



2000

ANNUAL
REPORT

Tropical Disease Foundation

| CONTENTS | PAGE |
|-------------------------------------|------|
| <i>Foreword</i> | 1 |
| <i>History of the Foundation</i> | 2 |
| <i>Research Programme</i> | 3 |
| <i>Service Programme</i> | 8 |
| <i>Manpower Development</i> | 11 |
| <i>Educational Programme</i> | 12 |
| <i>Publications</i> | 17 |
| <i>Participation in Conferences</i> | 22 |
| <i>Financial Statements</i> | 24 |
| <i>Organizational Chart</i> | 29 |
| <i>Board of Trustees</i> | 30 |
| <i>Benefactors</i> | 31 |

FOREWORD

The new millennium started quite auspiciously for the Foundation. In line with our mission of "research, service and training in tropical infectious disease so that all may enjoy their right to health", the Foundation has successfully collaborated with the Makati Medical Center and with the public health sector represented by the Department of Health and Barangay San Lorenzo, through the Makati Medical Center DOTS clinic. "Tutuk Gamutan," as our patients know it, has provided medicines, clinical and laboratory follow-up for our patients with tuberculosis including those with the dreaded multi-drug resistant tuberculosis through the DOTS-Plus strategy. Following our successful fund-raising for that purpose in March 2000, second line anti-TB medicines were purchased with the assistance of the World Health Organization, Western Pacific Regional Office. The MMC-DOTS clinic has the distinction of being the first pilot project on DOTS-Plus approved by the Green Light Committee, a scientific group that assists projects in the procurement of second-line drugs at concessional prices. This was made possible through an endowment fund from the Philippine Charity Sweepstakes Office.

This year, the Foundation's work on the 1997 National Tuberculosis Prevalence Survey was also recognized by the Department of Science and Technology through the conferment of the Outstanding Health Research Award. This award could not have been possible were it not for all the field workers, laboratory and research staff who participated in this project to whom we are all very grateful.

The publication of a new edition of the Guidelines on Antimicrobial Therapy, as well as articles in peer-reviewed international and national journals, is a testament to the active training and research program of the Foundation in collaboration with the staff of the Infectious Disease Section of the Department of Medicine of the Makati Medical Center.

The Foundation has been accredited as a member institution of the Philippine Council for NGO Certification and as such, we have attained the status of tax-exempt donee institution. We hope that this will encourage more philanthropists to provide support for the Foundation's programmes. All these fine achievements for the year 2000 chronicled in this report were made possible only by the generous support from our benefactors, who we acknowledge with sincere thanks.

President



Thelma E. Tupasi, MD

President, Tropical Disease Foundation

HISTORY OF THE FOUNDATION

The Tropical Disease Foundation is a private, non-stock, non-profit organization founded in 1984 by a group of physicians. It is supported by research grants, donations and endowments. Its objective is to undertake researches and provide training and service in the control and management of tropical infectious diseases.

A Memorandum of Agreement was signed with the Makati Medical Center (MMC) in 1987, and Dr. Constantino P. Manahan became the first Chairman of the Board of Trustees of the Foundation. After Dr. Manahan's untimely demise, Dr. Romeo Gustilo became Chairman of the Board of Trustees. From 1987 to date, the Honorary Chairman of its International Advisory Board is Dr. Calvin M. Kunin.

Through the generosity of donors and friends, the Foundation has been able to establish its research laboratory which has gradually expanded, and now includes facilities for special microbiology, mycobacteriology, immunology, mycology, and virology. With these laboratory facilities, the Foundation has been able to pursue its activities in educational and research programs in tropical infectious diseases of public health importance. Notable among these were its community-based prospective studies on Acute Respiratory Infection (ARI) and the 1997 National Tuberculosis Prevalence Survey undertaken on behalf of the Department of Health.

Linkage with the Makati Medical Center

The Makati Medical Center was founded by a group of distinguished health professionals headed by Dr. Constantino P. Manahan, who was the first Chairman of the Board and concurrent Medical Director. It is owned and operated by the Medical Doctors, Inc. and was formally inaugurated on 31 May 1969.

The Foundation complements the facilities of the MMC mainly in the fields of microbiology, immunology and virology. Subject to the rules and regulations of the MMC Institutional Review Board, the Foundation is authorized to undertake research projects in accordance with the provisions of the Helsinki Declaration. The MMC accordingly allows its staff, including

medical residents and fellows, to participate in the researches of the Foundation. In turn, the research facilities of the Foundation are also made available to the MMC personnel for the management of patients who are in need of them. The Foundation actively participates in the MMC training programs and in its other related activities.

The MMC, because of its belief in the sanctity of human life, renders equal standards of medical services to all patients regardless of their socio-economic status. Its efforts are geared toward meeting the health needs of the patients by maintaining highly qualified staff and by constantly updating its medical technology.

RESEARCH PROGRAMME



"In the health services research category, Dr. Thelma Tupasi and the Tropical Disease Foundation are recognized for generating data so compelling that they jolted concerned sectors from their complacency in managing an old disease. Results of the nationwide, multidisciplinary TB prevalence survey spearheaded by Dr. Tupasi raised the level of understanding of the tuberculosis problem in the country, and directed strategic planning of TB control efforts..."

The Year 2000 Outstanding Health Research Award.

Research projects are done in collaboration with local and foreign institutions and universities. The research programme helps to establish linkages in order to facilitate technology transfers. Since 1987, thirty research projects (Table 1) have been conducted on a variety of infectious disease problems.

Table 1. Research Projects and Funding Agencies

| Research Projects (Year Undertaken) | Sponsor |
|--|---|
| MMC DOTS-Plus Pilot Project | <i>Philippine Charity Sweepstakes Office</i> |
| SENTRY (March-December 2000) | <i>Bristol-Myers Squibb</i> |
| Gram-positive Bacteremia at the Makati Medical Center (January 1999-March 2000) | <i>Pharmacia Upjohn</i> |
| SENTRY (March-December 1999) | <i>Bristol-Myers Squibb</i> |
| A Double-Blind Study Comparing the Safety and Efficacy of Cefepime versus Ceftazidime in Severe Bacterial Infections (March-December 1999) | <i>Bristol-Myers Squibb</i> |
| Point-in-Time Determination of the Antimicrobial Activity of Cefepime Compared to Other Broad-Spectrum Beta-Lactams at Medical Centers in the Philippines (February-December 1998) | <i>Bristol-Myers Squibb</i> |
| The Efficacy of Sublingually Administered Natural Human Interferon Alpha in the Treatment of Patients with Chronic Active Hepatitis B (1992-1998) | <i>Pharma Pacific Management Pty Ltd., Australia</i> |
| The Second Nationwide Tuberculosis Prevalence Survey (March-December 1997) | <i>World Bank and the Philippine Health Development Project (PHDP)</i> |
| Prevalence Survey of the Dermatologic Diseases in the Philippines (April-June 1997) | <i>Janssen Pharmaceuticals</i> |
| Seroepidemiologic Study of Hantaviruses in the Philippines (April-June 1997) | <i>Glaxo-Wellcome Philippines Vizcarra Pharma</i> |
| Tuberculin Skin Testing among Healthcare workers at the Makati Medical Center (1996-1997) | <i>Glaxo-Wellcome Philippines</i> |
| Comparison Between 7H9 with OADC Enrichment Broth and Solid Lowenstein Jensen Medium for Primary Isolation of Mycobacteria (1995-1996) | <i>Astra Fund for Clinical Research and Continuing Medical Education (AFRCME)</i> |
| Multi-center Study on Lincomycin for Streptococcal Pharyngitis (1995-1996) | <i>Upjohn Philippines</i> |
| Multi-center Study on Short-Course 2% Clindamycin Vaginal Cream vs. Oral Metronidazole for Bacterial Vaginosis (1996) | <i>Upjohn Philippines</i> |
| In-vitro Study of Pefloxacin vs. Ciprofloxacin and Ofloxacin (1996) | <i>Rhone-Poulenc Rorer</i> |
| Spectrum of Ulcerative Keratitis at the Makati Medical Center (1993) | <i>Glaxo-Philippines, Inc.</i> |
| In-vitro Susceptibility of Gram-negative and Gram-positive Pathogens to Tosufloxacin as Compared with Other Quinolones (1992-1993) | <i>Cyanamid Lederle (Phils), Inc.</i> |
| In-vitro Susceptibility of Bacterial Isolates to Cefepime as Compared to Ceftazidime and Ceftriaxone (1992) | <i>E.R. Squibb and Sons</i> |
| A Randomized Open-label, Comparative Multi-center, Study | <i>Cyanamid Lederle (Phils), Inc.</i> |

| | |
|---|---|
| of Parenteral Piperacillin/Tazobactam Versus Cefazidime Plus Metronidazole in the Treatment of Hospitalized Patients with Intraabdominal Infections (1991-1992) | |
| Piperacillin and Tazobactam Sensitivity Profile (1991-1992) | <i>Cyanamid Lederle (Phils), Inc</i> |
| Short-term Chemotherapy of Leprosy with Minocycline and Rifampicin (1991) | <i>Cyanamid Lederle (Phils), Inc</i> |
| Minocycline in the Treatment of Lepromatous Leprosy (1990) | <i>National Research Council of the Philippines</i> |
| Lymphoblastoid Interferon Alpha in the Management of Chronic Hepatitis B Infection (1989-1990) | <i>Wellcome Foundation Ltd.</i> |
| Levels of Prostacyclin and Thromboxane in Pregnancy-Induced Hypertension (1989-1990) | <i>International Development Research Centre</i> |
| Traditional Practices and Ritual Therapy on Acute Respiratory Infection (1989-1990) | <i>National Research Council of the Philippines</i> |
| Inhibitory and Sensitivity Patterns of Local Common Pathogens to Aztreonam (1989) | <i>E.R. Squibb & Sons</i> |
| Multi-drug Therapy in Leprosy (1988-1990) | <i>Cyanamid Lederle (Phils), Inc</i> |
| Surveillance of Ofloxacin Resistance (1987-1990) | <i>Daiichi</i> |
| Acute Respiratory Infection in Childhood: Data Analysis (1987-1990) | <i>Board on Science and Technology for International Development, U.S. National Academy of Sciences</i> |
| Etiology of Childhood Acute Respiratory Infections: Pathophysiologic Studies (1991) | <i>Board on Science and Technology for International Development, U.S. National Academy of Sciences</i> |
| Acute Respiratory Infection (1987) | <i>Astra Pharmaceuticals (Phils.), Inc</i> |
| Chlamydia Infection in Filipino Women(1987) | <i>U.S. Naval Medical Research Unit 2 (NAMRU)</i> |

Outstanding Health Research Award 2000: The 1997 Nationwide Tuberculosis Prevalence Survey in the Philippines

Awarded "Outstanding Health Research Award for the year 2000" (OHRA) by the Philippine Council for Health Research and Development (PCHRD), the project, which was undertaken by the Foundation on behalf of the Department of Health, was cited for its impact on the National TB Control program. The data obtained from the survey was utilized for three important purposes: to advocate for political and financial support for TB control

since it is a significant public health problem, to help develop the operational and strategic plans of the National TB Control Program and to help develop and implement the government's social mobilization campaign called "TB Alert".

This recognition has been an impetus in the Foundation's current involvement in the TB control program of the DOH through the MMC DOTS Clinic.

SENTRY Surveillance Program for the Western Pacific and South Africa 1998-1999

The Makati Medical Center through the Foundation was invited as the sole

representative of the country in this regional antimicrobial resistance surveillance

program under the direction of Dr. John D. Tumidge.

In the first quarter of 1998, the first batch of isolates was sent to the reference laboratory in the Women's and Children's Hospital in North Adelaide, Australia and this continues up to the present. Other participating countries are Australia, Japan, Taiwan, China, Hong Kong, Singapore and South Africa.

The 1998-1999 data were presented in the 39th Interscience Conference on Antimicrobial Agents and Chemotherapy in 1999, in San Francisco, California, USA. Among the highlights were emerging quinolone and multi-resistance in bacteremic salmonellosis, emergence of extended-spectrum β -lactamases (ESBL) in *Enterobacter cloacae*, detection of ESBL in other clinical isolates, diversity of these

ESBLs in Enterobacteriaceae and emergence of multi-resistant *Staphylococcus aureus* (MORSA) as a major nosocomial pathogen.

The Philippines submitted the most number of *Salmonella* isolates comprising 68% of the total (3,946 isolates); 17.5% were *Salmonella* spp. and 80% were either *S. typhi* or *S. paratyphi* A. Ciprofloxacin resistance was seen in 4 (11%) of *Salmonella* spp. isolates from the country. Two of these isolates had an MIC>32 mg/L. Aside from the Philippines, multi-resistance was prevalent in Taiwan, South Africa and Hong Kong.

Out of a total of 852 isolates from the Philippines, 46 (5.4%) were *Enterobacter cloacae* with variable resistance to several antibiotics (Table 2).

Table 2. Prevalence of multi-resistance in *E. cloacae*

| Country | N | % Non-susceptible | | | | | | | |
|--------------------|-----------|-------------------|----------------|---------------|---------------|----------------|----------------|---------------|--|
| | | CTR >8 (%) | CAZ >8 (%) | CPM >8 (%) | GEN >8 (%) | SXT >8 (%) | CIP >8 (%) | IMP >8 (%) | |
| Australia | 79 | 25 (32) | 27 (37) | 0 (0) | 4 (5) | 4 (5) | 0 (0) | 0 (0) | |
| Hong Kong | 17 | 7 (41) | 6 (35) | 0 (0) | 2 (12) | 4 (24) | 3 (18) | 0 (0) | |
| Japan | 55 | 14 (25) | 17 (31) | 0 (0) | 6 (11) | 6 (11) | 5 (9) | 0 (0) | |
| China | 38 | 23 (61) | 21 (55) | 9 (24) | 18 (47) | 15 (39) | 18 (47) | 0 (0) | |
| Philippines | 46 | 18 (39) | 24 (52) | 1 (2) | 9 (20) | 23 (50) | 13 (28) | 0 (0) | |
| Singapore | 16 | 6 (38) | 4 (25) | 2 (13) | 2 (13) | 6 (38) | 3 (19) | 0 (0) | |
| South Africa | 13 | 6 (46) | 6 (46) | 2 (15) | 2 (15) | 2 (15) | 1 (8) | 0 (0) | |
| Taiwan | 10 | 6 (60) | 5 (50) | 2 (20) | 4 (40) | 5 (50) | 2 (20) | 0 (0) | |
| ALL | 274 | 105 (38) | 110 (40) | 16 (6) | 47 (17) | 65 (24) | 45 (16) | 0 (0) | |

CTR-ceftriaxone, CAZ-ceftazidime, CPM-cefepime, GEN-gentamicin, SXT-co-trimoxazole, CIP-ciprofloxacin, IMP-impipenem

ESBL in the Western Pacific Region

The ESBL problem, which is prevalent in the USA and European countries, seems to have reached the Western Pacific region. Similarly, they exhibit multi-resistance to the fluoroquinolones, aminoglycosides and tetracyclines (Table 3)

Multi-resistant oxacillin-resistant *S. aureus* (MORSA) is now a significant problem in many institutions in the Western Pacific regional countries and the only exceptions are the Philippines and some parts of Australia. The proportion of MORSA

from the other countries ranged from 40% to 80%.

Table 3. Prevalence of ESBL

| Country | <i>E. coli</i> | | <i>K. pneumoniae</i> | |
|--------------------|----------------|------------|----------------------|-------------|
| | ESBL | % | ESBL | % |
| Australia | 0/508 | 0 | 6/120 | 5 |
| Japan | 3/124 | 2.4 | 8/84 | 9.5 |
| Hong Kong | 21/153 | 13.7 | 6/71 | 8.5 |
| China | 21/101 | 20.8 | 21/64 | 32.8 |
| Philippines | 13/135 | 9.6 | 31/144 | 21.5 |
| Singapore | 4/78 | 5.1 | 27/66 | 40.9 |
| South Africa | 2/39 | 5.1 | 13/36 | 36.1 |
| Taiwan | 4/85 | 4.7 | 6/48 | 12.5 |
| ALL | 68/1223 | 5.6 | 118/633 | 18.6 |

Fluoroquinolone Resistance in the Western Pacific Region

Fluoroquinolone resistance in Enterobacteriaceae in the Western Pacific is

amongst the highest in the world. There are significant levels of resistance in oxacillin-

resistant *S. aureus* and coagulase-negative staphylococci while in non-fermentative gram-negative bacilli, the levels are commensurate with other areas of the world.

Clinically relevant resistance in fastidious respiratory pathogens in the region is rare (Table 4).

Table 4. Resistance to Ciprofloxacin in Gram-negative organisms

| Country | Acinetobacter spp | | Non-fermentative bacilli | | <i>S. maltophilia</i> | |
|--------------------|-------------------|-----------------|--------------------------|------------------|-----------------------|-----------------|
| | N | R (%) | N | R (%) | N | R (%) |
| Australia | 12 | 0 | 113 | 5 (4.4) | 10 | 5 (50.0) |
| Hong Kong | 26 | 8 (30.8) | 37 | 8 (21.6) | 3 | 2 (66.7) |
| Japan | 16 | 2 (12.5) | 87 | 15 (17.2) | 10 | 6 (60.0) |
| China | 38 | 12 (31.6) | 81 | 12 (14.8) | 7 | 1 (14.3) |
| Philippines | 18 | 2 (11.1) | 59 | 14 (23.7) | 10 | 5 (50.0) |
| Singapore | 37 | 9 (24.3) | 35 | 1 (2.9) | 8 | 1 (12.5) |
| South Africa | 18 | 11 (61.1) | 53 | 9 (17.0) | 4 | 2 (50.0) |
| Taiwan | 28 | 18 (64.3) | 59 | 5 (8.5) | 2 | 0 |

Increased resistance to Ciprofloxacin and Ofloxacin in Multidrug Resistant *Mycobacterium tuberculosis* isolates from patients at the MMC

A hospital-based cross-sectional study to determine the susceptibility of *Mycobacterium tuberculosis* to Ciprofloxacin and Ofloxacin was done among patients referred to the Tropical Disease Foundation.

By indirect proportion method using disk elution technique, 215 consecutive isolates of *M. tuberculosis* from January 1995 to April 2000 were tested against isoniazid (H), rifampicin (R), streptomycin (S), and ethambutol (E). Of these isolates, 153 were tested against ciprofloxacin (C) and ofloxacin (O).

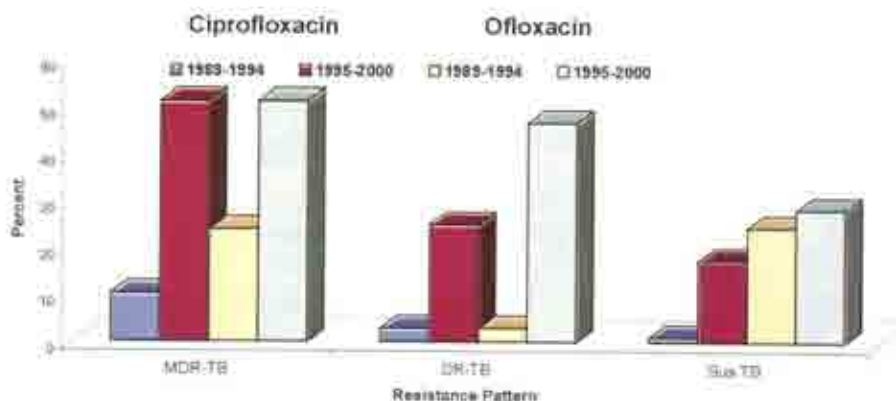
Over-all multi-drug resistance (MDR) was noted in 16.7% and was all acquired resistance. Any resistance to H was noted in 31.2%, R in 17.2%, S in 14.4%, and E in 20%. Among the 153

isolates tested, resistance to C was found in

26.8% and O in 35.3%. Acquired resistance was significantly higher than primary resistance for all first-line drugs and for ciprofloxacin but not for ofloxacin. Of the MDR strains, 52.9% were already resistant to C and O. Compared to 1989-1994 data, over-all resistance to the first-line drugs was not significantly different, but resistance to ciprofloxacin and ofloxacin were significantly higher than in 1989-94.

Compared to a similar study in the past, there was a significant increase in the over-all resistance to C and O. This indicates that *M. tuberculosis*, particularly MDR-TB, has diminished susceptibility to the fluoroquinolones compared to when they were first introduced in clinical practice.

Figure 1. Resistance to ciprofloxacin and ofloxacin among isolates of *M. tuberculosis*



SERVICE PROGRAMME

In 1997, the foundation undertook the Nationwide Tuberculosis Prevalence Survey on behalf of the Department of Health and this project laid the ground for two important endeavors: Directly Observed Therapy, Short-course (DOTS) for susceptible TB and DOTS-Plus for multi-drug resistant TB (MDR-TB).

Makati Medical Center Directly Observed Therapy, Short-course Clinic (MMC DOTS Clinic)

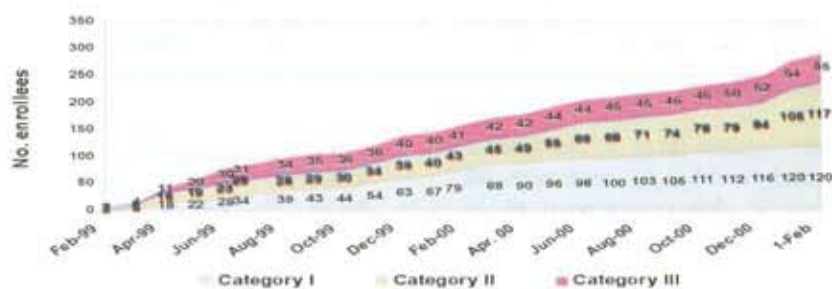
The MMC DOTS Clinic has been in existence since February 5, 1999 in response to the need for public-private partnership in the management of TB patients in the country. The clinic is a collaboration of the Makati Medical Center and Tropical Disease Foundation (private sector) and the Department of Health and Barangay San Lorenzo (public sector).

From the initial 5 patients enrolled in February 1999, the number of patients has gone up to 305 with 56 MDR-TB

patients among the Category II patients. (Fig.2) A total of 162 patients have graduated from the program and the 56 MDR-TB patients have been enrolled in the DOTS-Plus program specifically designed for multi-drug resistant TB.

Three former patients are doing volunteer work in the clinic, sharing their experience with the patients especially the new enrollees. Aside from the commitment of the doctors and nurses, they provide the human touch to the clinic environment.

Figure 2. Enrollees in the MMC DOTS Clinic according to treatment category (Feb 1999- Feb 2001) N=292

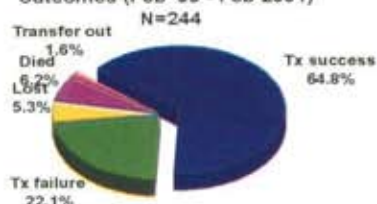


Treatment outcomes

Based on WHO definitions, cure was attained in 70 (32.4%) of patients, treatment completed in 88 (40.8%); 4 (1.6%) were transferred out, 15

(6.2%) died, 13 (6.0%) were lost and 26 (22.1%) were treatment failure. The rest are still undergoing treatment. (Fig. 3)

Fig. 3. MMC DOTS Clinic: Treatment outcomes (Feb '99 - Feb 2001) N=244



High failure rate is due to multi-drug resistant TB in 54 cases which underscores the importance of DOTS-Plus.

Table 5. Treatment outcomes

| Category | I - New Cases | II-Retreatment Cases |
|-------------------|---------------|----------------------|
| Number | 102 | 93 |
| Treatment success | 83.3% | 35.5% |
| Cure | 55.9% | 14.0% |
| Tx completed | 27.4% | 21.5% |
| Failure | 2.9% | 50.6% |
| Died | 5.9% | 7.5% |
| Lost | 6.9% | 3.2% |
| Transfer out | 1.0% | 3.2% |

MMC DOTS-Plus Pilot Project

Many patients who are initiated on anti-TB treatment do not complete their treatment for many reasons, foremost of which is the cost of medications. This problem has led to the emergence of drug resistant tuberculosis. In the 1997 NTPS, the prevalence of MDR-TB was 4.3%; 1.5% in untreated patients and 14.3% in those who had previous treatment. Among 139 isolates in the MMC DOTS Clinic with susceptibility results, only 39% (54) harbor the fully susceptible strains; 41% (57) are multi-drug resistant and the remaining isolates show resistance to one or more of the primary line drugs.

In the MMC DOTS Clinic, treatment failures in the DOTS strategy was 22.1 % and was only seen in patients with MDR-TB. The option for countries with limited resources is to leave patients with MDR-TB untreated. However, this will only lead to a bigger public health problem in the future, as the MDR strain will become the dominant strain circulating in the community, as observed in some states in the former Soviet Union.

Currently, there is no program in the NTP addressing the problem of MDR-TB. The MMC DOTS Clinic started to employ the DOTS-PLUS strategy for MDR-TB cases enrolled in its program. Of the 54 MDR-TB patients identified by drug susceptibility testing done in the TDF laboratory as well as in other laboratories, 51 are on treatment with second line anti-TB drugs.

Green Light Committee Approval

The MMC DOTS clinic has been approved as the first pilot project to undertake DOTS-Plus by the Green Light Committee (GLC) and the Scientific Working Group on Multi-drug Resistant Tuberculosis of the World Health Organization (WHO).

Objective

To establish a program of management for MDR-TB in collaboration with the National Tuberculosis Control Program (NTP) of the Department of Health and other non-government agencies with existing community network of caregivers for the

treatment of TB such as the Philippine Tuberculosis Society.

Methodology: The project shall have three phases:

Phase 1. A pilot project on DOTS-Plus for the management of MDR-TB at the Makati Medical Center. The DOTS-Plus strategy requires drug susceptibility testing of *M. tuberculosis* isolates from patients to determine resistance to primary anti-TB drugs as basis for an individualized treatment regimen (ITR) using second-line drugs. As the pilot project approved by the GLC, the MMC DOTS clinic can purchase second line anti-TB drugs at concessional prices so that the cost of treatment for a patient has been substantially diminished.

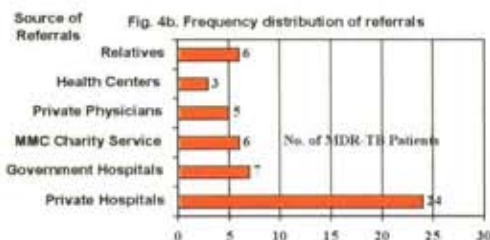
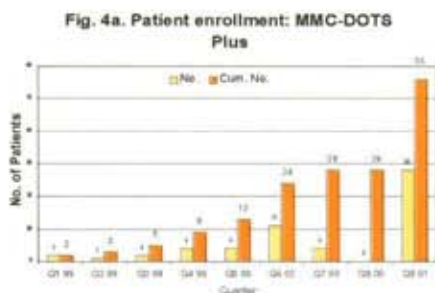
Phase 2. Setting targets and developing local expertise in the implementation of DOTS Plus. A nationwide prevalence survey of drug resistant TB to be done in 2001 shall determine the magnitude of the problem. Training on case management of MDR-TB shall be undertaken to develop the expertise on DOTS-Plus. This phase shall be undertaken with technical consultants from the WHO and in collaboration with the NTP of the Department of Health. Local expertise for the establishment of specialized treatment centers for MDR-TB shall be developed.

Phase 3: Community-based implementation of DOTS-Plus through specialized treatment centers for MDR-TB in coordination with existing DOTS Clinics both in the public and private sectors. This shall be undertaken in collaboration with the NTP, the Philippine Tuberculosis Society (PTS), a private science foundation involved in the control of TB, and the Nutrition Center Philippines (NCP). The PTS has treatment centers throughout the country and is also responsible for managing the Quezon Institute, a 1000-bed hospital for treatment of TB patients. The NCP has the capability of incorporating the nutrition aspect to make the community-based implementation of DOTS-Plus a more comprehensive program.

Financial Assistance from PCSO

The financial outlay for the project will require subsidy for training of staff, procurement of second-line drugs and laboratory monitoring of the response to therapy. This project has been funded by an endowment from the Philippine Charity Sweepstakes Office (PCSO) originally intended for the treatment of 15 patients. With the concessionally-priced second-line drugs, the endowment for the first year will be able to provide treatment for more patients. Continuing financial assistance from the PCSO to support the treatment of the cohort of 200 patients approved for the pilot project is essential. It is estimated that in the second year of the project, as enrollment of more MDR-TB patients accrue, there will be a cumulative rise in the cost of medications.

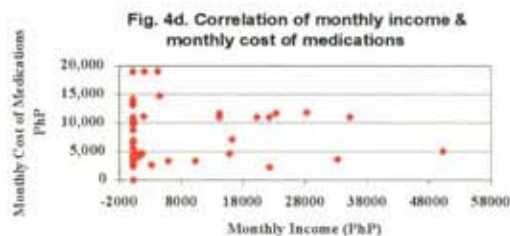
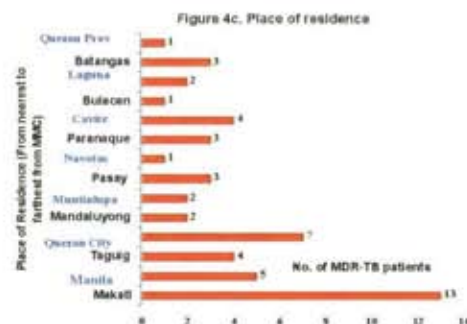
In the MMC DOTS Clinic, the DOTS-Plus strategy was put into place in November 1999 when some of the second-line drugs became available. At present, 51 MDR-TB patients, 36 males and 25 females, are under the strategy and patient accrual by quarter is shown in Figure 4a. Two MDR-TB patients died during the last quarter of 2000 while on treatment.



The majority of patients 24/51 (47%) were referred to the clinic by private hospitals and 7/51 (13.7%) by government hospitals, as shown in figure 4b.

Forty patients (78.4%) reside in areas or cities around Makati City where the clinic is located. Eleven patients reside in the outskirts of Metro Manila, the farthest being Quezon province which is about 120 km. From Makati City with a travel time of 2-3 hours one way. The geographic distribution of patients is shown in Figure 4c.

The program fully subsidizes the treatment for the majority of patients who are unemployed comprising 53% (27) or with a monthly income of Php 10,000.00 or less comprising 21.6% (11) which is not enough to meet the monthly expenses of a typical Filipino family. The monthly cost of medications ranges from Php 2,361.00 to Php 19,026.00. Three patients (5.8%) have a monthly income of more than Php 30,000.00 and can probably pay for their medications if their income is sustained. The correlation of the patient's monthly income and monthly cost of medication is shown in Figure 4d.



MANPOWER DEVELOPMENT PROGRAMME

By the very nature of its work, the Foundation is in constant need of personnel trained in special laboratory techniques. The Foundation therefore makes it possible to have its staff trained in different hospitals

and laboratories here and abroad. Table 6 shows the grantees, sponsors and institutions where they trained.

Table 6. Training Grants since 1987

| Name | Training Grant (Sponsor) | Venue |
|---|---|---|
| Faith D. Villanueva, M.D. Jerose O. Derilo, RMT March 15-19, 2000 | Basic Course on Medical Mycology | Philippine Columbian Association Clubhouse, Manila, Philippines |
| Ma. Socorro M. Clarin, RMT Rowena C. Cardaño, RMT March 11-16, 2000 | CMV pp65 Antigenemia Assay | Queen Mary Hospital Pokfulam Road, Hong Kong |
| Ma. Lourdes A. Villa, M.D. Rowena C. Cardaño, RMT April 9-21, 1999 | Basic Course on Medical Mycology (Pfizer) | University of Santo Tomas Manila, Philippines |
| Evelyn T. Alesna, M.D. Sept 1996-July 1997 | Group Training Course on Advanced Microbial Diseases Study (JICA) | Research Institute for Microbial Diseases (Biken), Osaka University in Osaka, Japan |
| Alicia B. Rivera, RMT 21-28 September 1997 | Drug Susceptibility of Mycobacteria (Rhone-Poulenc Rorer) | Korean Institute of Tuberculosis (KIT), Seoul, Korea |
| Zenaida A. Chua, R.N. Feb 18-23, 1996 | Hospital Infection: Enhancing Present Arrangements | London |
| Ma. Imelda D. Quelapio, M.D. 1996 | Basic Course on Medical Mycology (Pfizer) | University of Santo Tomas Manila, Philippines |
| Evelyn T. Alesna, M.D. 1996 | Basic Course on Medical Mycology (Pfizer) | University of Santo Tomas Manila, Philippines |
| Jocelyn M. Lazo, RMT May - July 1994 | Detection of M. tuberculosis by Polymerase Chain Reaction (Daichi) | Nagasaki University Japan |
| Vilma M. Co, M.D. November, 1994 | Nosocomial Infectious Diseases and Hospital Epidemiology (Makati Medical Center) | Harvard Medical School Children's Hospital, Boston, Massachusetts U.S.A. |
| Alicia B. Rivera, RMT 13 April - 2 July 1993 | Antifungal Assays (British Medical Council) | Regional Dept. of Infectious Diseases and Tropical Medicine Univ. of Manchester, U.K. |
| 19-23 April 1993 | BSM Course in Diagnostic Medical Mycology (British Medical Council) | University of Leeds, U.K. |
| Benilda Q. Baello, RMT 17-28 May 1993 | Respiratory Infections in Immunocompromised Patients (Insular Life Assurance Co., Ltd) | National Institutes of Health, Bethesda, Maryland, U.S.A. |
| Melanie B. Nogoy, RMT September 1991-March 1992 | Basic Training on Electron Microscopy (Insular Life Assurance Co., Ltd) | National University of Singapore |
| Normando C. Gonzaga, M.D. 28 October-1 November 1991 | WHO Bi-regional Training Course on Electron Microscopy in Biomedical Research and Diagnosis of Human Diseases (WHO) | Chulalongkorn University Bangkok, Thailand |

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| Normando C. Gonzaga, M.D. October – November 1990 | Immuno-electron Microscopy And Gold Immunoblotting In Chronic Hepatitis B Infection (Wellcome) | National University of Singapore |
| Lerma C. Baes, RMT 1990 | Rapid Viral Diagnosis, Chlamydia Isolation (Daiichi) | National Institute of Health Mahidol University Bangkok, Thailand |
| Normando C. Gonzaga, M.D. October – November 1990 | Immuno-electron Microscopy And Gold Immunoblotting In Chronic Hepatitis B Infection (Wellcome) | National University of Singapore |
| Lerma C. Baes, RMT 1990 | Rapid Viral Diagnosis, Chlamydia Isolation (Daiichi) | National Institute of Health Mahidol University Bangkok, Thailand |
| Marivyl Javato-Laxer, M.D. Eileen E. Navarro, M.D. 1988-1989 | Immune Mechanism of Schistosoma japonicum (NAMRU) | George Washington Univ. Medical Center Washington, D.C., U.S.A. |
| Eileen E. Navarro, M.D. Lolita Tolentino, RMT 1988 | Clinical Features of Viral and Bacterial Infections, Immunologic Monitoring & Rapid Diagnostic Techniques in Transplant Patients (Mr. Freddie Elizalde) | Children's Hospital of Pittsburgh, U.S.A. |
| Lolita Tolentino, RMT 1988 | Antibiotic Susceptibility Testing by MIC, Mycobacteriology | Nagasaki University Nagasaki, Japan |
| | Identification of <i>P. carinii</i> & <i>L. pneumophila</i> ; Viral Antigen Detection from Clinical Specimens (Daiichi, Boie-Takeda, and Filipino-Chinese Medical Specialty Scholarship Foundations) | Sendai National Hospital Japan |
| Thelma E. Tupasi, M.D. 1988 | Influenza and Respiratory Syncytial Virus (WHO) | National University of Singapore |
| Ma. Lourdes O. Gomez, M.D. 1988 | Oral Rehydration for Diarrhea (Tropical Disease Foundation) | San Lazaro Hospital Philippines |
| Thelma E. Tupasi, M.D. Nellie V. Mangubat, BSFT 1987 | Computerized Data Management (National Academy of Sciences, Board on Science and Technology for International Development) | University of Maryland College Park, Maryland, U.S.A. |

EDUCATIONAL PROGRAMME

The 12th C. P. Manahan Memorial Lecture

In grateful appreciation of the benefactors, donors, and patrons support the Tropical Disease Foundation, notably the late Dr. Constantino P. Manahan, founding chairman of the Makati Medical Center Board of Directors, the 1997 National Tuberculosis Prevalence Survey findings were presented by Dr. Thelma E. Tupasi on 26 July 2000. Dr. Pacita Zara, the

executive director of the Philippine Council for Health Research and Development of the Department of Science and Technology, presided over the multimedia presentation of the Outstanding Health Research Award ceremonies held earlier on 17 July 2000 at the Manila Hotel.

Dr. Thelma E. Tupasi, the principal investigator spoke on the lessons learned

and her vision for the successful control of the tuberculosis problem including MDR-TB in the country in line with the government's renewed efforts towards a solution. She also

paid tribute to the doctors, nurses, medical technologists and x-ray technicians - the "TB heroes" who were instrumental in the completion of the survey.

Infectious Diseases Forum

In collaboration with the University of Virginia School of Medicine, Division of Geographic and International Medicine, the Foundation hosted an Infectious Diseases Forum on October 3, 2000 at the Ledesma Hall of the Makati Medical Center.

Distinguished foreign speakers were Dr. Richard L. Guerrant, director of the Office of International Health at the University of Virginia School of Medicine, Dr. Cirle S. Alcantara, from the Department of Medicine and Office of International Health at the University of Virginia School of Medicine and Dr. Kai Zu, from the Department of Medicine, State University of New York at Stony Brook. They spoke on the impact and management of diarrheal diseases, *Clostridium difficile* infection and antibiotic-associated diarrhea, and the association between *Helicobacter pylori* and gastric cancer. Dr. Vilma Co, an Infectious

Diseases consultant of the Makati Medical Center completed the first part of the forum on gastrointestinal infections with her lecture on Hepatitis B infection which was followed by an open forum moderated by Dr. Homer Abiad, from the section of Infectious Diseases of MMC.

The second part focused on the problem of tuberculosis in the country with lectures by Dr. Thelma Tupasi on multi-drug resistant TB and Dr. Ma. Imelda Quelapio on the MMC DOTS Clinic experience. A second open forum was facilitated by Dr. Rodrigo Romulo. The forum was attended by members of the medical staff of the Makati Medical Center, as well as residents and fellows-in-training from other institutions, and some members of the medical staff of the Canadian and Japanese embassies here in Manila.

MMC DOTS-Plus Pilot Project First Training Session

A training session for the MMC DOTS-Plus Pilot Project was conducted on October 5 - 7, 2000 at the Makati Medical Center Doctor's Lounge and the Tropical Disease Foundation office.

Special guests were Dr. Sonya Shin from the Program on Infectious Diseases and Social Change of the Harvard Medical School and Dr. Dong-Il Ahn from the World Health Organization, Western Pacific Regional Office. The session was attended by Dr. Thelma E. Tupasi, head of the Tropical Disease Foundation, Dr. Ma. Imelda D. Quelapio, executive officer of the MMC DOTS Clinic, Dr. Rodrigo L. C. Romulo and Ms. Amelia Sarmiento of the Philippine Coalition Against Tuberculosis (PhilCAT), Dr. Vilma M. Co, Dr. Margarita T. Cayco and Dr. Homer G. Abiad and the fellows of the section of Infectious Diseases

of the Makati Medical Center, and the staff of the Tropical Disease Foundation.

The 2-day session covered issues on case management of MDR-TB including principles of regimen design, management of difficult cases and adverse reactions to anti-TB drugs; guidelines for the MMC DOTS-Plus Pilot Project; laboratory issues including interpretation and quality control of drug susceptibility testing, and programme issues including financial support, logistics for procurement of drugs and laboratory supplies and external monitoring of the pilot project. The activity was capped by an advocacy dinner with Dr. Raul G. Fores, medical director of the MMC and representatives from the Philippine Charity Sweepstakes, Zuellig Foundation, Rotary Club of Makati, CIDA, Asian Development Bank and USAID.

Infectious Disease Fellowship Training Program

The Infectious Disease Section of the Makati Medical Center has a two-year fellowship training program accredited by the Philippine Society for Microbiology and Infectious Diseases. The program also involves third year medical residents rotating in the section for two months as part of their residency in Internal Medicine. The curriculum includes clinical care of patients

with community- and hospital-acquired infection, laboratory training in bacteriology, mycobacteriology, mycology and virology, and research training in the epidemiology of infectious diseases and clinical trials of new antimicrobial agents. Since 1988, a total of eleven fellows have completed the training program.

Table 7. Fellowship Training Programme

| Fellows | Years |
|----------------------------------|------------|
| Marivyl Javato, MD | 1987-1988 |
| Rebecca Littaua, MD | 1987-1988 |
| Maria Lourdes Gomez – Gozali, MD | 1988- 1989 |
| Mamerto G. Garvez, MD | 1989-1990 |
| Vilma Martinez-Co, MD | 1991-1992 |
| Ellamae M. Sorongon, MD | 1993-1994 |
| Evelyn T. Alesna, MD | 1995-1997 |
| Maria Imelda D. Quelapio, MD | 1996-1998 |
| Maria Lourdes A. Villa, MD | 1997-1999 |
| Carmela A. Rivera, MD | 1998-2000 |
| Faith D. Villanueva, MD | 1999-2001 |
| Erlly T. Limlingan, MD | 2000-2002 |



Dr. Ma. Lourdes Villa (3rd from right) during the fellows' graduation rites at the MMC.



Dr. Carmela Rivera.

Dr. Faith Villanueva (right) at the fellows' graduation rites.



Graduation of Infectious Disease fellows: Dr. Ma. Lourdes Villa (right) and Dr. Faith Villanueva (left) with Dr. Thelma E. Tupasi (center).

Infection Control Program

The Infection Control Committee (ICC) of the Makati Medical Center was created to establish the standard operating patient care program for the prevention, investigation, surveillance and control of nosocomial infections. The ICC is a hospital committee responsible to the medical staff. The working committee includes staff members from the section of Infectious Diseases and representatives from the departments of Microbiology and Pathology, Pharmacy, Dietary and Housekeeping Services, Medicine, Surgery, Obstetrics,

Pediatrics, Emergency Room and the Hospital Administration. The committee holds regular monthly meetings to formulate policies for the control of infections, review various surveillance programs and employees' health program, and constantly assesses the effectivity and implementation of ICC policies and guidelines.

It maintains surveillance programs, including the ongoing surveillance of tuberculin skin test conversion among the house staff members, nosocomial infections in the ICU and antimicrobial resistance.

Guidelines on Antimicrobial Therapy

This manual is a biennial project of the foundation intended to provide physicians with a handy reference on empiric antimicrobial therapy. This is part of the foundation's contribution to the fellowship training program, as fellows take active part in the project by providing evidence-based data to update antimicrobial information and recommendations. The first edition published in 1988 was followed by subsequent editions in 1990, 1993, 1996, 1998 and the 6th edition in 2000. The latest edition contains new sections dealing with toxic shock syndrome (TSS) and acute rheumatic fever (ARF).



Rational Antimicrobial Usage (1986-present)

This is a continuing project of the Infection Control Committee aimed at preventing the emergence of bacterial resistance to antibiotics by means of continuous surveillance of the susceptibility patterns of common hospital bacterial pathogens.

Results of the surveillance are reported quarterly in a hospital paper, the MMC Observer, and serve as the basis for the quarterly recommendations of antimicrobial usage.



Outstanding Health Research Award (OHRA) given to Dr. Thelma E. Tupasi (4th from left) by the Philippine Council for Health Research and Development (PCHRD), Department of Science and Technology, for the 1997 National Tuberculosis Prevalence Survey.



12th C.P. Manahan Memorial Lecture: a multimedia presentation of the Outstanding Health Research Award for the 1997 NTPS, with Dr. Pacita Zara, Executive Director of the PCHRD, members of the TDF Board of Trustees: Dr. Arturo Reyes, Dr. Florentino Solon, Dr. Florina Kaluag, Dr. Claver Ramos, and members of the staff of the TDF.



Visit of Dr. Calvin Kunin (2nd from right) with the faculty of the section of Infectious Diseases.



Dr. Sonya Shin (2nd from right), from the Harvard School of Medicine Program of Infectious Disease and Social Change conferring with (from foreground to left): Dr. Nora Cruz (DOH), Dr. Mariquita Mantala (DOH), Dr. Asaka Takahisa (Embassy of Japan), Dr. James Beltran (Embassy of Canada), Dr. Ma. Imelda Quelapio, and Dr. Dong Il-Ahn (right) from the WHO-WPRO.



MMC-DOTS Clinic with Nona Rachel Mira administering the medicine to TB patients.



Anti-TB drugs shipped by Medicins Sans Frontieres endorsed to Ms. Normita Leyesa (2nd from right), Director, MMC Pharmacy Service.



Infectious Disease Forum with Dr. Richard Guerrant from the University of Virginia School of Medicine.

Publications

2000

Have Ciprofloxacin and Ofloxacin Lost Their Efficacy Against Multi-Drug Resistant Tuberculosis?

Grimaldo ER, Rivera AB, Cardaño RC, Derilo JO, Belen VA, Tupasi TE. 7th Western Pacific Congress of Chemotherapy and Infectious Diseases, 11-14 December 2000, Hong Kong Convention Center, Hong Kong (abstract)

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Comparative study of ciprofloxacin versus cotrimoxazole in the treatment of Salmonella enteric fever
Limson BM, Littau RA
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Acute suppurative thyroiditis caused by Salmonella typhi
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Immunity to diphtheria in children in a rural community of Baclayon Municipality, Bohol
Trabajo E, Tupasi TE, Kaneko Y
Phil Jour of Micro and Infect Dis. 1989; Vol 18, Jan-June

Bacterial resistance and antimicrobial utilization in a Manila Hospital
Littau RA, Javato MC, Tupasi TE
APUA Newsletter, (7) 3:1989

Hemophilus influenzae from Filipino children with pneumonia.

Tupasi TE, de Leon LE, Kaneko Y
Presented at the 29th Interscience Conference on Antimicrobial Agents and Chemotherapy, 17-20 September 1989, Houston, Texas.

Malnutrition and Acute Respiratory Infection

Tupasi TE, Mangubat NV, Sunico ME, Magdangal DE, Navarro EE, Leonor Z, Lupisan S, Medalla F, and Lucero MG
Presented at the 29th ICAAC, 17-20 September 1989 Houston, Texas and at the 11th Asia-Pacific Congress on Diseases of the Chest, 19-22 November 1989, Bangkok, Thailand

Etiology and Morphologic Changes in the Lungs of Children who die of Pneumonia

Gonzaga NC, Navarro EE, Lucero MG, Queipo SC, Schroeder I, Tupasi TE
Presented at the 11th Asia-Pacific Congress on Diseases of the Chest 19-22 November 1989, Bangkok, Thailand

Disseminated Histoplasmosis in an Immunocompromised Host

Navarro EE, Tupasi TE, Verillo VM, Romero RC
Presented at the Asian Dermatological Association Convention, 22-25 November 1989, Singapore

Activated EB Virus and Vaccinia Virus-specific killer cells in individuals infected with HIV-1

Littau RA, Takeda A, Tuazon CU and Ennis FA
Presented at Virology Meeting, Cold Spring Harbor, Long Island, New York, September 1989.

1988

Guidelines on Antimicrobial Therapy, 1st edition 1988

Tupasi TE, Limson BM

Acute lower respiratory tract infection associated with Chlamydial TWAR antibody in Filipino children

Saikku P, Ruutu P, Leinonen M, Panelius J, Tupasi TE, Grayston JT
L Infect Dis Nov 1988; 158(5): 1095-1097.

Determinants of morbidity and mortality due to acute respiratory infections: implications for intervention

Tupasi TE, Velmonte MA, Sanvictores MEG, Abraham L, de Leon LE, Tan ST, Miguel CA, Sanial MC
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Serotypes of Streptococcus pneumoniae and Hemophilus influenzae from children with pneumonia

Tupasi TE, de Leon LE, Kaneko Y
The Journal of the Japanese Association for Infectious Diseases March 1988;62:403-404

Ceftazidime versus a combination of amikacin and ticarcillin in the treatment of severe infections

Limson BM, Navarro E, Littau R, Que E, Kua LT.
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Rationalizing antimicrobial use in respiratory infection: The Philippines

Tupasi TE, de Leon LE
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Participation in Conferences

International

10th ASEAN Pediatric Federation Conference (Malaysia) 1-4 June 2000

Speaker: Thelma E. Tupasi, MD

7th Western Pacific Congress of Chemotherapy and Infectious Diseases (Hong Kong) 11-14 December 2000

Speaker: Thelma E. Tupasi, MD: "TB in the Philippines"
Participants: Ma. Imelda D. Quelapio, MD, Ma. Lourdes A. Villa, MD, Faith D. Villanueva, MD, Alicia A. Rivera, RMT, Ephraim R. Grimaldo, RMT

47th Annual Meeting of the Japan Society of Chemotherapy (Tokyo), 11 June 1999

Speaker: Thelma E. Tupasi, MD: "Future Prospects on Quinolones"

21st International Congress for Chemotherapy (Birmingham, UK) - 7 July 1999

Chairman: Thelma E. Tupasi, MD: Treatment of Parasitic Diseases, Lessons from Veterinary Medicine

Tazocin Pan-European Conference on Intensive Care Medicine (Baveno, Lake Maggiore, Italy) - 8-11 July 1999

Participant: Thelma E. Tupasi, MD

1st International Congress of the Asia Pacific Society of Infection Control (APSIC) (Hongkong) - 8-11 August 1999

Participants: Ma. Imelda D. Quelapio, MD & Mrs. Zenaida Chua, RN, ICN

39th Interscience Conference of Antimicrobial Agents and Chemotherapy (ICAAC) - 26-29 September 1999

Participant: Thelma E. Tupasi, MD

Wyeth Infectious Disease Global Advisory Board Meeting (Philadelphia, USA) - 30 September 1999

Participant: Thelma E. Tupasi, MD

National

Regional Seminar - Workshop on Leptospirosis (University of the Philippines, Manila) - 22 January 2000

Participants: Thelma E. Tupasi, MD, Ma. Imelda D. Quelapio, MD, Ma. Lourdes A. Villa, MD, Faith D. Villanueva, MD, Benilda Q. Baello, RMT, Alicia A. Rivera, RMT, Rowena C. Cardaño, RMT, Jerose O. Derilo, RMT

Seamic National Group Training Course on Laboratory Diagnosis of Dengue (Bureau of Research and Laboratories, DOH) - 7-11 February 2000

Participant: Ma. Socorro M. Clarin, RMT

Biosafety Measures and Precautions on the use of P3 Laboratory (Traders Hotel and STD/AIDS Cooperative Laboratory) - 10-11 April 2000

Participant: Ma. Socorro M. Clarin, RMT

Training Workshop on Infection Control for Infection Control Link Nurses (Makati Medical Center) - 14 April 2000

Lecturers: Rodrigo L.C. Romulo, MD, Margarita T. Cayco, MD, Homer G. Abiad, MD, Ma. Imelda D. Quelapio, Carmela A. Rivera, MD, Faith D. Villanueva, MD, Ms. Zenaida A. Chua, RN

30th Annual Convention of the Philippine College of Physicians (EDSA Shangri-La Hotel) - 9-12 May 2000

Participants: Thelma E. Tupasi, MD, Ma. Imelda D. Quelapio, MD, Ma. Lourdes A. Villa, MD, Faith D. Villanueva, MD

Infection Prevention in the Workplace...2000 (Sulu Hotel, Manila) - 11 May 2000

Participant: Zenaida A. Chua, RN

6th Annual Convention of the Philippine Hospital Infection Control Society, Inc. Occupational Safety and Health Center, Diliman, Quezon City) - May 2000

Lecturer: Ma. Imelda D. Quelapio, MD: "Ventilator-Associated Pneumonia: Prevention"
Participant: Zenaida Chua, RN

Philippine Association of Central Services and Sterilization Management 1st Annual Convention (Camp Gen. Emilio Aguinaldo, Quezon City) - 1-2 June 2000

Participant: Zenaida A. Chua, RN

Infectious Diseases Forum VI (Asturias Hotel, Puerto Princesa Palawan) - 2-4 June 2000

Participant: Faith D. Villanueva, MD

3rd Midyear PSMID Convention (Cebu Plaza Hotel) 22-24 June 2000

Workshop on DOTS: "DOTS Basic Course"; "Setting up a DOTS Clinic: MMC Experience"; "Lessons Learned at the MMC Clinic"; "Sputum Microscopy"

Lecturers: Ma. Imelda D. Quelapio, MD, Alicia B. Rivera, RMT, Nona Rachel C. Mira, RN

Lecturer: Thelma E. Tupasi, MD: "Penicillin - A Romance Revisited"

Lecturer: Vilma M. Co, MD: "Carbapenems in Nosocomial Infections"

Lecturer: Faith D. Villanueva, MD: "Antibiotic Therapy in the Allergic Patient"

7th Annual Convention of the Philippine Coalition Against Tuberculosis (Manila Midtown Hotel) - 20-21 August 2000

Lecturer: Thelma E. Tupasi, MD: "Private-Public DOTS: MMC DOTS Clinic" Participants: Ma. Lourdes A. Villa, MD, Faith D. Villanueva, MD, Nona Rachel Mira, RN, Michael Abeleda, RN

Philippine Society for Microbiology and Infectious Diseases. Second Fellows' Clinico-Pathologic Inter-

Hospital Conference (Makati Medical Center) – 12 September 2000

Presenter: Faith D. Villanueva, MD
Reactor: Thelma E. Tupasi, MD

Infectious Diseases Forum (Makati Medical Center) – 3 October 2000

Lecturer: Thelma E. Tupasi, MD: "Multi-drug Resistant Tuberculosis in the Philippines"
Lecturer: Vilma M. Co, MD: "Hepatitis B Infection: What you might have heard about it and what you should know"
Lecturer: Ma. Imelda D. Quelapio, MD: "The MMC DOTS Clinic"

Seminar Workshop on The Streptococcal Menace: Prevention and Control of Rheumatic Fever and Rheumatic Heart Disease (EDSA Shangri-La Hotel) – 7-8 October 2000

Lecturers: Thelma E. Tupasi, MD, Homer G. Abiad, MD, Faith D. Villanueva, MD, Ery T. Limlingan, MD, Benilda Q. Baello, RMT, Ma. Socorro M. Clarin, RMT
2nd Subspecialty Postgraduate Course in Perinatology and Neonatology (Children's Medical Center of the Philippine & General Hospital, Inc.) - 27 May 1999
Speaker: Thelma E. Tupasi, MD: "Infections in Pregnancy and the Neonatal Period (TB, Hepatitis, Dengue, HIV)"

5th Annual Convention on Infection Control (PHICS): "Common Sense in Infection Control" (Occupational Safety and Health Center, Diliman, Quezon City) - 27-28 May 1999

Participants: Ma. Imelda D. Quelapio, MD & Mrs. Zenaída Chua, RN, ICN

St. Luke's Lecture for the Month - 16 June 1999

Speaker: Thelma E. Tupasi, MD: "Pharmacokinetics and Judicious Use of Antibiotics"

4th CPE Seminar of the Philippine Association of Medical Technologists (PAMET) - Emilio Aguinaldo Colleges, Taft Avenue, Manila - 12 August 1999

Speaker: Thelma E. Tupasi, MD: "The 1997 National Tuberculosis Prevalence Survey"
Speaker: Alice B. Rivera, RMT: "Drug-Resistant Tuberculosis in the Philippines"

3rd Orthopedic Symposium (Department of Orthopedics, Makati Medical Center) - 27 August 1999

Speaker: Thelma E. Tupasi, MD: "Tuberculous Arthritis"

22nd Annual Convention of the Philippine Society for Microbiology and Infectious Disease (Manila Midtown Hotel) 7-9 December 2000

Lecturer: Thelma E. Tupasi, MD: "1997 Nationwide Tuberculosis Prevalence Survey"
Lecturer: Vilma M. Co, MD: "Toxic Shock Syndrome"
Lecturer: Ma. Imelda D. Quelapio, MD: "Corporate DOTS"
Participants: Ma. Lourdes A. Villa, MD, Faith D. Villanueva, MD, Ery T. Limlingan, MD, Nona Rachel C. Mira, RN, Michael R. Abeleda, RN, Virgil A. Belen, RN

18th Annual Chest Convention (EDSA Shangri-La Hotel) - 5 March 1999

Speaker: Thelma E. Tupasi, MD: "Sequential Switch Therapy in LRTI"

8th Postgraduate Course on Internal Medicine (Our Lady of Lourdes Hospital) - 18 March 1999

Speaker: Thelma E. Tupasi, MD: Antibiotic Pharmacodynamics/ Judicious Use of Antibiotics"
DOH Training for Trainors on DOTS (Manila) (Park View Hotel, Paco, Manila) – 4-8 October 1999
Participants: Ma. Imelda D. Quelapio, MD, Nona Rachel B. Mira, RN, Michael Abeleda, RN

12th Midyear Convention of the Philippine College of Physicians (Iloilo City) - 9 October 1999

Speaker: Thelma E. Tupasi, MD: "Use and Misuse of Antibiotics"

3rd Regional Convention of the Philippine Society for Microbiology and Infectious Diseases, Visayas Chapter (Iloilo City) - 21 October 1999

Keynote Lecture: Thelma E. Tupasi, MD: "The Tuberculosis Problem in the Philippines"

7th Annual Postgraduate Course of the Philippine College of Physicians, Central and Eastern Visayas Chapter (Cebu City) - 6 November 1999

Speaker: Thelma E. Tupasi, MD: "Penicillin: a Romance Rekindled"

21st Annual Convention of the Philippine Society for Microbiology and Infectious Diseases (Westin Philippine Plaza Hotel) - 2 December 1999

Reactor: Thelma E. Tupasi, MD: "Updates on the Management of Antimicrobial Resistance"
Lecturer: Thelma E. Tupasi, MD: "Penicillin: How Useful in Respiratory Streptococcus pneumoniae"
Lecturer: Ma. Imelda D. Quelapio, MD: "A Double-Blind Study Comparing the Safety and Efficacy of Cefepime versus Ceftazidime in Severe Bacterial Infections"

Diagelia Diaz-Andres & Associates
Certified Public Accountants

1074 Chino Roces, cor. Kalayaan Avenue, Makati City
Tel. Nos.: 899-6557 • 809-7550

March 8, 2001

THE BOARD OF TRUSTEES
TROPICAL DISEASE FOUNDATION, INC.

Makati Medical Center
Makati City

I have examined the statement of assets, liabilities and fund balance of Tropical Disease Foundation, Inc. as of December 31, 2000 and the related statements of Revenues and Expenses and changes in fund balance and cash flows for the year then ended December 31, 2000. These financial statements are the responsibility of Foundation's management. My responsibility is to render an opinion on these financial statements based on my audits.

My audits were conducted in accordance with generally accepted auditing standards. Those standards require that I plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and the significant estimates made by management, as well as evaluating the overall financial statement presentation.

In my opinion, the financial statements referred to above, present fairly the financial position of Tropical Disease Foundation, Inc. as of December 31, 2000 and the results of its operations and its cash flows for the year then ended, in conformity with generally accepted accounting principles applied on a consistent basis.



DIAGELIA D. ANDRES, C.P.A.

Certificate No. 0033719

P.T.R. No. 3437308

Issued at Muntinlupa City

On January 29, 2001

TROPICAL DISEASE FOUNDATION, INC.
 (A Non-stock, Non-profit Corporation)
 STATEMENT OF ASSETS, LIABILITIES & FUND BALANCE
 DECEMBER 31,2000
 (With Comparative Figures in 1999)

| | | 2000 | | 1999 |
|---|---|---------------------|---|---------------------|
| A S S E T S | | | | |
| CURRENT ASSETS | | | | |
| Cash & Cash Equivalents (Note 2) | P | 3,369,421.87 | P | 2,183,151.78 |
| Trust Funds : | | | | |
| Pension Plan | | 968,553.07 | | 984,890.01 |
| Investment Plan | | 1,000,000.00 | | 1,444,520.72 |
| Receivables | | | | |
| Advances to Officers & Staff | | 13,173.56 | | 23,665.80 |
| Total Current Assets | | 5,351,148.50 | | 4,636,228.31 |
| PROPERTY & EQUIPMENT | | | | |
| Laboratory Equipment | | 5,628,308.00 | | 4,493,620.51 |
| Office Equipment | | 898,914.50 | | 898,914.50 |
| Motor Vehicle | | 513,750.00 | | 513,750.00 |
| Laboratory facilities | | 219,941.00 | | 219,941.00 |
| Office furniture & fixtures | | 175,823.00 | | 175,823.00 |
| Accumulated Depreciation | | (7,436,736.50) | | (4,806,720.00) |
| Book Value | | 169,085.88 | | 219,702.74 |
| REFUNDABLE DEPOSITS (Note 3) | | 621,634.00 | | 621,634.00 |
| TOTAL ASSETS | | 6,141,868.38 | | 5,477,565.05 |
| LI A B I L I T I E S A N D F U N D B A L A N C E | | | | |
| ACCOUNTS PAYABLE & ACCRUED EXPENSES | P | - | P | 142,041.02 |
| PLAN LIABILITIES | | 1,429,192.00 | | 1,429,192.00 |
| TOTAL LIABILITIES | | 1,429,192.00 | | 1,571,233.02 |
| FUND BALANCE -12.31 | | 4,712,676.38 | | 3,906,332.03 |
| TOTAL LIABILITIES AND FUND BALANCE | P | 6,141,868.38 | P | 5,477,565.05 |

See accompanying Notes to Financial Statements

STATEMENT OF CASH FLOW
 FOR THE YEAR ENDED DECEMBER 31,2000
 (With Comparative Figures in 1999)

| | | 2000 | | 1999 |
|--|---|---------------------|---|-------------------|
| CASH FLOW FROM OPERATING ACTIVITIES | | | | |
| Excess of support over expenses (deficit) | P | 806,344.35 | P | (1,178,930.97) |
| Adjustment to reconcile excess of revenues over expenses to net cash provided by operating activities : | | | | |
| Depreciation | | 1,185,304.35 | | 1,275,626.27 |
| Changes in operating assets and liabilities: | | | | |
| Decrease (Increase) in assets : | | | | |
| Investment trust fund | | 460,857.66 | | (929,177.24) |
| Receivables | | | | 116,038.00 |
| Advances to officers and staff | | (13,173.56) | | (23,665.80) |
| Prepaid expenses | | - | | 9,408.00 |
| Increase (Decrease) in liabilities : | | | | |
| Accounts payable & accrued expenses | | (142,041.02) | | (26,096.98) |
| Plan Liabilities | | - | | 1,429,192.00 |
| Net Cash Provided by (to) operating activities | | 2,297,291.78 | | 672,393.28 |
| CASH FLOW FROM INVESTING ACTIVITIES | | | | |
| Acquisition of property and equipment | | (1,111,021.69) | | (59,283.50) |
| INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS | | 1,186,270.09 | | 613,109.78 |
| CASH AND CASH EQUIVALENTS | | | | |
| January 1 | | 2,183,151.78 | | 1,570,042.00 |
| December 31 | | 3,369,421.87 | | 2,183,151.78 |

See accompanying Notes to Financial Statements

TROPICAL DISEASE FOUNDATION, INC
 (A nonstock, Nonprofit Corporation)
 STATEMENT OF SUPPORT AND EXPENSES AND CHANGES IN FUND BALANCE
 FOR THE YEAR ENDED DECEMBER 31, 2000

| | 2000 |
|--|-------------------|
| SUPPORT | |
| Grants | 2,692,151.90 |
| Donations and Contributions | 4,261,268.88 |
| Interest Income-Interest ,net | 113,437.95 |
| | 7,066,858.73 |
| Total Receipts / Support | 7,066,858.73 |
| Less: EXPENDITURES | |
| Administrative Expenses : | |
| Bank Charges | 2,229.75 |
| Repairs and maintenance | 147,751.50 |
| Salaries and wages | 100,995.20 |
| Sick /Vacation leave | 101,916.30 |
| 13th month pay | 6,819.51 |
| Janitorial & Security services | 69,584.00 |
| Miscellaneous Expense | 39,163.16 |
| Insurance expense | 109,900.42 |
| Legal and audit fee | 39,999.00 |
| Taxes and licenses | 5,721.00 |
| Pag-ibig contribution | 13,800.00 |
| Representation and entertainment | 159,291.24 |
| Phil. Health contribution | 8,625.00 |
| SSS Contribution | 14,670.60 |
| Total Administrative Expense | 820,466.68 |
| Depreciation | 1,185,304.35 |
| Program Expenses : | |
| Research and Documentation | 2,838,398.53 |
| Project Development | 598,350.92 |
| Public Information Campaign | 494,711.16 |
| Resource Mobilization | 323,282.07 |
| TOTAL EXPENDITURES | 6,260,513.71 |
| EXCESS OF SUPPORT OVER EXPENDITURES (DEFICIT) | 806,344.35 |
| FUND BALANCE, BEGINNING | 3,906,332.03 |
| FUND BALANCE, END | 4,712,676.38 |

Note : There is no comparative figure to year 1999. Account names were
 Reclassified to conform with the format suggested by PCNC.

TROPICAL DISEASE FOUNDATION, INC.
(A Nonstock, Nonprofit Corporation)
NOTES TO FINANCIAL STATEMENTS

1. GENERAL

The Tropical Disease Foundation, Inc. was incorporated on November 5, 1984 as a nonstock, nonprofit corporation for the purpose of developing and encouraging biomedical research relating to prevalent public health problems of tropical and infectious disease and the control thereof. The Foundation's activities are funded through donations, contributions and grants.

The Foundation applied for accreditation by the Philippine Council for NGO Certification (PCNC) and was approved on October 20, 2000 and was registered as a donee institution in accordance with the provision of Revenue Regulations No. 13-98 dated January 1 1999.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of financial statements

Donations and contributions are recorded as revenues when received. Donations in kind are recorded at their estimated values. Grants are recognized at the time financial commitments by donors are made. All donations and contributions received are considered available for general use unless specifically restricted by their respective donors.

Cash Equivalents

Cash Equivalents represent short-term highly liquid investments that are both readily convertible to known amount of cash and so near their maturity that they represent insignificant risk of changes in interest rates. These investments with original maturity periods of less than three months or less from the date of purchase.

Property and Equipment

Property & Equipment are carried at cost less accumulated depreciation. Depreciation is computed on the straight-line method over the estimated useful lives of the property. Repairs and maintenance that do not prolong the life of the assets are charged to operations while major repairs are capitalized.

Retirement Plan

Current pension costs are actually determined, expensed and funded. Past service costs are amortized over ten years.

3. REFUNDABLE DEPOSITS

This account represents deposit to Makati Medical Center for lease of office space and laboratory.

4. RETIREMENT PLAN

The Foundation maintains a non-contributory retirement plan, which took effect on November 1, 1989, as amended on May 22, 1999 covering all employees as of November 1, 1989. Normal retirement is at age 60 with a minimum of 10 years of service. Subject to the approval of the Foundation, the plan also provided for early retirement but not beyond attainment of 65.

A trustee bank now administers the fund under Trust Agreement dated July 5, 2000.

5. TAX EXEMPTIONS

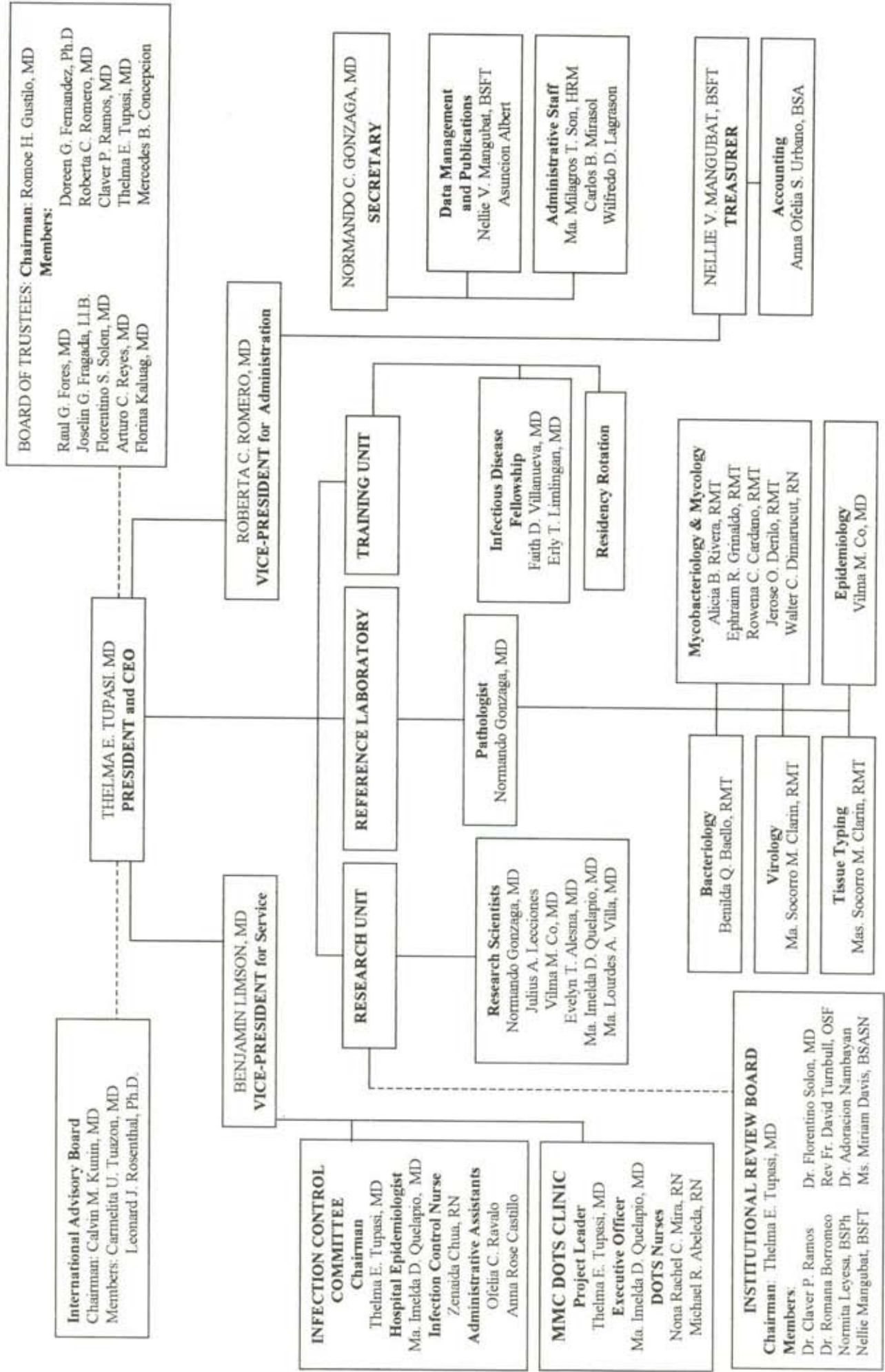
On April 13, 1988, the BIR granted the Foundation exemption from the payment of income tax in respect of income received by the corporation established for scientific purposes, as contemplated under Section 26 © of the National Internal Revenue Code.



The staff and some of the members of the Board of Trustees of the Tropical Disease Foundation with Dr. Raul Fores, Medical Director, Makati Medical Center (2nd row, 3rd from left) and Dr. Pacita Zara, Executive Director of the PCHRD (2nd row, 4th from left). First row, left to right: Dr. Erly Limingan, Dr. Malou Villa, Ms. Rowena Cardano, Dr. Mamel Quelapio, Ms. Bid Baello, Ms. Alice Rivera, Ms. Nellie Mangubat, Ms. Jerose Derilo. 2nd row, left to right: Ms. Soc Clarin, Dr. Vilma Co, Dr. Thelma E. Tupasi, Dr. Arturo Reyes, Dr. Florina Kaluag, Dr. Faith Villanueva. 3rd row, left to right: Dr. Florentino Solon, Dr. Claver P. Ramos.

TROPICAL DISEASE FOUNDATION

Organizational Chart



Tropical Disease Foundation, Inc.

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Thelma E. Tupasi, M.D.
Head, Infectious Disease Section
Makati Medical Center

Doreen G. Fernandez, Ph.D.
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School of Arts & Sciences
Ateneo de Manila University

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Population Institute
University of the Philippines
Diliman, Quezon City

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Thelma E. Tupasi, M.D.

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Romana Borromeo, M.D.

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Benjamin Limson, M.D.
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Benefactors

We acknowledge with deep gratitude the benefactors, patrons, sponsors, donors and friends of the Foundation.

Memorial endowments in honor of:

CONSTANTINO P. MANAHAN, M.D.
*Director & Chairman of the Board
Makati Medical Center
Chairman, Board of Trustees
Tropical Disease Foundation*

LUCRECIA LIZARES GUSTILO
Beloved wife of Romeo H. Gustilo, M.D.

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Elena Tan Foundation
Philippine Cut Flower Corp.
Sen. Loren Legarda
Pablo Antonio Jr. Design

Consultancy, Inc.
Eli-Lilly (Phils) Inc.
Dr. Thelma Crisostomo
Lapanday Foods
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Makati City, Philippines
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FAX No. (63-2) 810-2874



The logo attempts to define visually the *raison d'être* of the Foundation using a combination of symbols:

- The microscope represents medical research on bacteria, viruses, and parasites.
- The sun and the plant signify the tropics and its lush vegetation.
- The plant further implies the possibilities of research in the medical field.