 years) with acute cough of mild-moderate severity in identified rural health units in Cotabato City  $\square$ 

Nelia P. Cortes-Maramba, M.D. College of Medicine, UP Manila

Results of the community trial which covered 254 patients showed that *lagundi* tablet is generally safe for young patients with acute cough of moderate severity.

Lagundi tablet was also found to be comparable with the placebo in terms of efficacy and acceptability as to taste and ease of swallowing.

### Dosage forms from medicinal plant contituents $^{\bigcirc}$

Natividad F. de Castro, Ph.D., Leticia Barbara B. Gutierrez, William V. Estacio College of Pharmacy, UP Manila



Reformulation of the following products resulted in improved dosage forms which fulfill USP-NF specifications:

Sambong (Blumea balsamifera (L.) DC.) tablets 250 mg; placebo for sambong tablets; high-dose lagundi (Vitex negundo L.) pediatric syrup and placebo; ulasimang bato (Peperomia pellucida (L.) HBK.) and placebo.

A total of 120 120-ml bottles of *lagundi* pediatric syrup (150 mg/5ml, 64 120-ml *lagundi* pediatric syrup (300 mg/5ml), 120 120-ml bottles of placebo for *lagundi* pediatric syrup, 270 60-ml bottles of *akapulko* (Cassia alata L.) lotion, 196 60-ml bottles of 20% sodium thiosulfate solution, and 1,155.5g of *ulasimang bato* were produced.

Stability studies of two batches of low-dose *lagundi* pediatric syrup (150 mg/5 mL) and *sambong* tablets (250 mg) at room and/or refrigirator temperatures were completed while two-year stability studies on *akapulko* lotion and high-dose *lagundi* pediatric syrup are still in process.

Quality control tests on all raw and in-process materials, as well as on finished products were conducted. Some were completed while others are still ongoing.

# Clinical screening and validation studies of medicinal plant products $^{\odot}$

Nelia P. Cortes-Maramba, M.D College of Medicine, UP Manila

Phase III Clinical study on the efficacy and safety of 50% akapulko (Cassia alata Linn.) lotion compared with 25% sodium thiosulfate among patients with Tinea versicolor using a doubleblind randomized controlled clinical trial

Seventy subjects were screened, 58 of whom qualified for entry and 23 completed the treatment with 9 subjects in Group 1 and 14 in Group 2. Results showed comparable efficacy based on mycologic cure (Group 1 (88%) and Group 2 (92%)).

Phase II Clinical study: Comparative randomized, double-blind trial of *Vitex negundo* L. (*lagundi*) syrup among pediatric patients (7-21 years) with acute cough of moderate activity

The study used two dose levels (15 and 30 mg/ kg per day) vs placebo. A total of 100 subjects were screened. Of these, 60 entered the study and 41 completed treatment. There were 14, 12 and 15 subjects in Groups 1, 2, and 3, respectively. Good responses after three days of therapy were observed in 70%, 88% and 81% for Groups 1, 2, and 3, respectively. By day 8, patients in Groups 2 and 3 had 100% good responses. The only failure (10%) was in Group 1.

Phase III Clinical study: Blumea balsamifera L. (sambong) tablet for the treatment of urinary tract

#### stones: A randomized, double-blind, placebo controlled trial

In the sambong tablet study for urolithiasis (40 mg/kg per day) conducted for 6 weeks, 40 subjects were screened with 13 subjects completing the course of therapy. Six subjects in Group 2 responded positively (50%) with any of the following: passage of stones, no stone on intravenous pyelogram (IVP), decrease in number and/or size of stones or sandy urine. There was only one subject who completed the course of therapy in Group 1 without any improvement. Most of the dropouts were in Group 1.

#### Phytochemistry of Vitex negundo L. (lagundi) <sup>O</sup>

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

Nine other compounds aside from the three flavonoid compounds identified earlier were isolated and purified from fractions of the active ethyl acetate extract of *lagundi*. From among the isolated compounds, only p-hydroxybenzoic acid showed positive response in the bioassay test.

Pharmaceutical preparations and raw forms of *lagundi* (Vitex negundo L.), *sambong* (Blumea balsamifera L.) and *akapulko* (Cassia alata Linn.) were analyzed for their metal content.

#### Mutagenicity, clastogenicity, and antimutagenicity potential of drug preparations from Philippine medicinal plants $\circ$

Clara Y. Lim-Sylianco and J.G. Balboa Institute of Chemistry, UP Diliman

Mutagenicity studies performed on *lagundi* (Vitex negundo L.) pediatric syrup (high dosc) showed negative DNA damaging potential and absence of chromosome breaking effects. Genotoxicity before and after metabolic activation was not observed.

Batch testing of *akapulko* (Cassia alata Linn.) lotion, *sambong* (Blumea balsamifera) tablet, and *ulasimang bato* (Peperomia pellucida) granules using Rec assay showed absence of direct DNAdamaging potential. Micronucleus test also showed absence of clastogenicity potential. All medicinal preparations tested showed inhibitory effects on the genotoxicity of the mutagens dimethylnitrosamine, methylmethane-sulfonate, and tetracycline.

# Pharmacognostical studies of selected Philippine medicinal plants $\triangle$

Cecilia V. Zamora Institute of Biology, UP Diliman

The study aims to provide microscopic and macroscopic descriptions, illustrations, and photomicrographs of the following plants and their respective parts : 1) Vitex negundo L. (lagundi) leaves, 2) Blumea balsamifera (sambong) leaves, 3) Cassia alata (akapulko) leaves, 4) Mentha cordifolia (yerba buena) leaves, 5) Carmona retusa (tsaang gubat) leaves, 6) Allium sativum (bawang) bulb, 7) Leucaena leucocephala (ipil-ipil) seeds, 8) Psidium guajava (guava) leaves, 9) Momordica charantia (ampalaya) leaves, 10) Artemisia vulgaris (damong-maria) leaves, 11) Ocimum sanctum (sulasi) leaves, 12) Cymbopogon citratus (tanglad) leaves, 13) Peperomia pellucida (ulasimang bato) leaves and stems, 14) Garcinia mangostana (mangosteen) mesocarp, and 15) Quisqualis indica (niyog-niyogan) seeds.

Speciality Devices/ Medical Equipment



Rene C. Catan, M.D., Andres Borromeo, M.D. Philippine Orthopedic Center

Gross and histological evaluation of rabbit tissues surrounding the implants showed that there was no significant difference between the locally-made and imported bone implants in terms of tissue compatibility.

#### Cataract surgical set for Filipino ophthalmologists $^{\bigcirc}$

Romeo V. Fajardo, M.D. Department of Ophthalmology, UP-PGH

The study aims to develop a prototype design of cataract surgical set suited for the use of local oph-thalmologists.

To date, five pieces each of the muscle hook, cautery tip and strabismus scissors have been fabricated. The utility and fixation forceps are in the completion stage.



## Development of prototype PC-based electromyograph (EMG): Phase II

Development of cerebrospinal fluid (CSF) shunt  $^{\bigcirc}$ 

Richard Chu, Ph.D. College of Engineering, UP Diliman Renato Sibayan, M.D. Faculty of Medicine and Surgery, UST

Phase I of the study aims to provide a locallyfabricated prototype CSF shunt for the treatment of hydrocephalus. Phase II will test the efficacy of the CSF shunt prototype through clinical trials. Robert O. Dizon ASTI, DOST Zenaida G. Bagabaldo, M.D. College of Medicine, UP Manila

The project consisted of two stages - the development of a PC-based EMG and its evaluation as compared with a commercial EMG. In the first stage, a PC-based EMG was made based on an earlier prototype developed by the UP Electrical Engineering Department. Measures to solve the problems of the first prototype as well as advanced features performed by newer models were incorporated in the design. During the second stage, the reliability, accuracy, and safety of the completed prototype were evaluated based on the Cadwell 5200A EMG. Results suggested that even though the prototype can perform the functions of the Cadwell, further modifications on the prototype are necessary for it to be as reliable and as accurate as the Cadwell. Nevertheless, the prototype was found to be relatively safe to use.

#### **Traditional Areas of Concern**

Communicable Diseases

Diagnosis of acid-fast bacilli from body fluids using cytosieve technique  $^{\bigcirc}$ 

Salvacion C.Quiepo, M.D., DTMH RITM, DOH

Specimens in normal saline solution using cerebrospinal fluid, urine, and sputum were serially diluted in 20 million, 10 million, 5 million, 50,000, 1,000, and 100 bacterial population.

Preliminary results of the pilot study showed that spun specimens are comparable with the filtered specimens in aiding acid-fast bacilli detection by microscopy. The detection of acid-fast bacilli can be affected by the three methods of specimen preparation and bacterial population as defined by the dilutions.

# Prevalence of antibodies to hepatitis C virus among risk groups in the Philippines $^{\bigcirc}$

Ernesto O. Domingo, M.D. UP-PGH Mary Ann D. Lansang, M.D. RITM, DOH

The prevalence of hepatitis C virus antibody (HCVAb) was determined in three groups, namely: blood donors, multiply transfused (MT) subjects, and patients with chronic liver disease (CLD).

Results showed that the positivity rate for HCVAb was 5.3% (blood donors), 11% (MT patients), and 3.6% (CLD patients). Other parameters determined

were reactivity to HBsAg, antiHBc, and alanine amino transferase (ALT) levels.

Results of the HCVAb, HBsAg, and anti-HBC testing confirm previous findings that chronic active hepatitis, cirrhosis, and primary hepatocellular carcinoma are significantly associated with HBsAg positivity.

# Degenerative and Metabolic Diseases

# Modified WHO treatment of cancer pain: A multi-center open trial in the Philippines $^{\circ}$

Antonio H. Villalon, M.D. Department of Oncology UP-PGH

Two hundred twenty seven patients of the 300 target sample size were recruited from the Philippine General Hospital, Jose Reyes Memorial Medical Center, Rizal Provincial Hospital, Emilio Aguinaldo Medical Center, and the Veterans Memorial Medical Center.

The breast was the most common primary site of cancer with prostate as the least. Seventy six per cent of the patients suffered from moderate to severe pain. Sixty per cent of the patients initially responded to non-narcotic analgesics. All patients experienced complete relief from cancer pain after oral morphine administration. The average oral morphine dose which provided complete relief was at 10 mg every 4 hr.

#### **Environmental Pollutants**

Survey of work hazards and health status of laboratory workers in the Ermita Health Science Community (EHSC)  $^{\circ}$ 

Benjamin Vitasa, M.D., Ph.D. College of Public Health, UP Manila

A survey was conducted among 910 laboratory workers in 3 hospitals and 10 other teaching, research and service institutions of EHSC. Results showed that the common hazards at the workplace are chemicals, primarily solvents and related compounds and metals; ergonomic and physical agents such as people disturbing and moving about at the workplace, noise, heat, dust and bad ventilation; and biological agents mainly fungi, bacilli, cocci, viruses, protozoans, and helminths.

Three quarters of the workers felt that their present health status is good while the rest were not sure or felt bad about it. The most common health problems include body aches and pains, migraine, hypertension, recurring skin rash, urinary tract infection, ulcer, arthritis, and bronchitis.

# Development of antiserum against saxitoxin and tetrodotoxin $\triangle$

Ma. Andrea Mendigo MSI, UP Diliman

The study aims to develop an antiserum for tetrodotoxin and saxitoxin that can be used as a reagent to test for the presence of these toxins. Developed reagent will be packaged as a saxitoxin and tetrodotoxin detection test.

#### Health Problems of Mother and Child



Interruption of maternal-child HBV transmission: A comparison of various regimens using hepatitis B immunoglobulin and hepatitis B vaccine

> Carmelita Fagela-Domingo, M.D., Augusto L. Lingao, M.D., Mary Ann D. Lansang, M.D., Ibarra T. Panopio, M.D., Milagrosa G. Montejo, M.D., Cynthia P. Cordero, M.S., Gene G.Gonzales, M.D., Ernesto O. Domingo, M.D. UP-PGH

Results of the various regimens tested showed that for infants with HBeAg - positive mothers, higher multiple doses of plasma-derived vaccine in addition to HBIg is effective against infection or persistent carrier state. For HBe Ag - negative infants with HBe - negative mothers, high multiple doses of vaccine is effective against the persistent carrier state. For infants whose mothers are both HBs Ag - positive and antiHBe - positive, a single dose of vaccine is effective only in preventing the carrier state and not the infection.

#### Malnutrition

#### Nutritional intervention in acute diarrhea: the use of coconut oil (CNO) in the dietary regimen during the acute phase $^{\odot}$

Elizabeth P. Gabriel, M.D. Department of Pediatrics, UP-PGH

Results of the pilot study involving 20 patients showed that a dose of 0.75 ml per ounce of milk formula was the most acceptable amount of CNO in the diet. This result was based on measurements of the duration of diarrhea, weight gain, stool output, and caloric intake of the patients.

A total of 40 subjects were recruited in the randomized controlled trial.

### **Manpower Development Grants**

#### **Research** Apprenticeships

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Twenty-nine beginning researchers availed themselves of the apprenticeship grants provided by PCHRD. Their proposals, listed below, were developed either thru the regional research fund or from the training course on basic research methods.

Historical studies of "BIAB" (Diana Edna Corda, Ma. Vicenta Gacutan, and Fe Ganchero, UP Visayas)

A preliminary investigation of the antimicrobial properties of "BIAB" (*Ma. Vicenta Gacutan and Fe Ganchero, UP Visayas*)

The efficiency of Nifedipine compared to Hydrazaline in the management of severe preeclamptic primis (*Dr. Grace Nardo and Dr. Fe Villamil, Southern Islands Medical Center*)

Short course, low-dose intradermal hepatitis B vaccination using recombinant vaccine (Dr. Cecile Clavano-de Asis, Cebu Doctors Medical College)

Improving dietary management in a rural community (Dr. Jose Rodriguez, DOH Region 7)

The cost benefits of breastfeeding (Dr. Thelma Fernandez, Cebu Institute of Medicine) KAP of diarrhea among mothers in Banilad, Mandawe City (Dr. Mirasol Cabije, UV Gullas College of Medicine)

A case control study of diarrheal diseases among children below one year old of Banilad, Mandawe City (Dr. Teresita Quisumbing, UV Gullas College of Medicine)

Malaria outbreak in non-endemic Cebu: Its epidemiology and transmission (Dr. Angelita Salarda, Department of Health, Region VII)

KABP survey on ARI in children under five in a rural setting (Dr. Susan Madarie, Region VII)

Guava leaves decoction in the topical management of partial thickness burns (Dr. Warlito Vicente, San Pedro Hospital, Davao City)

In vitro analysis of the anti-bacterial properties of medicinal plants against commonly isolated gram-positive and gram-negative organisms of acute respiratory infection among patients seen at the Mariano Marcos Memorial Hospital, Batac, Ilocos Norte (Dr. Alfonso Lagaya, Mariano Marcos State University)

Household teaching as a strategy in EPI: Evaluation study in Region II (Dr. Remedios Amistad, Regional Health Office No. 2)

Iodine deficiency disorders: A study of knowledge, attitude, and practices of the people of Baguio City and Benguet Province (Katrine Bersamira, Baguio Filipino-Chinese General Hospital) Controlled study of the effects of iodized oil on school children with iodine deficiency disorders in Kapangan, Benguet and their academic performance (Dr. Charles Cheng, Baguio Filipino-Chinese General Hospital)

An assessment of health needs of institutionalized children ages 7-15 years in Metro Manila (Profs. Winifreda de Leon and Samuel Rosales, and Louella Dancel, UP College of Public Health)

Drug utilization patterns and their determinants in an urban community (Dr. Teresita Reyes Caja, University of Sto. Tomas)

The validity of clinical history, physical findings, complete blood count, and urinalysis in the diagnosis of acute appendicitis (*Drs. Teodoro Herbosa and Daniel dela Paz, UP Philippine General Hospital*)

A blocked randomized cross-over controlled trial comparing the bioavailability of single oral dose INH and INH B6 in healthy Filipino volunteers (*Drs. Mercedes Gonzales and Estrella Paje-Villar, University of Sto. Tomas*)

An assessment of performance in clinical chemistry testing for three common analytes among secondary free standing clinical laboratories in Metro Manila (*Dr. Marilyn Barza* and Nympha Marcaida, Bureau of Research Laboratory, Department of Health)

Prevalence of cryptosporidiosis among children below five years of age in Southern Island Medical Center (Drs. Esterlina Tan and Corazon Meneses, Cebu Institute of Medicine)

#### **Scholarship Grantees**

#### Doctoral:

Josefina Tuazon (Public Health, UP-CPH) Milagros Querubin (Nutrition, UP-CHE) Gloria Bernas (Biochemistry, UP-CM) Dr. Romulo de Villa (Molecular Biology and

Biochemistry, UP-CS)

Eleanor Padla (Microbiology and Parasitology, UST)

#### Masteral:

Dr. Rosemarie Santana (Epidemiology, UP-CPH)

Dr. Florina Estrada (Physiology, UP-CM)

- Nenita Tinoko (Environmental Engineering, UP-CE)
- ARosario David (Public Health, UP-CPH)
- Dr. Nicanor Biso (Epidemiology, UP-CPH)
- Dr. Danilo Menonarca (Microbiology, UST)
- Dr. Rita Alvero (Epidemiology, UP-CPH)
- Dr. Isidro Sia (Phramacology, UP-CM)
- Dr. Esperanza Balcos ((Pharmacology, UP-CM)
- Dr. Genesis Rivera (Pharmacology, UP-CM)

#### **Thesis/Dissertation Grantees**

Teresita Marie Bagasao (Psychology, Ateneo de Manila Phebe Pendon (Psychology, Ateneo de Manila) Dr. Rebecca Monte (Nutrition, UP-CHE) Priscilla Torres (Pharmacy, UST) Elnora Yu (Pharmaceutical Chemistry, UST) Milagros Salvador (Biology, UST) Dr. Nelson Geraldino (Medical Microbiology, UST) Asuncion Ascobar (Pharmacy, UST) Reuben Rafanan (Public Health, UP-CPH) Dr. Francisca Dator (Sociology, State University of New York, Buffalo, New York, USA)

### **Financial Highlights**

For calendar year 1992, the Council had a total appropriation of P19.49M. In addition, P4.95M was generated from other sources. Among the external sources of funds were the Department of Science and Technology, Technology Application and Promotion Institute, Philippine Council for Advanced Science and Technology Research and Development, Eugenio Lopez Foundation, Inc., Fernando H. Lopez Bio-medical Research Foundation Center, Inc., Intercare Research Foundation, Interphil Laboratories, Inc., Mary Blythe Petersen Marsman Foundation, Medical Test Systems, Inc., Pilipinas Shell Foundation, Inc., International Development Research Center (IDRC) of Canada, World Health Organization (WHO), the Australian International Development Assistance Bureau (AIDAB) and the French government.

From PCHRD appropriations, the actual expenditure was P16.69M. Its distribution by S&T activity was as follow: P4.21M (25%) went to R&D; P4.2M (25%) to manpower and institution development; P0.179M (1%) to S&T services; P5.65M (35%) to the development, integration and coordination of the national health research system; and P2.45M (15%) to general administration.









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