

# **FINAL REPORT**

## **WHO PROJECT**

### **MAPPING OF NATIONAL CENTRES / INSTITUTIONS ON TROPICAL DISEASES IN MYANMAR**

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## **ABBREVIATIONS AND ACRONYMS**

CEU - Central Epidemiology Unit

DOH - Department of Health

DMR (LM) – Department of Medical Research (Lower Myanmar)

DMR (CM) - Department of Medical Research (Central Myanmar)

DMR (UM) - Department of Medical Research (Upper Myanmar)

EPI - Expanded Programme of Immunisation

GPS - Global Positioning System

GIS - Geographical Information System

MMA- Myanmar Medical Association

MAMS – Myanmar Academy of Medical Sciences

MRCS - Myanmar Red Cross Society

MCC – Malaria Collaborating Centre

NHC - National Health Committee

NHL - National Health Laboratory

NPCC – National Poison Control Centre

QDSTM - Quality Diagnosis Standard Treatment & Management

PI – Principal Investigator

UM1 - University of Medicine 1

UM2 - University of Medicine 2

UMM- University of Medicine (Mandalay)

UON - University of Nursing

UOP - University of Pharmacy

UPH - University of Public Health

VBDC – Vector Borne Diseases Control

WHO – World Health Organization

WHOCC --WHO Collaborating Centre

## Summary

Listing of Departments, Universities and National Centres under the Ministry of Health (MoH) was undertaken and once approval was obtained from the MoH, set questionnaires {Institutional Profile and Principal Investigator (PI) profile} were distributed to the Institute and Centres that are supposed to have a significant contribution to Tropical Diseases research after informing the Directors- General, Rectors and Heads of the Institutes/Centres concerned.

A number of major tropical diseases that pose a significant problem to the Myanmar population were shortlisted and on this basis the Institutes/Centres were mapped. The main objective is to collect and collate relevant data from Institutes/Centres with expertise in tropical diseases in Myanmar with the ultimate objective to set-up a network of tropical diseases and Priority diseases in the tropic to meet the unmet need of research, training and management of these diseases. This is to identify the key Institutes/Centres in the area of tropical diseases on the basis of their strength by way of scientific expertise and infrastructure; their funding, received from various agencies; and their output, by way of publications. An attempt has been made to summarize the key issues in the form of a comparative analysis.

Myanmar was arbitrarily divided into Lower, Central and Upper Myanmar. The scientists/researchers (Principal Investigators) who are involved or are undertaking **Tropical Diseases** research activities are requested to complete the questionnaires. Scientists from Ministry of Defence, Ministry of Science and Technology, and Ministry of Education who may be working on tropical diseases research are not included in this mapping due to limited timeline of the present project as it takes time to contact the Ministries outside the Ministry of Health. Nevertheless, it is well-known that the major share of Tropical Diseases research is undertaken by most of the Institutes/Centres under MoH.

The present project has attempted to map not only the strengths of the various Institutes/Centres under the MoH but has also highlighted the gaps and areas where remedies could be undertaken in the context of the Myanmar situation.

## TERMS OF REFERENCE

To collect and collate relevant data from institutes/centres with expertise in tropical diseases in Myanmar with the ultimate objective to set-up a network of tropical diseases and Priority diseases in the tropic to meet the unmet need of research, training and management of these diseases.

# 1. INTRODUCTION

Myanmar has strong linkages with internal and external institutes, departments and agencies including United Nations organizations such as WHO, UNICEF and UNDP. Myanmar has benefited immensely due to the long-term support received from WHO especially in the field of tropical diseases research. Myanmar's involvement with Tropical Diseases Research (TDR) started approximately two to three decades ago when WHO/TDR awarded a five-year Institutional Strengthening Grant (1983 –87) to the Department of Medical Research, Yangon, now it is renamed Department of Medical Research (Lower Myanmar) at that time it was one of the six Departments (now it is seven Departments) under the Ministry of Health.

In Myanmar, the **National Health Committee** gives guidance to the National Health Programmes operating in the country. There are at least three National Advisory Boards in Myanmar providing advice on health matters, namely:

- **Myanmar Academy of Medical Sciences (MAMS)**
- **National Ethical Committee**
- **National Committee for Malaria Control and Management**

(see details in Appendix 1)

Disease control activities had been undertaken since the country regained independence and campaigns had been established to fight against major infectious diseases. Since 1978 integrated primary health care approach with involvement of basic health staff was utilized to tackle tropical diseases.

As in many other countries, AIDS, TB and Malaria primarily affect the working age. As these diseases can result in negative impact on economic, social and development of the country, these three diseases are considered as a national concern and treated as a priority. The ministry has determined to tackle these diseases with the main objectives of reducing the morbidity and mortality related to them, of being no longer a public health problem, and of meeting the Millennium Development Goals (MDGs).

Other tropical diseases and emerging tropical diseases that have regional importance are also tackled through activities encompassing surveillance and control. Under the Disease Control Division and with the support of Central Epidemiological Unit (CEU), supervision, monitoring and

technical support are provided by disease control teams at central level and state/regional levels, down to the grass-root levels.

## **2. Diseases covered**

The area of Tropical Diseases is an immensely important area, particularly with reference to a country such as Myanmar. Yet, Tropical Diseases are often the most neglected area of medical research. Leaving aside the “Big Three”, namely, malaria, tuberculosis and HIV/AIDS, which receive a good deal of attention and funding, most other diseases fall within the category of Neglected Tropical Diseases. Keeping this in mind, the present project, similar to India – with the exception of Leishmania being substituted with Hepatitis - has tried to cover most of the Tropical Diseases that are of relevance to Myanmar. These are listed below.

1. Malaria
2. Diarrheal Diseases
  - Rotavirus diarrhea
  - Cholera
  - Amoebic dysentery
  - Giardiasis
  - Shigellosis
  - Enterotoxigenic *E. coli* – related diarrhea
3. Tuberculosis
4. Dengue
5. Helminthiasis
6. Pneumonia and Meningitis
7. HIV / AIDS
8. Leprosy
9. Japanese encephalitis
10. Typhoid / Paratyphoid
11. Hepatitis (mainly hepatitis B & C)

### **3. Project outline**

The project “Mapping of National Institutes/Centres with expertise in Tropical Diseases in Myanmar” involved a thorough mapping of all National centres as well as institutions, including medical, technological, and research organizations, as well as universities that were of relevance to the project. The criteria for identifying the centres and institutions included their strengths by way of contribution in the area of Tropical Diseases, such as research, teaching, as well as training. The major aims and objectives of the project was to assess the profile, strengths and comparative advantages of the institutes and establish how each of them could contribute towards control and elimination of Tropical Diseases from the region. Due to a time limitation of **six weeks**, only Institutes/Centres/Department/University under the Ministry of Health could be mapped. However, most of the main Institutes/Centres/Departments/Universities that are mainly involved with Tropical Diseases could be included in the mapping.

*Time line of the project:* 15<sup>th</sup> September 2011 to 31<sup>st</sup> October 2011

*Deliverables:* Final Report and Financial Statement

### **4. MATERIALS AND METHODS**

#### **Mapping strategies**

The mapping project was initiated by arbitrarily dividing the entire geographical area of Myanmar into 3 zones namely, Lower, Central and Upper Myanmar. Google Maps were used to map the Institutes/ Centres within the respective regions of Lower, Central and Upper Myanmar (Fig. 1).

#### **Methodology**

The strategies that were adopted for collecting data from the various institutes involved a number of approaches. The websites of the institutes were searched for but only a few Institutes/Centres have posted websites. To make up for this deficiency, the respective Annual Reports were scrutinized. Here again, only one Department of Medical Research has updated Annual Reports. Other Departments/Universities either do not have annual reports or are only in the process of making an Annual report. Some have only outdated Handbooks. Further information was obtained by sending Questionnaires to the Institutional Heads or Principal Investigators in the specified format

(Appendix-II). Further information gaps were filled by contacting the Principal Investigators and speaking to them by telephone. Besides the National Centres/ Institutions, lists of the major Private Sector companies that also contributed to Tropical Diseases in the areas of Drugs, Diagnostics and Vaccines were investigated along with the respective web-links (Appendix-III).

All the institutes in all the 3 zones of Myanmar have been presented in the maps (Fig. 1 to Fig. 5).

(Refer Fig. 1 in separate attached file “Map of sites”)

Fig. 1 Map of Myanmar showing three zones (Upper, Central and Lower)

1. Yangon (Lower)
2. Nay Pyi Taw (Central)
3. Magway (Upper)
4. Mandalay (Upper)
5. Pyin Oo Lwin (Upper)



In Lower Myanmar, a total of 7 institutions have been found to be relevant to the project. All these 7 organizations were located in Yangon City (Fig. 2).

(Refer Fig. 2 in separate attached file “Map of sites”

**Fig. 2** Map of Yangon City

- (1).University of Nursing
- (2).University of Medicine 1
- (3).University of Public Health
- (4).National Health Laboratory
- (5).Department of Medical Research ( Lower Myanmar)
- (6).University of Medicine 2
- (7).University of Pharmacy

(Refer Fig. 3 in separate attached file “Map of sites”)

**Fig. 3 NAY PYI TAW UNION AREA (Central Myanmar)**

- (1).Department of Medical Research (Central Myanmar)
- (2).Ministry of Health

(Refer Fig. 4 in separate attached file “Map of sites”)

**Fig. 4 Map of Upper Myanmar showing Mandalay region**

(1).University of Medicine (Mandalay)

(2).Department of Medical Research (Upper Myanmar)

(Refer Fig. 5 in separate attached file “Map of sites”)

**Fig. 5 Map of Upper Myanmar showing Magway region**

- (1).University of Medicine (Magway)
- (2).University of Community Health (Magway)

## **Areas addressed**

### **1. Profile**

- Name of Institution / University
- Agency
- Established
- State
- Address and Contact Information
- Vision and Mission
- Contribution to Tropical Diseases

### **2. Strengths**

- Expertise – Scientists
- Infrastructure – Facilities, Services, Platform Technologies
- Programs – Training, Courses, Workshops
- Basic Research
- Product Development – Drugs, Diagnostics, Vaccines
- Clinical Trials

### **3. Funding**

- Grants – National, International, NGOs

### **4. Outputs**

- Publications
- Patents

### **5. Comparative Analysis**

- Comparative Analysis of Institutions for Tropical Diseases

## **5. Findings**

### **5.1 Profile**

#### **LOWER MYANMAR**

##### **(1) University of Nursing**

**Agency:** Ministry of Health

**Established:** 1986.....Nurses Training Centre  
1991.....Institute of Nursing  
2005.....University of Nursing

**State /Region:** Yangon Region

**Address and Contact Information:** 677/709, Bogyoke Aung San Street, Lanmadaw Township, P.O. 11131, Yangon, Myanmar

**Phone:** 951-222883, 951-222884, 951-222258

**Fax:** 951-227449

**email:** : ionygn@mptmail.net.mm ,

uonygn@gmail.com

**Rector :** Professor Mya Thu

#### **Vision and Mission:**

#### **Institutional Objectives**

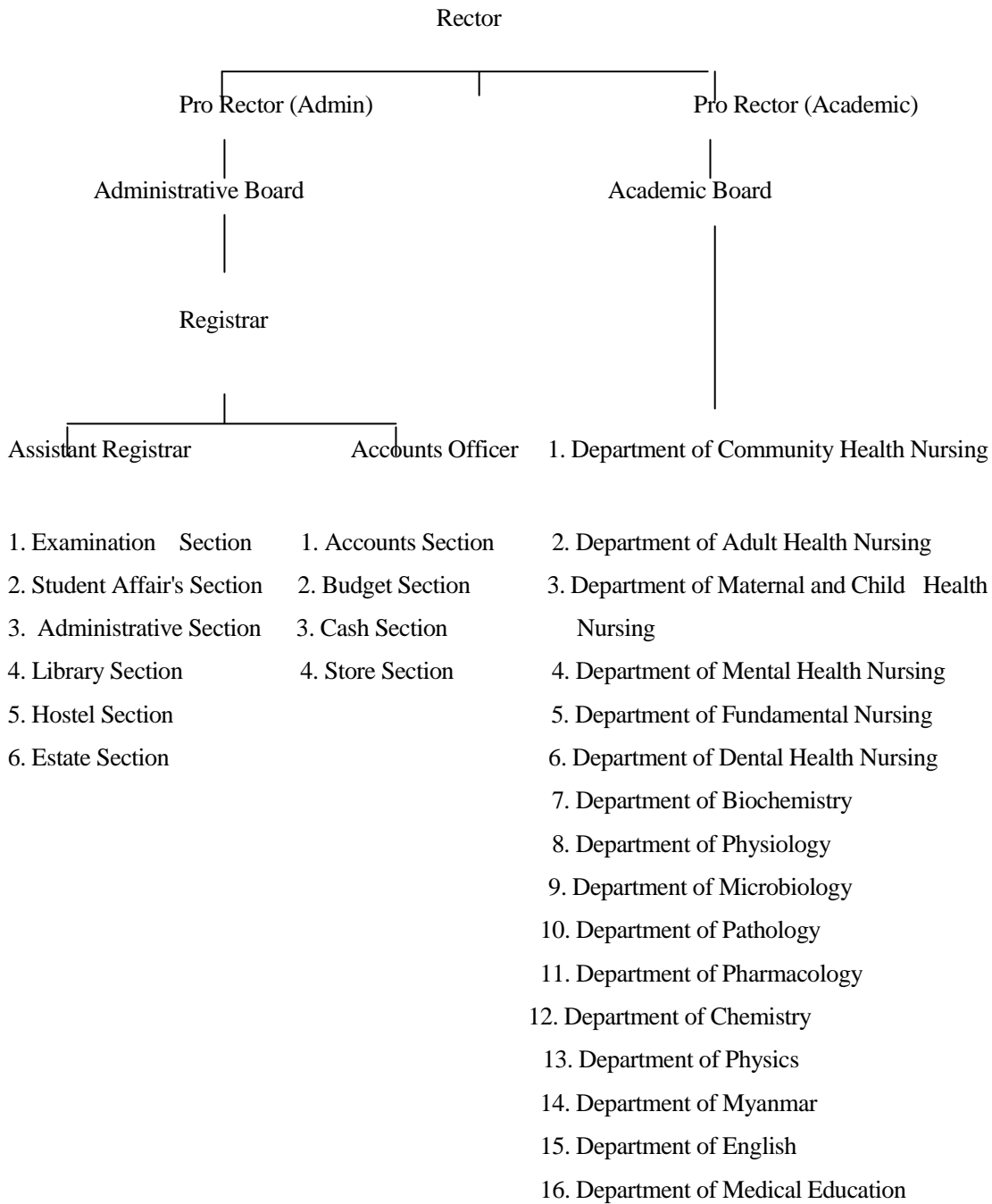
1. To provide opportunities for the development of competencies and skills required for the ethical practice of safe and quality nursing care in promotive, preventive, curative and rehabilitative health services
2. To nurture a holistic, humane attitude in relation to primary health care concepts and community commitment

3. To promote self directed life-long learning to enable nursing personnel to respond appropriately to changing health needs and advancements worldwide
4. To develop well-qualified nurse professionals capable of exercising leadership in the continued development of the nursing profession through conducting formal graduate and postgraduate education programmes, in-house staff training programmes, continuing education programmes, and collaboration with local / international governmental and non-governmental organizations

**Contribution to Tropical Diseases: HIV/AIDS, Tuberculosis**

Total number of scientists in the Institute = 20

Number of scientists working on Tropical Diseases = 8



Administrative and Supporting Staff (number of Sanction) - 258

Academic Staff (number of Sanction) - 174

## WHO Collaborating Centre for Nursing and Midwifery Development

- First designation in September 2004
- Re-designation in September 2008
- Next re-designation due in September 2012



## Terms of Reference

- 1) Serve as a resource centre for research and development in nursing and midwifery for national, regional and international communities
- 2) Serve as a resource centre for training nurse and midwife teachers, clinicians, researchers and managers on advanced clinical and functional specialties including community nursing and disaster nursing at national and regional level
- 3) Promote and support the development and implementation of innovations in nursing and midwifery practice and education
- 4) Promote and support the coordination and cooperation of nursing and midwifery education and service sectors

## (2) **University of Medicine 1 (Yangon)**

**Agency:** Ministry of Health

**Established:** 1923

**State /Region :** Yangon Region

### **Address and Contact Information:**

**Phone:** 25-1136

**Rector :** Professor Than Cho

The aim of undergraduate medical education in Myanmar is to produce a primary doctor viz, a doctor of a basic undifferentiated type:

- a. Who has acquired such reasonable degree of knowledge and skill of the medical sciences that he may safely be entrusted with the care of patient and the health of the community, especially in dealing with common diseases and community health problems prevalent in Myanmar,
- b. Who is capable of self-education and of being further trained, if required, in any special field of medicine,
- c. Who, having a scholastic outlook, is orientated towards the promotive, preventive and social aspects of medicine,
- d. Whose professional attitudes and ethics are consonant with those of the community that he will be called upon to serve.

The aim of postgraduate medical education is:

- a. to provide continuing medical education of an advanced level.
- b. to produce personnel with specialized knowledge and skill of an advanced level for the health services and for teaching and research in the medical sciences.
- c. to encourage continuous self education, to foster a spirit of inquiry and research into medical problems, and to provide the means and the intellectual environment where in such inquiry and research may be better undertaken

## **Objectives**

- To acquire sound knowledge of the basic principles of medical science and the skills needed for the practical application in the field of promotive, preventive and curative medicine and research.
- To be conversant with the knowledge, skills and attitude which form the foundation of solving the country's health problems.
- To have a thorough knowledge of the health projects implemented according to the needs of the country.
- To understand and implement skillfully the promotive, preventive, curative, and rehabilitative health measures and management procedures required by a basic doctor.
- To be able to apply knowledge concerning Community Medicine as required at the primary health care level.
- To be able to take the role of a teacher in Community Health Education and to give a leadership role in planning and implementing health programs for the patient, their families and the community.
- To enhance self-improvement by pursuing Continuing Educational activities.
- To be able to apply systematically modern scientific methods in the study and analysis of health problems.
- To appreciate and accept the medical ethics required of every doctor and conduct accordingly

### **(3) University of Public Health**

**Agency:** Ministry of Health

**Established:** 2007

**State /Region :** Yangon region

**Address and Contact Information:** Corner of Myoma Kyaung Road and Bogyoke Aung San Road, Latha Township, Yangon, Myanmar

**Phone:** +95-1 395207

**Email:** nsoemg@gmail.com

**Rector:** Professor Nay Soe Maung

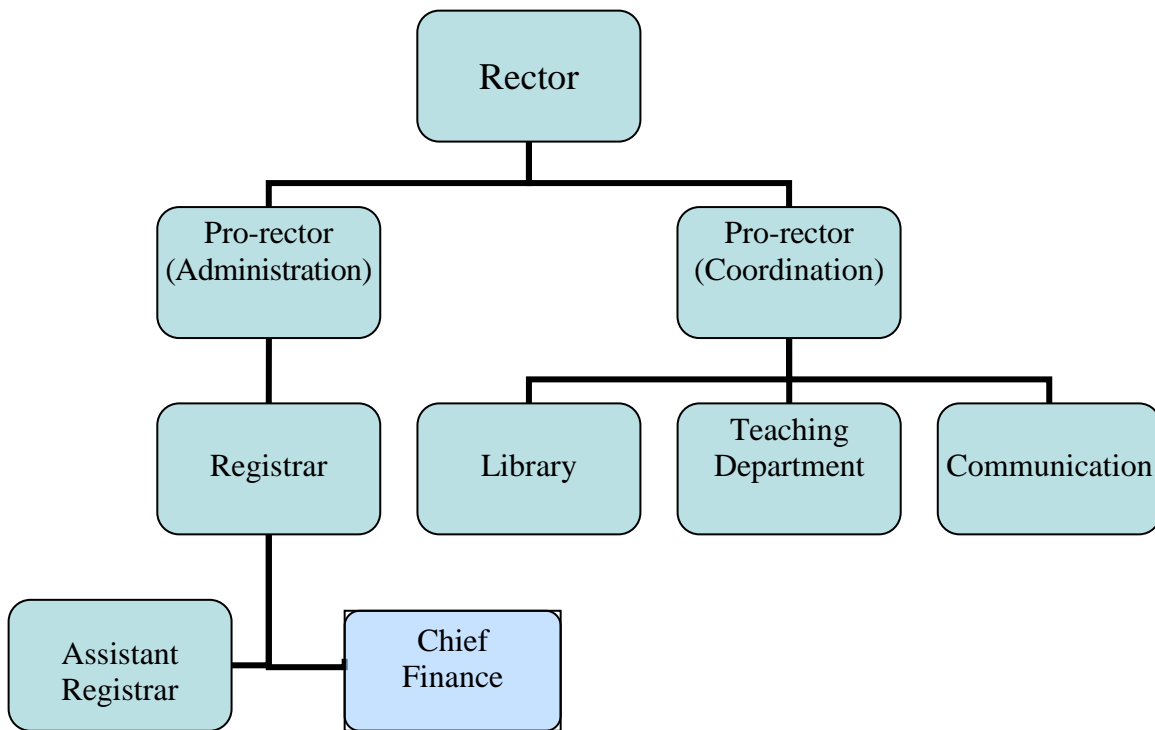
**Mission:**

To develop leaders and managers in the health sector

- by educating health and health related personnel
- by conducting the quality research
- by participating in the practice of health care services

**Contribution to Tropical Diseases:**

Malaria, Dengue, HIV/AIDS, Hepatitis, Diarrhoea



**Fig. Organization structure of University of Public Health**

Total number of scientists in the Institute = 22

Number of scientists working on Tropical Diseases = 8

#### **(4) National Health Laboratory**

**Agency:** Ministry of Health

**Established:** 1<sup>st</sup> October 1963

**State /Region:** Yangon Region

**Address and Contact Information:** 35, Maw-kun-taik road, Dagon Township, 1191 Yangon. Myanmar.

**Phone:** 951 371059;

**Fax:** 01-371925

**email:** yaehlae@myanmar .com.mm

**Director :** Dr. Ne Win

## **Rationale**

A network of laboratories has been organized in Myanmar starting from the township/station laboratories as the most peripheral laboratories, State and Divisional Public Health Laboratories and Teaching affiliated hospital laboratories as intermediate laboratories and National Health Laboratory (NHL) as the National Reference Laboratory Yangon.

NHL has been designated as the coordinated and reference center, which shall also undertake monitoring and quality assessment of the laboratories at peripheral, intermediate and central levels through out the country.

## **Objectives**

- To develop and implement laboratory services within the country in line with the policy of national health plan and the guidance and instruction from the ministry of health.
- To function as the central laboratory for clinical and public health services
- To promote and maintain NEQSA (National External Quality Assurance Scheme) in both public and private sector laboratory services and blood transfusion services
- To function as the only reference laboratory in the country
- To implement and to be involved in various research activities

## **Contribution to Tropical Diseases:**

### **Parasitology Section**

Malaria , Amebiasis, Giardiasis, Helminthiasis

### **Bacteriology Section**

Cholera, Shigellosis, EnterotoxigenicE.coli, Pneumonia and meningitis , Leprosy, Tuberculosis, Typhoid/paratyphoid

### **Virology Section**

Rota virus diarrhea, HIV/AIDS, Dengue, Japanese encephalitis, Hepatitis

Total number of scientists in the Institute = 40

Number of scientists working on Tropical Diseases = 20

## **(5) Department of Medical Research (Lower Myanmar)**

**Agency: Ministry of Health**

**Established: 1963**

**State /Region : Yangon**

**Address and Contact Information:** No. 5, Ziwaka Road, Dagon Township, Yangon, Myanmar.

**Phone:** 951-375447 Ext 111 (Off), +9595136706 (Mobile)

**Fax:** 951-251514 email: dmrlm@baganmail.net.mm

**Acting Director General : Dr. Myo Khin**

**e-mail:** <khinm@mpt.net.mm>

**Vision:** Achieving a healthier nation through application of research findings

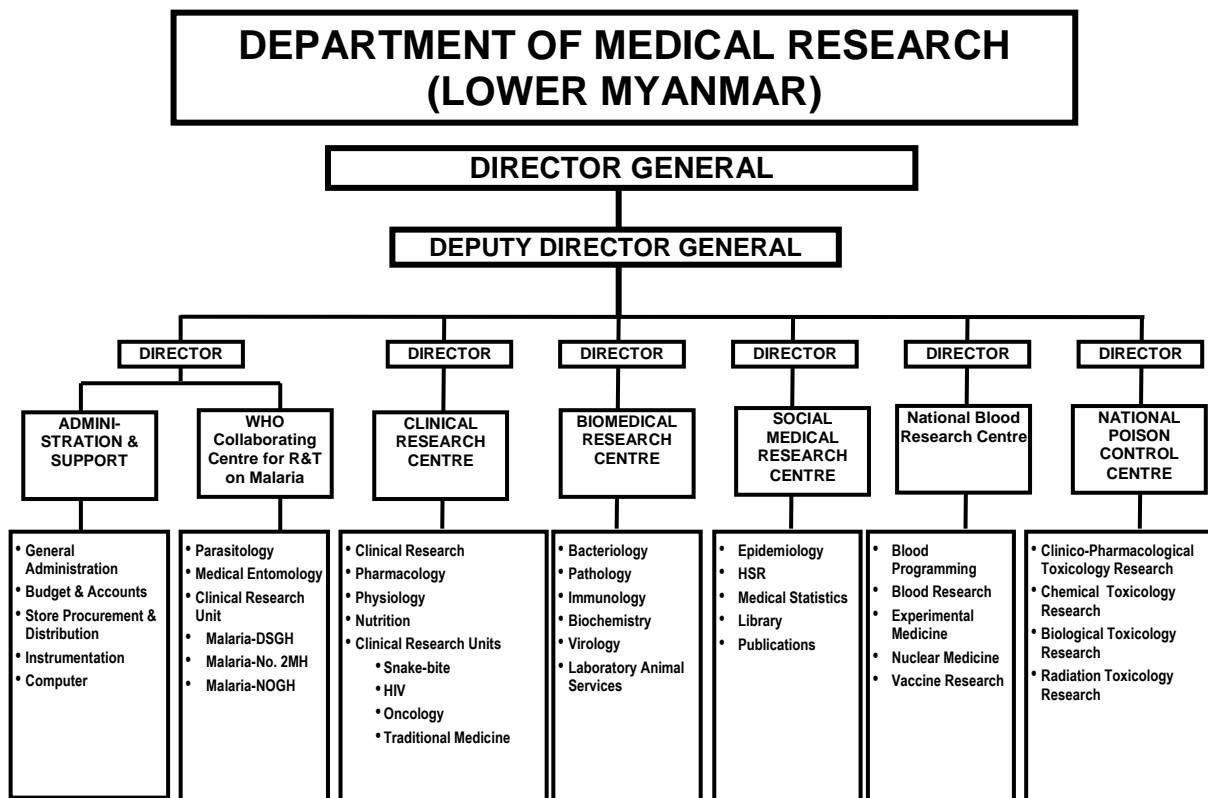
**Mission:** To develop and promote solutions to the major health problems of Myanmar

**Contribution to Tropical Diseases: 223 projects**

The projects were on Malaria, TB, Dengue, Hepatitis, Leprosy, HIV/AIDS, Japanese Encephalitis, Ascariasis, Meloidosis, Lymphatic filariasis, Acute Respiratory Infection, Leishmaniasis, Cholera/Diarrhoea, Rotavirus diarrhoea. Major projects include malaria, tuberculosis, dengue, hepatitis B, leprosy and hepatitis C involving different aspects of biomedical science.

Total number of scientists in the Institute = 60

Number of scientists working on Tropical Diseases = 43



**Fig. Organization structure of Department of Medical Research (Lower Myanmar)**

### **Malaria Collaborating Centre**

Has been designated as WHO-CC for R & T on Malaria since 25 September 2003.

Re-designated on 2nd November 2009.

Launching 33 research projects in clinical, parasitological, entomological, epidemiological, pharmacological, pathological, immunological and molecular-biology aspects.

Collaborative work with Myanmar Medical Association (MMA) Malaria Research Team supported by Three Diseases Fund and many other local NGOs have been established.

### **National Poison Control Centre**

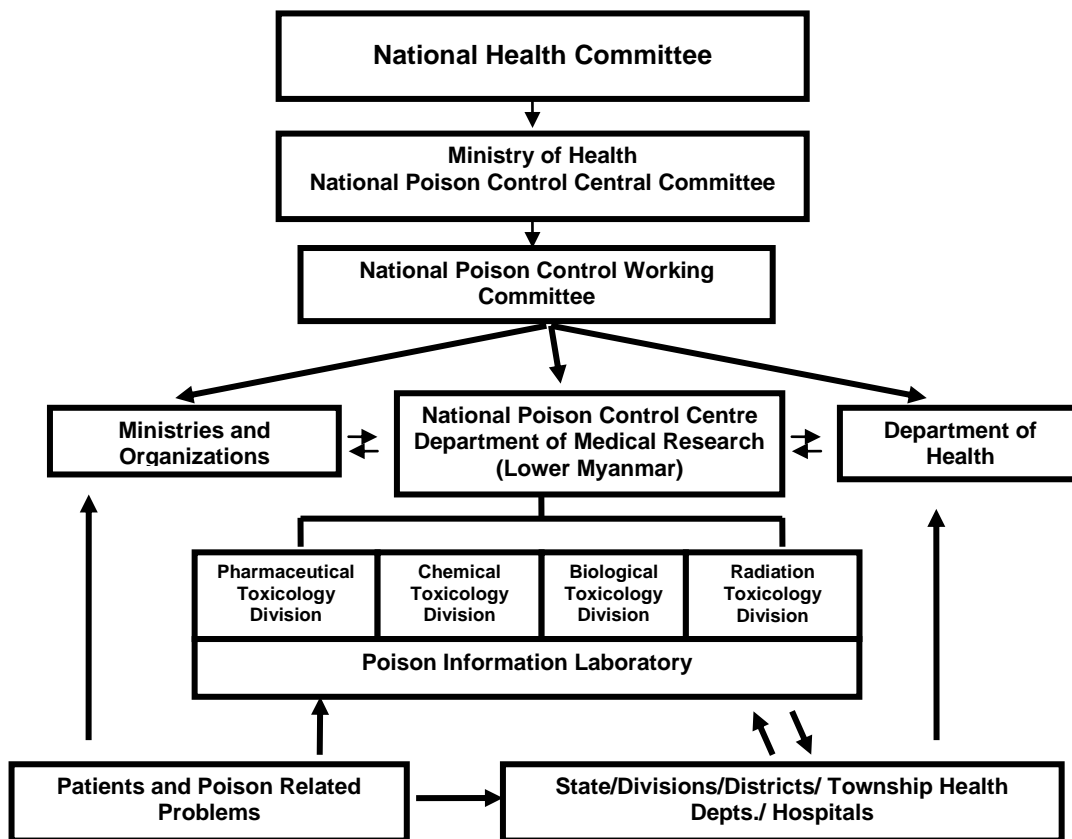
The Ministry of Health had initiated the development of NPCC for the improvement of health of the Myanmar people through prevention, information dissemination, control and management of poisoning. Thus an advanced, national level, poison control centre with fully equipped reference laboratory was opened at the Department of Medical Research (Lower Myanmar)

The Centre coordinates and utilizes the knowledge and expertise of the various departments under the Ministry of Health. A Central Committee of 33 members with the Minister of Health as Chairman and including members from other ministries related to the Ministry of Health was formed and this Central Committee gives guidance to the Working Committee. The staff set-up for NPCC comprised of 61 staff (21 officers and 40 technicians).

**Organization Structure of the National Poison Control Centre (NPCC)**

The NPCC at the Department of Medical Research (Lower Myanmar) consists of four main divisions which are under the control of a Director (Poison Research)

- Pharmaceutical Toxicology Research Division
- Chemical Toxicology Research Division
- Biological Toxicology Research Division
- Radiation Toxicology Research Division



**Fig. Linkages of National Poison Control Centre with the Ministry of Health and other Responsible Bodies**



## **(6) University of Medicine (2) (Yangon)**

**Agency:** Ministry of Health

**Established:** 1963

**State /Region :** Yangon Region

**Address and Contact Information:** University of Medicine 2, Kaymarthi Road, North Okkalapa Township, 11301, Yangon, Myanmar

**Phone:** +95 1 9699851

**Fax:** +95 1 9699850

**email:** [proftslum2@myanmar.com.mm](mailto:proftslum2@myanmar.com.mm)

**Rector:** Professor Tint Swe Latt

**Vision:** To become an internationally recognized university of medical profession

**Mission:** To produce highly qualified medical doctors who can keep abreast with the standard of international medical profession

**Contribution to Tropical Diseases:**

HIV, TB, malaria, dengue, HBV & HCV, diarrhoea, pneumonia, leprosy and worm infestation. These contributions were undertaken during MSc and PhD courses.

Total number of scientists in the Institute = 170

Number of scientists working on Tropical Diseases = 75

## **(7) University of Pharmacy (Yangon)**

**Agency:** Ministry of Health

**Established:** 1992

**State /Region:** Yangon Region

**Address and Contact Information:** Waibargi Road, North Okkalapa Township, Yangon, Myanmar

**Phone:** 951-690485, 951-690486, 951-9699870, 951-9699897

**Fax:** 951-690486, 951-9699877

**email:** [rct\\_uopygn@dms.gov.mm](mailto:rct_uopygn@dms.gov.mm), [ygnuopmm@gmail.com](mailto:ygnuopmm@gmail.com)

**Rector :** Professor Marlar Myint

## **Institutional Profile**

Since 1964, a two-year Diploma Course in Pharmaceutics has been introduced in the Union of Myanmar with the establishment of the Department of Pharmacy under the School of Paramedical Sciences in the compound of Yangon General Hospital. As there was a great need of qualified pharmacists, Institute of Pharmacy was formerly opened in Yangon University Campus (BOC College), Thahton Street on 30<sup>th</sup> January 1992.

Initially, a two-year B.Pharm. (Bridge Course) for graduates with diploma was conducted. The four-year B.Pharm. Course has been started in 1994 with an intake of 50 matriculated students.

On 7<sup>th</sup> May 2001, the Institute was moved to the present campus (19.958 acres) in Waibargi, North Okkalapa beside the Communicable Diseases Hospital. Student intake has gradually been increased to 200 and above. In 2005, the Institute was renamed as University of Pharmacy, Yangon. Research activities have been initiated with the establishment of Master of Pharmacy Course in 2003.

**Contribution to Tropical Diseases:** Malaria, tuberculosis, diarrhoea, ascariasis. HIV . These contributions were undertaken during MSc and PhD courses.

Total number of scientists in the Institute = 54

Number of scientists working on Tropical Diseases = 9

## **Non-Governmental Organizations**

There are 14 national NGOs working in Myanmar. Out of these, MMA, MAMS, MRCS are working actively on communicable diseases. MMA is working on various tropical diseases regularly with funds received from various sources. Due to limited time , MRCS and MAMS will not be mentioned in this report.

There are 31 international NGOs working in Myanmar. About half of these organizations are supporting activities on tropical diseases.

### **Myanmar Academy of Medical Science (MAMS)**

**President:** Professor Myo Myint

**Address:** No. 123, Nat Mauk Road, Bahan Township, Yangon, Myanmar

**Phone:** 01 430270

**Myanmar Academy of Medical Sciences** formed in 1998, is led by Professor Dr. Myo Myint , Retired Rector of Institute of Medicine ( I ) as Chairman, Retired Rector of Department of Medicine , Yangon General Hospital as Vice Chairmen, and 7 other retired high ranking officials, 2 Director General of Ministry of Health and 1 Advisor from University of Defence Medicine as executive members. Terms of Reference of the Academy are:

- (1) To support the development of the country from health aspect
- (2) To improve the medical science abreast with the international standard.
- (3) To produce more medical science graduates in order to meet the health care needs of the country.
- (4) To conduct health sciences research for upgrading the national health care system.

### **Myanmar Medical Association (MMA)**

**President :** Professor Kyaw Myint Naing

**Address :** No.249, Theinphyu road, Mingalataungnyunt Township, Yangon, Myanmar.

**Phone +951 380899**

**E mail :**

**<mmacorg@gmail.com>**

MMA is the only professional body of medically qualified doctors in Myanmar. It is a non-governmental organization which operates on its own budget generated from its activities and membership fees. The MMA was founded in 1949.

Today it has over 8000 members which has a total of 80 branches throughout the country. All the specialities are represented in the MMA as speciality societies which hold 26 in numbers.

## **CENTRAL MYANMAR**

### **(1) Department of Medical Research (Central Myanmar)**

**Agency: Ministry of Health**

**Established:** December 2002

**State /Region:** Union Area

**Address and Contact Information:**

**Phone:** 095-67-403489, 403172 (Off) ; 095-67-413005 (Res)

**email:** dr.htunnaingoo@gmail.com

**Director General :** Dr.Tun Naing Oo

**Vision and Mission:**

- To conduct the bio-medical research, traditional medicine research and medical social research,
- To collaborate with other health departments and medical universities in academic activities for promotion of health status of Myanmar people.

**Contribution to Tropical Diseases:** HIV/AIDS, leprosy, malaria, dengue, tuberculosis

Total number of scientists in the Institute = 30

Number of scientists working on Tropical Diseases = 5

## **(2) Department of Health**

**Agency:** Ministry of Health

**Established:**

**State /Region:** Union Area

**Address and Contact Information:** No.4 Office Building, Ministry of Health, Nay Pyi Taw

**Phone:** 067-411001

**Fax:** 095-67-411016

**email:** dr.htunnaingoo@gmail.com

**Director General :** Dr.Htun Naing Oo

### **Objectives**

1. To enable every citizen to attain full life expectancy and enjoy longevity of life.
2. To ensure that every citizen is free from diseases.

### **Strategies**

1. Widespread disseminations of health information and education to reach the rural areas.
2. Enhancing disease prevention activities
3. providing effective treatment of prevailing diseases.

### **Contribution to Tropical Diseases:**

The Department of Health, one of the seven Departments under the Ministry of Health is responsible for providing health care services to the entire population in the country. Under the supervision of the Director-General and four Deputy Directors-General, the following Divisions are running.

\*Administration

\*Planning

\*Public Health

\*Medical Care

\*Disease Control

\*Health Education

\*Food and Drug Administration

\*National Health Laboratory

\*Occupational Health

\*Nursing

### **(3) Department of Medical Science**

**Agency:** Ministry of Health

**State /Region:** Union Area

**Address and Contact Information:**

**Phone:** 067-411023

**Director General :** Dr. Than Zaw Myint

**Contribution to Tropical Diseases:**

Human Resources for Health are the most important resources for successful implementation of National Health vision and mission. The Department of medical science is carrying out this responsible duty of training & production of all categories of health personnel with the objective to attain appropriate mix of competent human resources for delivering the Quality Health services.

The Department has five divisions namely Graduate/Nursing Training Division, Postgraduate Training & Planning Division, Foreign relation & Library Division, Administrative & Budget Division and Medical Resource Center. The Department also has one community field Training Center for practicing the Community Medicine and Field Training.

Supervision of the reviewing, revising and upgrading of the educational programmes and training processes for Quality assurance and Management of Faculty Development and infrastructure development are the major activities of the Department.

#### **(4) Department of Health Planning**

**Agency:** Ministry of Health

**State /Region:** Union Area

**Address and Contact Information:** Department of Health Planning, Nay Pyi Taw, Myanmar

**Phone:** 067-431072 (Off. ), 067-403160 (Res.)

**email:** phonemyintdr@mail4u.com.mm

**Director General :** Dr. Phone Myint

**Contribution to Tropical Diseases:**

The Department of Health Planning comprises of the following divisions:

\*Planning Division

\*Health Information Division

\*Research and Development Division

\*E-Health Division

\*Administration Division

For optimum utilization of human, monetary and material resources, in the context of the National Health Policy and with the need to provide comprehensive health services, it is necessary to systematically develop health plans. The availability of reliable statistics and information is a vital prerequisite in such an effort. The Department of Health Planning is responsible for formulating the National Health Plan and for supervision, monitoring and evaluation of the National Health Plan implementation. The Department also compiles health data and disseminates health information.

## **(5) Department of Traditional Medicine**

**Agency:** Ministry of Health

**Established:** 1976

**State /Region:** Nay Pyi Taw Region

**Address and Contact Information:**

**Phone:** 067-431087, 067-431088

**Fax:** 067-431089

**email:** dramyint@gmail.com

**Director General :** Dr. Aung Myint

**Contribution to Tropical Diseases:**

Traditional Medicine promotion office was established under the Department of Health in 1953. It was organized as a division in 1972 managed by an Assistant Director who was responsible for the development of the services under the technical guidance of the State Traditional Medicine Council. It became the focal point for all the activities related to traditional medicine. The Government upgraded the Division to a separate Department in August 1989. It was reorganized and expanded in 1998, to provide comprehensive traditional medicine services through existing health care system in line with the National Health Plan. The other objectives of the Department are to review and explore means to develop safe and efficacious new therapeutic agents and medicine and to produce competent traditional medicine practitioners.



## UPPER MYANMAR

### (1) University of Medicine (Mandalay)

**Agency:** Ministry of Health

**Established:** 1954

**State /Region:** Mandalay Region

**Address and Contact Information:** 30<sup>th</sup> Street, Between 73<sup>rd</sup> & 74<sup>th</sup> Streets, Chanayetharzan Township, Mandalay, Myanmar

**Phone:** -95 2 36634

**Fax:** 95 2 36639, 95 2 39066

**email:** rct-ummdy@dms.gov.mm

**Rector:** Professor Than Win

#### **Aim and Objective**

To produce basic doctors and highly qualified post-graduate clinicians and academicians.

**Data not available at the time of writing report {except Tropical Diseases theses data from DMR (LM) Library and Handbook 2008 from UMM}**

### (2) Department of Medical Research (Upper Myanmar)

**Agency:** Ministry of Health

**Established:** 16<sup>th</sup> November, 1999

**State /Region:** Mandalay Region

**Address and Contact Information:**, Near Anisakhan Airport, Ward No.(16), Pyin Oo Lwin 05062, Myanmar

**Phone:** Office : +95-85-50436, Residence : +95-85-50440, Mobile : +95-9-2033107

**Fax:**+95-85-50435

**e-mail:** drkz.thant@googlemail.com

**Deputy Director General / Acting Director General :** Dr.Kyaw Zin Thant

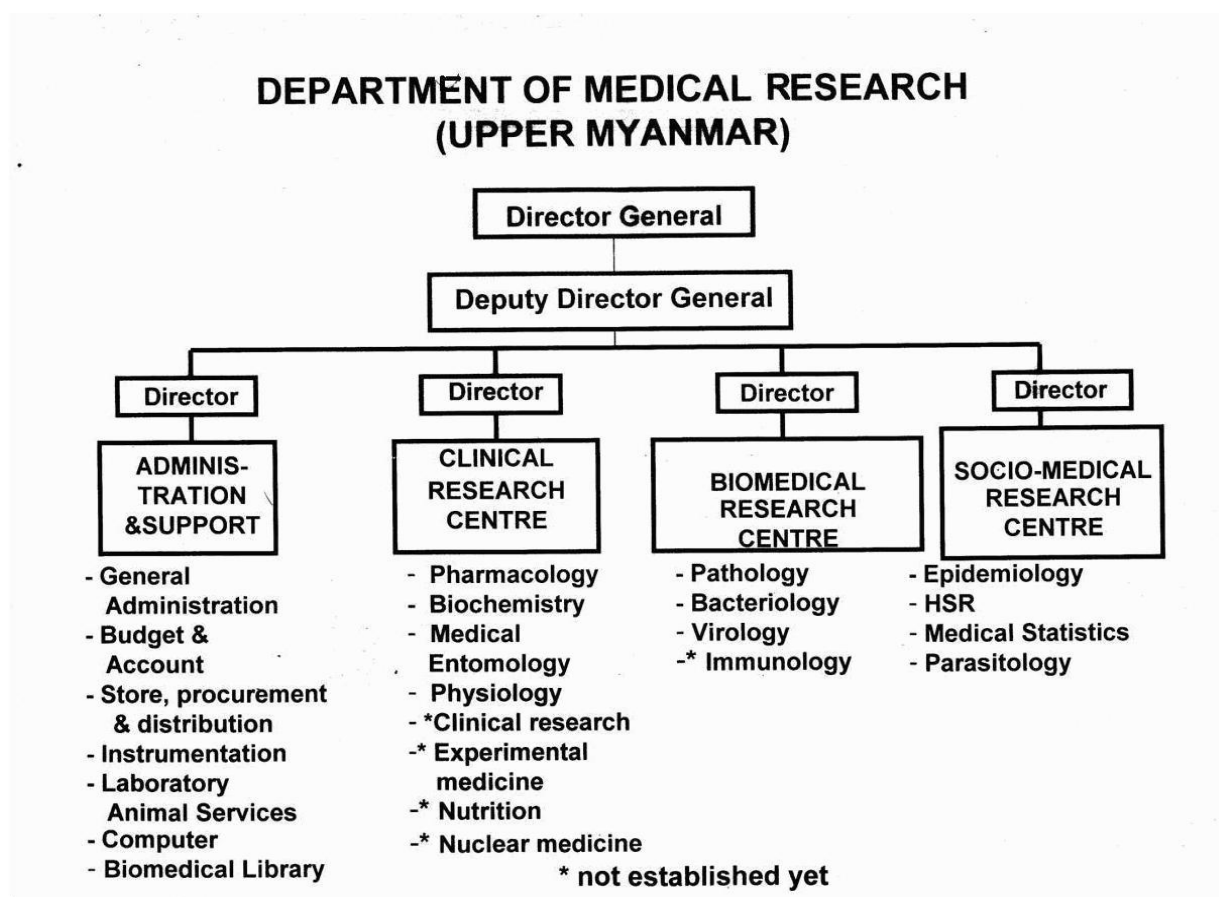
#### **Vision ;**

Striving towards the “Research for Health” goal

#### **Missions**

1. To find out the appropriate preventive, curative and rehabilitative measures for the priority National Health problems including both communicable and non-communicable diseases

2. To conduct research on traditional medicine for safe and effective utilization within the context of healthcare delivery system research
3. To promote Health policy and systems research
4. To perform research on reproductive health and related issues in accordance with National Health Policy
5. To find out the nutritional problems in Upper Myanmar and search for appropriate methods of prevention and management
6. To establish a model herbal garden and maintain the rare species of indigenous medicinal plants
7. To conduct research on environmental and occupational health hazards
8. To strengthen manpower, technology and facilities for health research
9. To nurture the research culture and to enhance the utilization of results coming out from research endeavors



**Fig. Organization structure of Department of Medical Research (Upper Myanmar)**

**Contribution to Tropical Diseases:**

Research areas are mainly on Malaria, HIV/AIDS, Tuberculosis, Dengue, Diarrhoea, and Dysentery.

Number of projects handled in the institute on Tropical Disease in last 10 years = Over 80 projects

Total number of scientists in the Institute = 40

Number of scientists working on Tropical Diseases = 30

**(3) University of Medicine (Magway)**

Data not available at the time of writing report

**(4) University of Community Health (Magway)**

Data not available at the time of writing report

## **5.2 STRENGTHS**

This chapter deals with the strengths of an organization based on the expertise of the scientific faculties; the infrastructure in the form of facilities, services etc. provided by the institution; the various training programs conducted in regular basis; workshops /meetings organized in the Tropical diseases areas; any clinical research/ clinical trials performed; the details of basic research carried out; any products developed in the form of vaccines, drugs and diagnostics etc.

The necessary information was collected in the following manner:

Specific questionnaires (Institutional Profile and Principal Investigator Profile) sent by WHO/SEARO were adapted and sent to the Institutional Heads and Principal Investigators; their Annual Reports or handbooks; publications of the investigators (including monographs), theses and papers read at the conferences were studied/screened as much as time would permit

### **University of Nursing**

#### **Infrastructure and services**

No. of Departments/ Specialty units (16)

1. Department of Community Health Nursing
2. Department of Adult Health Nursing
3. Department of Maternal and Child Health Nursing
4. Department of Mental Health Nursing
5. Department of Fundamental Nursing
6. Department of Dental Health Nursing
7. Department of Biochemistry
8. Department of Microbiology
9. Department of Pathology
10. Department of Pharmacology
11. Department of Physiology
12. Department of Chemistry
13. Department of Physics
14. Department of Myanmar
15. Department of English
16. Department of Medical Education

No. of Centres - (1)

WHO Collaborating Centre for Nursing and Midwifery Development

Collaborative activities with International organizations; WHO, Myanmar; WHO. Thailand;  
WHOCC

No. of Programmes - (9)

1. BNSc (Generic) - 4 years
2. BNSc (Bridge) - 2 years
3. MNSc - 2 years
4. Diploma in Speciality Nursing - 9months
  - Critical Care Nursing
  - Orthopaedic Nursing
  - Child Health Nursing
  - Eye, Ear, Nose and Throat (EENT) Nursing
  - Mental Health Nursing
  - Dental Health Nursing

### **Facilities**

- (1) Accommodation for visiting fellows/researchers/faculty
- (2) Library Facility
- (3) Computer Facility
- (4) Media Facility
- (5) Other facilities such as Medical Education Unit and Ethics Committee

### **Facilities available for the institution**

Language Laboratory with 48 seats (work stations)

Computer laboratory with 15 seats (work stations)

Skill Laboratory for Fundamental Nursing

Skill Laboratory for Maternal and Child Health Nursing

Basic Science Laboratory for Microbiology and Pathology

Basic Science Laboratory for Anatomy and Physiology

Basic Science Laboratory for Chemistry and Physics

Main Library with Computer, 12086 text Books and 6334 Journals

Statistical data processing facilities-CD, CDS ISIS, SPSS

## **Scientific Expertise:**

**Professor Mya Thu** MBBS, MMedSc, PhD (Biochemistry), Dip in Med Ed;

**Career:** Township Health Officer, Yangon Health Division (1981-87); Demonstrator (1987-93); Assistant Lecturer (1993-94); Lecturer (1994-2003); Associate Professor (2003-05) Department of Biochemistry, University of Medicine 2 ; Professor (2005-07); Professor & head (2007-09) Department of Biochemistry, University of Medicine, Mandalay; Rector/Director (2009 to date), University of Nursing, Yangon ,WHO CC (Nursing & Midwifery Development); Chairman of Research and Ethical Committee, University of Nursing, Yangon, **Research Experience:** Biomedical research in Malaria, Nutrition, Lipid profile, Genetics and Medical Education; **Email:** profmyathu@gmail.com

The following three faculty scientists had undertaken their respective projects concerning Tropical Diseases:

### **Daw Thein Thein Kyi**

Knowledge of mothers with under five children regarding diarrhea (Dawpone Township, Yangon), Paper presented in 2000

### **Dr. Than Than Su**

- Prevalence of helminthic infections in primary school children, North Okkalapa, Duration – 3 months
- Seroprevalance of Hepatitis B surface Antigens among voluntary blood donors in North Okkalapa General Hospital

### **Daw Naw Clara**

Experience of Persons Affected by Leprosy (qualitative research, phenomenological approach), 1 year (2009)

The following nurses/researchers had undertaken the respective projects for Master of Nursing Science degrees:

### **Khin Mar Kyi**

The lived experiences of patients with multidrug-resistant tuberculosis: A phenomenological study (2004)

**Lazum Htu Nau**

The lived experiences of the mothers whose children have HIV/AIDS (2004)

**Nyi Nyi Htay**

The lived experiences of the people with AIDS regarding nursing care: A phenomenological study (2004)

**Mar Lar Win**

The experiences of married women living with HIV/AIDS: A feminist approach (2009)

**Mehn Sein Ti**

Myanmar nurses experience of fear with AIDS patients: A phenomenological study (1996)

**Daw Yin Yin**

The lived experiences of women whose partners have AIDS; A feminist approach (1997)

**Aye Paing**

Study on knowledge and attitude of TB patients regarding TB-treatment (DOTS): A mixed method study (2005)

.

## **University of Public Health**

### **Infrastructure and services:**

#### **Departments at UPH**

Department of Biostatistic

Department of Epidemiology

Department of Health Behaviour & Communication

Department of Health Policy & Management

Department of Medical Education Services & ICT

Department of Nutrition & Food Safety

Department of Occupational & Environmental Health

Department of Population & Family Health

Department of Public Health Laboratory

#### **Degree conferred**

1. Diploma in Hospital Administration (6 months)
2. Diploma in Medical Education (9 months)
3. Master of Public Health ( 1 year)
4. PhD (Public Health) (3-5 years)

#### **Scientific Expertise:**

**Professor Nay Soe Maung** MB,BS, M.A.B, M.P.H, H.S.M.P (Belgium), F.A.C.T.M (Australia) had conducted research mainly on malaria and filarial including anti-malaria drug efficacy, RDT validity, ITN for malaria, nationwide prevalence study, rapid epidemiological assessment, ICT validity, and GPS mapping for filariasis. He had been a member of WHO/SEARO Task Force for filariasis.

**Dr. Htin Zaw Soe** MBBS, DFT, MMedSc (P&TM), PhD (Public Health)

Interest is in control of vectors for dengue and malaria, epidemiology of dengue and malaria and Biostatistics.

**Professor Swe Win** MBBS, MMedSc (P&TM)

Attended “The Executive Program in Health and Population for developing countries of Department of Health Policy and Administration, School of Public Health, University of North Carolina at Chapel Hill and Indian Institute of Health Management Research , Jaipur, India ” and



obtained training certificate for ‘Strategic Management‘. Took leadership and managerial role in Middle level (1 State and 2 regions of Myanmar) to perform Public Health and Disease control activities including Tropical diseases.

**Dr. Tun Myint** MBBS, MPH, Dr.PH

Worked in the National AIDS Control Programme and Department of Epidemiology, University of Public Health, MoH. His main areas of interest are HIV/AIDS, malaria, TB, TB/HIV and rural development. He is the Associate professor and Head of Epidemiology in UPH.

**Dr. Cho Cho Oo**

Experience obtained from: Liver Unit, Yangon General Hospital and Department of Microbiology, University of Medicine (1) on characterization of hepatitis C virus genotypes in Myanmar

**Dr. Khaymar Mya**

Current Post: Lecturer, Epidemiology department, University of Public Health, Yangon.

Previous Posts: Assistant Director, EPI Unit, CEU, DoH, Nay Pyi Taw

International training, ..(1) Field Epidemiology, national Institute of Communicable Diseases, New Delhi (2)

Effective vaccine management (3) Facilitator traing for EPI

Interesting subject – Epidemioly& Biostatistics, hepatitis B

**Dr. K Khine Aye Mauk**

Interest is in Dengue projects: Epidemiology of dengue fever/ dengue haemorrhagic fever in adults of Yangon General Hospital

## **National Health Laboratory**

### **Name of the Tropical Disease(s) handled**

#### **Parasitology Section**

Malaria , Amebiasis, Giardiasis, Helminthiasis

#### **Bacteriology Section**

Cholera, Shigellosis, EnterotoxigenicE.coli, Pneumonia and meningitis , Leprosy, Tuberculosis, Typhoid/paratyphoid

#### **Virology Section**

Rota virus diarrhea, HIV/AIDS, Dengue, Japanese encephalitis, Hepatitis

### **Guidelines developed:**

1. Guidelines on National External Quality Assessment (NEQA) for HIV antibody testing.DOH.MOH.Myanmar.2010.
2. Guidelines for Blood Transfusion Services.DOH.MOH.Myanmar.2011.

### **Contact persons of NHL:**

Professor Ne Win (Senior Pathologist)

Dr. Khin Myat New (Senior consultant Microbiologist)

Dr. Khin Yi Oo (Consultant Microbiologist)

Dr. Win Thein (Senior consultant Pathologist)

Dr. Tin Sabae Aung (Consultant Microbiologist)

Dr. Meiji Soe Aung (Microbiologist)

## **Department of Medical Research (Lower Myanmar)**

**Major equipment available in the Institution:** Biosafety Level-2+ Laboratory Facilities and others: Phase Contrast Microscope, Fluorescence Microscope, DNA Sequencer, Protein Sequencer, Ultra Centrifuge, Spectrophotometer, ELISA Reader, ELISA Washer, Conventional PCR Machine, Real-time PCR Machine, Fluorescent spectrophotometer, Liquid scintillation counter , HPLC system , Low pressure chromatography system, Gel documentation System, Thermal cyclers, Flowcytometer, Deep freezers, Gas Chromatograph, Chemistry analyzer, Biohazard safety cabinet, Homogenizer, Spectrophotometers including high absorption, Thermal cyler with programmed control system, Cryostat chromotome etc.

### **New products(s) developed:**

- Plasma derived Hepatitis B vaccine
- Yeast -derived Recombinant Hepatitis B vaccine

### **New process(es) developed**

Processes of Production ,Quality Control and Quality Assurance for Hepatitis B vaccines

### **Scientific Expertise:**

## **Board of Directors**

### **Acting Director-General**

**Dr. Myo Khin** M.B.,B.S, MD (New South Wales) DCH, FRCP (Edin)

Graduated from the Institute of Medicine 2, Yangon. Received post graduate diploma in paediatrics from the Institute of Medicine 1, Yangon. Carried out post-doctoral fellowship in geographic medicine at the John Hopkins School of Public Health, USA. Received Doctorate of Medicine in gastroenterology from the University of New South Wales, Australia. Have published over 130 articles in international and national medical journals as principal or co-author. Main research areas include gastroenterology, nutrient absorption and hepatitis, among others.

### **Deputy Director-General**

**Dr. Ye Htut** M.B.,B.S, MSc (Med. Para)(London), DLSHTM FRCP (Edin.)

Medical parasitologist with current research interest in drug resistant malaria and its molecular epidemiology.

## **Directors**

**Dr. San Shwe** M.B.,B.S, MMedSc (Public Health)

Social research (studies) by qualitative tools. Elderly research: Keen in conducting social needs stigma and burden etc. for poor/ marginalized and elderly people.

**Dr. Hlaing Myat Thu** M.B.,B.S, MMedSc(Microbiology) (IM1) PhD(Molecular Virology) (QUT, Brisbane) has current research interest in virologic surveillance of dengue and rotavirus infections and molecular epidemiology studies of viral infections to determine the genetic diversity of viral strains and to detect the emergence of new strains or subtypes for elucidating the contribution of viral genetics to the changing patterns of disease.

**Dr. Myat Phone Kyaw** M.B.,B.S, MMedSc (Biochemistry), (IMM), PhD (Clinical Malariology)

(Colombo) Experience on Severe and Complicated Malaria and Ph D thesis was on

Pathophysiology of Severe Malaria cases. Experience on Therapeutic efficacy trials and also on Phase1 and Phase 3 trials of Hepatitis B vaccine. WHO reference lab for QC samples collection site for Malaria RDT has been developed successfully at DMR LM. PCR lab for malaria has also been developed at DMRLM.

**Dr. Win Aung** M.B.,B.S, MMedSc (Biochemistry), FACTM, is seriously interested in Research and Development of vaccines against TDR diseases by using advanced and molecular technology . He currently works on production , quality control and quality assurance of both plasma and recombinant hepatitis B vaccine in accordance with the WHO GMP recommendations in Myanmar

**Dr. Khin May Oo** M.B.,B.S, D.Bact, MMedSc, PhD (Microbiology) Intersted in research on hepatitis B and hepatitis C viruses, quality control of recombinant and plasma-derived hepatitis B vaccines and on different laboratory methods including application of molecular methods for the diagnosis and monitoring of infectious diseases.

## **FACILITIES:**

### **BACTERIOLOGY RESEARCH DIVISION**

Deputy Director & Head ... Dr. Wah Wah Aung MBBS, MMedSc, PhD(Microbiology),  
(IM1)

Research Scientist ... Dr. Mya Mya Aye MBBS, MMedSc (Microbiology),  
(IM1)

The Bacteriology Research Division was engaged in research activities on mycobacterial, reproductive tract, acute respiratory and enteric infections; bacteriological aspects on therapeutics and environmental health. Research with direct implication for effective control of diseases was being focused. One of the main areas was detection of emergence of drug resistant organisms. Monitoring of the aetiological agents and drug sensitivity pattern of diarrhoeal and gonococcal infections were also performed.

**Scientific Expertise:**

**Dr. Wah Wah Aung**

Expertise in tuberculosis, ARI and cholera

**Services provided:**

For Academic Courses: MMedSc (Microbiology, BSc (Medical Technology)

For Laboratory: Determination of TB IgG antibody by ELISA, Bacteriological testing on herbal syrup

**BIOCHEMISTRY RESEARCH DIVISION**

Deputy Director & Head ... Dr. Nwe Nwe Oo MBBS (IM1) MMedSc(Biochemistry)  
(IMM)

Research Scientist ... Dr. Moe Thida Kyaw MBBS MMedSc(Biochemistry) (IM2)

The Biochemistry Research Division is actively involved in research activities of the following program areas: Malaria, Diabetes mellitus, Obesity, Snake bite and Traditional medicine.

**Scientific Expertise:**

**Dr. Nwe Nwe Oo**

Expertise in G6PD deficiency in national races (ethnic groups) living in malaria endemic areas

**Services provided**

For Academic Course: MMedSc (Co-supervisor, External Examiner)  
Research Methodology and Bioethics Workshop (Facilitator)

For Laboratory: Blood tests

## **IMMUNOLOGY RESEARCH DIVISION**

Deputy Director & Head ... Dr. Khin Saw Aye MBBS MMedSc PhD(Pathology)  
(IM1)

Research Scientist ... Dr. Aye Aye Myint BSc MSc (Zoology)  
PhD(Zoology)(YU)

Immunology Research Division is engaged in tuberculosis, dengue hemorrhagic fever, snake bite research and cancer cervix research. The division has involved in research on genotyping and DNA sequencing of drug resistant tuberculosis, immunological responses in pulmonary tuberculosis patients, Loop Mediated Isothermal Amplification (LAMP) assay for the diagnosis of pulmonary TB, small scale production of avian Russell's viper antivenom and Human Papilloma Virus genotypes associated with cervical intraepithelial neoplasia and cervical cancer in Myanmar.

### **Scientific Expertise:**

Dr. Khin Saw Aye has expertise on research in Immunology, pathology and molecular studies on tuberculosis, leprosy, dengue and malaria.

### **Services provided**

For Academic Courses: . MMedSc, BPSC ( Teaching)  
Research Methodology and Bioethics Workshop (Lecturer)

## **PARASITOLOGY RESEARCH DIVISION**

Deputy Director & ... Dr. Thaung Hlaing MBBS (IMM) DTM&H MCTM  
Head (Mahidol) PhD (Genetics) (Manchester)

Research Scientist ... Dr. Kay Thwe Han MBBS, MMedSc (Microbiology) (IM1)  
...

Research Officer ... Dr. Maung Maung Mya BSc (Hons) Zoology, MSc(Zoology)

(Yangon University) PhD(Biomedical Engineering) (Indian Institute Of Technology, Delhi)(India)

... Dr. Myat Htut Nyunt

... Daw Kyin Hla Aye BSc (Chemistry)(Yangon University)

... Dr. Khin Myo Aye MBBS, MMedSc (Microbiology)(IM1)

Parasitology Research Division has conducted research on priority health problems mainly on drug resistant malaria in collaboration with National Malaria Control Program. It plays as a back bone for the activities of WHO Collaborating Centre for Research and Training on Malaria. The division has been engaged in quality control sample collection and in lot testing of rapid diagnostic test kits of WHO/FIND. It is the only place for testing *in vitro* sensitivity of antimalarials in the field and for applying molecular techniques to detect resistant gene mutation and to differentiate resistance and reinfection in Myanmar. The molecular method and results of genotyping have been validated biannually under External Quality Assurance Programme of World Wide Antimalarial Resistant Network (WWARN).

#### **Scientific Expertise:**

**Dr. Thaung Hlaing** has than ten years experiences as a research team leader in entomological and epidemiological field surveys and intervention research particularly in malaria, dengue and filariasis, with special emphasis in integrated vector management and control in the community, Expertise in molecular laboratory, gene flow and population genetics studies.

#### **Dr. Kay Thwe Han**

Expertise in molecular detection of drug resistant malaria, including in-vitro drug sensitivity data analysis and therapeutic efficacy testing

#### **Dr. Maung Maung Mya**

Vector control by biological method such as using larvivorous fish, *Toxoranchities*, and Dragonfly nymphs in water storage containers and vector susceptibility test using WHO test kits etc. Cytogenetic for ovarian nurse cell polythene chromosome for *Anopheles culicifacies*. In vitro drug sensitivity and ELISA test for *P.falciparum*. Antigen isolation, purification and part characterization of *P. falciparum* culture supernatant.

### **Dr. Khin Myo Aye**

Expertise in sero-epidemiology of malaria in microstratified areas, Quality Assurance of rapid diagnostic test (RDTs):

- Sensitivity and specificity of malaria RDTs in Myanmar since 2008.
- Association between utilization of ITN and parasitaemia and malaria antibody in 2010.
- Ongoing project is role of malaria antibody in assessment of local transmission of malaria in Myanmar.

### **Dr. Myat Htut Nyunt**

Expertise in socio-epidemiology and drug resistance of malaria, Quality Assurance of rapid diagnostic test (RDTs), and neglected tropical diseases.

### **Services provided**

For Academic Course : MMedSc, BPSC ( teaching)

For Laboratory: Microscopic diagnosis of malaria, Routine and special examination of stools samples

### **VIROLOGY RESEARCH DIVISION**

Deputy Director & Head	...	Dr. Mo Mo Win
Research Scientist	...	Dr. Win Mar Oo MBBS, MMedSc(Microbiology) (IM1) Dr. Theingi Win Myat MBBS (IM2), MMedSc(Microbiology) (UM1)
Research Officer	...	Dr. Aung Zaw Latt MBBS (IM2), MMedSc(Microbiology) (UM1)

Virology Research Division was involved in three main research areas, namely, arbovirology, viral diarrhea and viruses causing acute respiratory infections. The research projects were mostly involved in disease surveillance of viral infections for timely prevention of disease outbreaks. Also, some of the studies were aimed to monitor the emergence of new viral strains or subtypes to provide base-line data for the formulation of effective candidate vaccines and for elucidating the contribution of viral genetics to the changing patterns of disease.



### **Scientific Expertise:**

**Dr. Mo Mo Win** has been working on Melioidosis in clinical and environmental aspects. Occurrence of Melioidosis among patients with suppurative infections attending major general hospitals of Yangon has been determined and the study on Melioidosis seropositivity in persons working on agricultural farms is still in progress.

**Dr. Theingi Win Myat** works on hospital surveillance of rotavirus diarrhea and molecular characterization of rotavirus. The common G and P genotype of rotavirus has been determined to support rotavirus vaccination planning. Also works on surveillance of dengue virus by determining the serotypes of dengue virus by RT-PCR and genetic diversity by sequencing of the virus.

## **CLINICAL RESEARCH DIVISION**

Deputy Director & Head ... Dr. Han Win MBBS MMedSc(Int Med) (IM 2)  
Research Scientist ... Dr. Than Than Aye MBBS MMedSc (Med Onco) (IM1)  
...

Clinical Research Division is primarily involved in research activities of the following programme areas: non-communicable diseases with emphasis on diabetes mellitus and cancer, and communicable diseases such as tuberculosis and acute respiratory infections (ARI). Moreover, research on haematology is also conducted.

### **Scientific Expertise:**

**Dr. Han Win** has undertaken research on KAP study on occupational diseases (eg. Brucellosis) and non-communicable diseases.

## **EXPERIMENTAL MEDICINE RESEARCH DIVISION**

Deputy Director/ Head ... Dr. Win Maw Tun MBBS MMedSc (Microbiology) (IM1) PhD  
(Microbiology) (UM1)  
Research Scientist ... Dr. Yi Yi Kyaw MBBS MMedSc (Microbiology) (IM1)  
... Dr. Aye Aye Lwin MBBS PhD (Okayama University, Japan)  
Dr. Aye Aye Win

The Experimental Medicine Research Division is primarily involved in research on hepatology and gastro-intestinal diseases. The division is investigating the prevalence of hepatitis B and hepatitis C infections in different geographical areas and population groups and the associated factors with the aim of determining the burden of hepatitis B and hepatitis C infections and to identify ways of controlling it. The division is also concerned with the diagnosis and management of hepatitis B and hepatitis C carriers who are attending the Hepatitis Carrier Clinic and technology development for early detection of liver cancer.

### **Scientific Expertise:**

**Dr. Win Maw Tun** has expertise on -Serological tests for hepatitis B and C infection, - Immunogenicity of hepatitis B vaccine and Quality control tests for hepatitis B vaccine.

**Dr. Aye Aye Lwin** has carried out research on molecular biology of hepatitis viruses (B&C) -Hepatitis C infection in risk population and Risk for hepatocarcinogenesis in patients with hepatitis C virus related chronic liver diseases.

**Dr. Aye Aye Win** has undertaken research on -Molecular diagnosis of tuberculosis infection, immunological response in viral hepatitis infection and cervical cytology (cervical carcinoma of uterus)

### **Services provided**

For Academic Course: MMedSc, BSc (External Examiner, teaching)

## **NUTRITION RESEARCH DIVISION**

Deputy Director & Head	...	Dr. Theingi Thwin MBBS MMedSc (Biochemistry) (IM1)
Research Scientist	...	U Than Win BSc, Diploma in Applied Physics, YU
	...	Dr. Moh Moh Hlaing MBBS MMedSc (Public Health) (IM2)

The Nutrition Research Division is primarily involved in research activities of the following areas: malnutrition, micro-nutrient deficiencies, non-communicable diseases and food safety

**Scientific Expertise:**

**Dr.Moh Moh Hlaing** is undertaking research on nutritional status and treatment outcomes of anti tuberculosis chemotherapy. Results from this research can provide evidence-based data for factors affecting the treatment outcomes of anti tuberculosis chemotherapy

**Services provided**

For Academic Course : MPH, PhD ( External Examiner , supervisor)

**PHYSIOLOGY RESEARCH DIVISION**

Deputy Director & Head ... Dr. Kyaw Oo MBBS, MMedSc (P & TM), MSc (Epidemiology) (PSU, Thailand)

Research Scientist ... U Sein Min BSc (Zoolgy) (YU)

The Division had done research projects on sports physiology, growth, development and fitness and reproductive health. The division had provided academic services such as teaching of undergraduate and post graduate students attending Universities of Medicine, University of Public Health, Military Institute of Nursing and Paramedical Science in Yangon.

**Scientific Expertise:**

**Dr. Kyaw Oo** is undertaking social studies on Leprosy control and social studies on TB (Tuberculosis) control and KAP studies on Malaria.

**Services provided**

For Academic Course: MMedSc , MPH, MNSc, Research Methodology ( Teaching, External examiner, protocol reviewer and thesis supervisor)

## **BLOOD RESEARCH DIVISION**

Deputy Director & Head	...	Dr. Win Pa Pa Naing MBBS IM1, MMedSc(Pathology) (IM2)
Research Scientist	...	Dr. San San Htwe MBBS (IM1), MMedSc(Pathology) (IM1)
	...	Dr. Zin Zin Thu MBBS (IM1), MMeddSc(Pathology) (IM1)

Blood Research Division is primarily involved in research studies on red cell disorders, diagnosis as well as management of common haematological malignancies, haemostasis and coagulation disorders to identify and solve the health problems related to these. The clinical arm is further supported by the Clinical Research Unit on Haematology at the Yangon Children's Hospital.

### **Scientific Expertise:**

**Dr.Zin Zin Thu** Expertise on helminthiasis

**Dr. San San Htwe** Expertise on malaria with anemia

## **BLOOD PROGRAMMING DIVISION**

Deputy Director & Head .....Dr. Yin Yin Kyaw MBBS, (IM1), MMed Sc (Microbiology) IM(2)

Under the National Blood Research Centre, Blood Programming Division is primarily involved in providing services on blood safety and blood donor recruitment. Regarding blood safety, surveillance of the prevalence of transfusion transmitted infections in blood donors, promotion of voluntary non-remunerated blood donors recruitment by use of blood mobile, and research work on safety of donors with multiple blood donations have been carried out. In addition, Blood Programming Division is also responsible for production, in-process quality control, quality assurance and distribution of plasma-derived hepatitis B vaccine.

## Scientific Expertise:

**Dr. Yi Yi Kyaw** main research interests involve Molecular studies of Hepatitis B virus and Hepatitis C virus, Clinical trials of Hepatitis Vaccine, Clinical trials on alternative therapy to Hepatitis B and C treatment. She also interested the research on *Helicobacter pylori* and gastric diseases. She has been involved an international collaboration research and training with the Okayama Univeristy, Japan. She is also a member of the Microbiology Society and Liver and GI Society, Myanmar Medical Association, Republic of Union of Myanmar and secretary of Liver and GI Research Scientific Group in Department of Medical Research (Lower Myanmar).

## Services provided

Donor recruitment: Effective donor recruitment and collection of safe blood in the community by using a blood mobile. (2010)

Vaccine production: Production and in-process quality control of the DMR plasma- derived hepatitis B vaccine. (2010)

## PHARMACEUTICAL TOXICOLOGY RESEARCH DIVISION

Deputy Director & Head	...	Dr. Khin Chit	MBBS (IM1), MMedSc (Pharmacology)(IM1), PhD (Pharmacology)(UM2)
Research Scientist	...	Dr. Min Wun	MBBS (IMI), MMedSc (Pharmacology) (UM2)

The Pharmaceutical Toxicology Research Division, established under NPCC, involves 3 major area activities. To (1) conduct research projects on drug-related poisoning and toxicity, (2) provide information and analytical services to the health sector on prevention, control and management of drug poisoning, and (3) conduct education and training to health personnel concerning poisoning and toxicology. Provision of services includes drug screening and identification in cases of unknown poisoning, quantification of drug levels to support treatment in cases of acute poisoning and provision of poison information to doctors and health care professionals in selected major hospitals for poison control and management.

**Facilities for clinical pharmacology research** on antimalarials are available at the Pharmacology Research and Pharmaceutical Toxicology Research Divisions which are well furnished with advanced modern equipment such as HPLC, AAS, GC-MS, Infra-red, UV/vis and fluorescent spectrophotometers which uses computer assisted programmes, thus enabling them to measure drug concentrations with good sensitivity, specificity and reliability.

## **Scientific Expertise:**

### **Dr. Khin Chit**

Expertise in research on pharmaco-kinetics of anti-TB drugs using western medicines and anti-TB activities of Myanmar medicinal plants.

## **Services provided**

For Academic Course: MMedSc ,PhD, MNSc, BPharm ( Supervisor, Teaching, Training)

## **LABORATORY SERVICES**

Screening and analysis of drugs and other poisons from biological and non-biological samples in acute poisoning

Respond to requests on screening and analysis of drug and poison has been provided to hospitals and includes drug poisoning (52.8%), lead poisoning (41.2%), unknown poisoning (5.8%) and others (0.2%). Requests for screening and identification were mainly from the Poison Treatment Centre, NYGH (32.4%), Medical Wards, YGH (4.6%) Yangon Children Hospital (14.8%) and Township Hospital, Myeik (40.6%). Others include No. 2 military Hospital, Insein General Hospital, North Okkalapa General Hospital and Thingangyun Sanpya General Hospital(7.4%).

## **POISON INFORMATION SERVICE**

Information and advice were given to general hospitals, 24 hours a day, 7 days a week, under direct supervision of Deputy Director/Head of Division. Respond to 428 requests on drug and poison information has been provided to the public, hospitals and the media in 2010, and includes drug poisoning (48.7%), lead poisoning (28.1%), pesticide poisoning (12.8%) and others (10.4%).

## **RADIATION TOXICOLOGY RESEARCH DIVISION**

Deputy Director	...	Dr. Tin Oo BSc(YU), MPH (Mahidol University), PhD (UQ, Australia)
Research Scientist	...	Daw Win Thaw Tar Lwin, BSc (Physics), MSc (YU) Diploma in Radiation Safety (Malaysia)

The Division has been mainly involved in radiation safety measures with the aim of preventing nuclear related accidents and promoting high standard of protection and research on environmental health. During 2010, services such as monitoring for safety of personnel, area monitoring for safety of work place and radioactive waste storage and disposal were carried out.

### **Scientific Expertise:**

**Dr. Tin Oo**, has carried out numerous operation research projects on public health and social dimensions of early diagnosis and prompt treatment (EDPT) of malaria in rural areas. He has expertise in social science aspect of capacity building process and intervention delivery mechanisms in multi-country, collaborative, transdisciplinary research in dengue vector control. His current research interest is in strengthening EDPT of malaria in Tier 1 areas covering both public and private sectors in support of Myanmar Artemisinin Resistance Containment (MARC) and social dimensions of risk communication in dengue vector control.

### **Services provided**

For Academic Course:            MSc (Teaching)

## **MEDICAL ENTOMOLOGY RESEARCH DIVISION**

Deputy Director/Head	...	Dr. Pe Than Htun BSc(Zoology) (YU) DAP&E (Malaysia) MSc (Med Para) (London) PhD (Zoology)
Research Scientist	...	Dr. Yan Naung Maung Maung MBBS MMedSc(Public Health) (IM1) ... U Sein Min BSc(Zoology) (YU)
Research Officer	...	Dr. Sai Zaw Min Oo MBBS (IM2) ... U Sein Thaung BSc(Zoology) (YU)

The Division undertook research projects on vectors of malaria and dengue haemorrhagic fever. Insecticide susceptibility status of vectors and suspected vectors of malaria were continued at the selected study sites in Bago Division, Sagaing Division and Chin state. The identification of vectors and suspected vectors of malaria from the field study sites were also carried out during the reporting period. A project on population genetics and genomics of Anopheles mosquitoes in collaboration with Manchester University, UK was initiated in 2010. Similarly, a project on application of GIS to characterize the malaria transmission in Bago Division was initiated.

Regarding the DHF vector studies, a WHO/TDR project on Eco-Bio-Social dynamics for better-informed dengue prevention Phase 2 was completed during the reporting period. An additional project on assessment of the dengue haemorrhagic fever transmission during the dry season in Dala Township was conducted in collaboration with Yangon Health Division and Vector Borne Disease Control program. Development of molecular entomology facilities were partially fulfilled and continued during 2010. Procurement of PCR machines and other accessories are planned with the ongoing research project in collaboration with Manchester University, UK. Sporozoite ELISA system was upgraded and standardized with the newly acquired Stat Fax 3200 ELISA reader during the reporting period. Establishment of *Anopheles* mosquito colonies were continued with *An dirus* mosquitoes from Mudon Township, Mon State and now they are in F8 generations. *Ae. aegypti* mosquitoes from Yangon Division has also been colonized in the insectary.

**Facilities** for genetic, biochemical, hybridization and circumsporozoite protein studies on vectors including ELISA assays.

### **Scientific Expertise:**

#### **Dr. Pe Than Htun**

- Disease vector biology, ecology and control in relation to malaria, dengue, filaria, plague and leishmaniasis.
- Surveillance and control of vector borne zoonotic diseases.
- Integrated vector management activities for prevention and control of malaria and dengue.
- Identification of mosquitoes, fleas, sand flies and rodents of public health importance.
- Evaluation of insecticides and rodenticides including bio-assays in laboratory and field trials.
- Evaluation of larvivorous fish and Mesocyclops as alternative biological control tools.
- Planning and implementation of research projects on major vectors of malaria, dengue and plague in Myanmar.
- Application of GIS in vector surveillance, prevention and control.

#### **Dr. Yan Naung Maung Maung**

- Mosquito vector biology and ecology
- Vector identification and incrimination
- Mosquitoes cytogenetics
- Molecular biology techniques: ELISA, Immunoassays and PCR technology



## **U Sein Min**

- Identification and cultivation of malaria parasites, Colonization and maintenance of mosquitoes in the insectary
- Identification and biology of mosquitoes and field investigation in malaria surveys.
- Entomological field techniques in malaria surveillance and control, insecticide susceptibility and Bio-assay tests.
- Laboratory and applied field research in malaria and Japanese encephalitis.
- Incrimination of vectors using ELISA technique and Biochemical studies of malaria vectors.
- Laboratory and field evaluation of traditional plant and plant extracts as insecticides
- Mechanical and biological control of Aedes and Anopheles mosquitoes

### **Services provided:**

For Academic Course: MSc , PhD (Examiner, Teaching)  
(Insecticide susceptibility tests, Sporozoite ELISA technique, Establishment of Anopheles, mosquito colonies)

## **EPIDEMIOLOGY RESEARCH DIVISION**

Deputy Director & Head ... Dr. Khin Thet Wai MBBS (IM1) MMedSc (Public Health)(IM1)

Research Scientist ... Dr. Ohnmar MBBS (IM1) MSc (Epidemiology), (Prince of Songkla University, Thailand) PhD  
Dr. Myo Myo Mon MBBS MMedSc(Public Health)  
MSc (Epidemiology) (Prince of Songkla University, Thailand)  
Dr. Poe Poe Aung MBBS (IM1)  
Dr. Pe Thet Zaw MBBS (UM2)

Epidemiology Research Division mainly focuses research activities on malaria, dengue haemorrhagic fever, human reproductive health, women and child health, and others.

## Scientific Expertise:

**Dr. Khin Thet Wai**, has been recently implemented trans-disciplinary, collaborative, multi-country research on dengue vector control in Yangon City. She has an expertise in monitoring and evaluation of public health programs through implementation research. Her current research interest is in dengue risk communication, household water storage and treatment for controlling diarrhea and prevention of malaria in mobile population in support of Myanmar Artemisinin Resistance Containment.

**Dr Ohnmar** has experience in conducting epidemiological surveys on malaria, tuberculosis and dengue. She has recently published papers on malaria and tuberculosis in international journals. She worked as a principal investigator in a cluster randomized trial with the use of volunteers for malaria diagnosis with RDT. She is engaged in baseline survey on Myanmar Artemisinin Resistance Containment project. Her current research interest includes the implementation research on use of volunteers for diagnosis and treatment of anaemia in pregnancy in malaria endemic areas and the use of preventive measures for malaria among migrant population.

**Dr. Myo Myo Mon** has recently conducted a survey focusing on socio-economic, psychological and health impacts among orphans and vulnerable children due to HIV/AIDS (HIV-OVC). Her current research interest is in anti-retroviral therapy (ART) adherence and contributing factors among HIV infected children.

## Services provided

For Academic Course:            PhD (Teaching)

## HEALTH SYSTEMS RESEARCH DIVISION

Deputy Director & Head	...	Dr. Le Le Win BEcon(Statistics), MEcon(Statistics) PhD (University of Queensland)
Research Scientist	...	Dr. Saw Saw MBBS, PhD(University of Melbourne)
Research Officer	...	Dr. Yin Thet Nu Oo MBBS, MIRB (Monash University, Australia)

HSR Division focuses research on Malaria, TB, HIV, Leprosy and reproductive health in areas of social science.

**Scientific Expertise:**

**Dr. Le Le Win** has research interest in behaviour changes, self-care, health system development and other social-related areas. Currently involve in research on prevention of disability of person affected by leprosy focusing on self-care, health information system performed by basis health staff at township level and TB relating to involvement of community volunteers initiated by INGOs in TB control activities.

**Dr. Saw Saw**

Public health professional experienced in health systems research focusing on public-private partnership and community development. Research Interests: Tropical disease especially TB and HIV and Health Policy and Systems Research.

**Services provided**

For Academic Course:            PhD ( Teaching)

**PHARMACOLOGY RESEARCH DIVISION**

Deputy Director & Head	...	Dr. May Aye Than	MBBS (IM1), MMedSc (Pharmacology) (IM2)
Research Scientist	...	Dr. Khine Khine Lwin	MBBS(IM1), MMedSc (Pharmacology)(IMM)
	...	Daw Mu Mu Sein Myint	BSc, MSc (Zoology)(YU)

The research activities of the division mainly involve major area of traditional herbal medicine research. Additional activities include toxicological, phytochemical and pharmacological assessment of locally available traditional medicines.

**Scientific Expertise:**

**Dr. May Aye Than** interest is mainly on new drugs development from traditional herbal medicine on TDR diseases (eg malaria, TB, diarrhea, dysentery, hepatitis) . She also supervised postgraduate thesis from University of MedicineI,II, Defences services Academay,University of

Pharmacy and Yangon Art and sciences University, especially in bioactivity of medicinal plants and traditional medicine formulation and isolation of active principle from medicinal plants. She can also expertly in preclinical and clinical evaluation of pharmacological and toxicological activity of traditional medicinal plants for safety and efficacy of locally used traditional medicinal plants.

## WHO Malaria Collaborating Centre

### List of Professional Staff

No.	Name	Degrees/Diploma	Title of position held	Expertise
1.	Senior staff working at Department of Medical Research			
1.	Dr. Ye Htut	M.B.,B.S., M. Sc. (Med.Para.) London, DLSHTM., FRCPE	Deputy Director General	Parasitologist
2.	Dr. San Shwe	M.B.,B.S., M.Med.Sc.(Public Health).	Director	Epidemiologist
3.	Dr. Myat Phone Kyaw	M.B.,B.S., M.Med.Sc.(Biochem.), Ph.D, FACTM	Deputy Director	Malariologist
4.	Dr. Pe Than Htun	B.Sc.(Zoo.),DAP&E (Malaysia), M. Sc. (Med.Para.) London	Deputy Director	Entomologist
5.	Dr. Nwe Nwe Oo	M.B.,B.S., , M.Med.Sc.(Biochem,)	Deputy Director	Molecular Biologist
6.	Dr. Tin Oo	B.Sc.,MPHM (Mahidol), Ph.D	Deputy Director	Health Economist
7.	Dr. Maung Maung Mya	BSc., M.Sc.(Zoology) Ph.D	Research Officer	Parasitologist/Ento mologist
8.	Dr. Khin Thet Wai	M.B.,B.S., M.Med.Sc. (Pub.)	Deputy Director	Epidemiologist
10.	Dr. Thaung Hlaing	M.B.,B.S., DTM&H., M.C.T.M (Mahidol), Ph D (UK)	Deputy Director	Entomologist
11.	Dr. May Aye Than	M.B.,B.S., M.Med.Sc., (Phar.)	Deputy Director	Pharmacologist
12.	Dr. Khin Saw Aye	M.B.,B.S., M.Med.Sc. (Pub.),Ph.D (Patho.)	Deputy Director	Pathologist
13.	Dr. Kay Thwe Han	M.B.,B.S. M.Med.Sc. (Micro.),	Research Scientist	Parasitologist
14.	U Sein Min	BSc. (Zoology)	Research Scientist	Entomologist
15.	Dr. Yan Naung Mg Mg	M.B.,B.S., M.Med.Sc. (Pub.)	Research Scientist	Medical Officer/ Entomologist

2.	Other Professional Staff (working as Head of Clinical Research Units)			
1.	Colonel Tin Maung Hlaing	M.B.,B.S., MMedSc (P&TM), MPHM(Thailand), Dr.PH (Philippine)	Advisor CRU Malaria , DSGH	Physician
2.	Professor Colonel Ye Thwe	M.B.,B.S., FRCP, FRCPE, FACTM	Advisor, CRU (Malaria),MH(2)	Physician
3.	Professor Mar Mar Kyi	M.B.,B.S., M.Med.Sc.(Int.Med.), FACTM	Head, CRU (Malaria), NOGH	Physician
4.	Lt.Col.Khin Phyu Pyar	M.B.,B.S.,MMedSc, MRCP,FRCP	Head, CRU (Malaria), DSGH	Physician
5.	Prof.Lt.Col Kyaw Soe Tun	M.B.,B.S., M.Med.Sc. (General.Med.),	Head, CRU (Malaria),MH(2)	Physician
3.	Other Professional Staff (working at Department of Health/ members of Malaria Scientific group)			
1.	Dr. Saw Lwin	M.B.,B.S., M.Med.Sc.(Pub.Health.)	Deputy Director General	Epidemiologist
2.	Dr. Khin Lin	M.B.,B.S., .Med.Sc.(Pub.Health.),	Director	Parasitologist
3.	Dr. Thar Tun Kyaw	M. Sc. (Med.Para.) London M.B.,B.S., M.Med.Sc.(Pub.Health.)	Deputy Director	Epidemiologist

## University of Medicine (2), Yangon

Diagnostic facilities operating in the Common Research Laboratory of the University are;

### Biochemical Analysis

- Atomic absorption Spectrophotometer(GBC, 932AB),
- High Performance Liquid Chromatograph (HPLC),
- Gas chromatographs-sp-3420 & accessories,
- Fluorimeter,

- Spectrophotometer (VIS- 7220G)
- Humalyzer 2000 (Semi-automated Biochemistry Analyzer, HUMAN GmbH)
- Blood gas analyzer

#### Immunoassay

- ELISA Reader
- Microplate washer
- Microplate heater
- Microplate shaker

#### Pathological Diagnosis

- Trinocular biological microscope with digital camera
- Cryostat microtome (Leica),
- Rapid sectioning Cryostat YD- 1900,
- Paraffin section mounting water bath
- Facilities for immunohistochemistry
- ABX micros, Coulter counter

#### Molecular Diagnosis

- Gel electrophoresis units (horizontal and vertical systems) and accessories
- Mini Trans-illuminator (UV) Model NTM-10E,
- Polaroid camera
- Thermal cycler with programmed control system (ASTECC, Model-PC700)

#### Microbiology

- Facilities for culture and sensitivity assay for bacteria
- Biohazard safety cabinet

#### For Reagent and Specimen Storage

- Deep freezer (-87C)
- Refrigerators

#### For sterilization

- Autoclaves
- Incubators

#### Other Accessories

- Water Distiller/Deionizer
- Refrigerated centrifuge
- Microcentrifuges
- Vortex mixers
- Microwave oven

#### **Scientific Expertise:**

##### **Professor May Kyi Aung**

**Microbiologist** with expertise in Intestinal Helminthiasis and Malaria ( Determination of chloroquine resistant Plasmodium vivax by in-vitro method)(Malaria infection among children residing in an endemic area)(Microscopy & serological identification of filarial infection among people residing in a monastery)

##### **Associate Professor Dr. Mar Mar Kyi**

**.Physician** with expertise in Malaria treatment

(Quality Diagnosis and standard treatment of malaria QDSTM, 2005-2011)

##### **Dr. Myat Thida**

**Obstetrics and Gynaecologist** with expertise on various aspects of malaria in pregnancy.

#### **Other scientists involved with tropical diseases for their post graduate degree:**

##### **Department of Medicine**

##### **Dr. Khin Thida Htut**

drktdhtut@gmail.com

Dermatological manifestations of HIV sero-positive patients in Waibagi specialist Hospital, (2006)

##### **Dr. Ni Ni Hlaing**

Ninihlaing.ni2011@gmail.comninihlaing.ni2011@gmail.com

Herpes zoster viral infection among HIV seropositive patients in NOGH & Waibagi specialist Hospital (2007)



**Dr. Aye Soe Tun**

A study of pulmonary tuberculosis in diabetic patients (2008)

**Dr. Kyaw Soe Naing**

Kyawsoenaing.naing4@gmail.com

Scalphair characters of HIV-infected patients inNOGH and Waibargi Specialist Hospital (2009)

**Dr. Myint Thein**

dr.myintthein.thein@gmail.com

Cerebral toxoplasmosis in human immunodeficiency virus seropositive patients in specialist hospital waibagi and North Okkalapa General Hospital (2009)

**Dr. Kyaw Zin Tun**

Kyawzintun2005@gmail.comKyawzintun2050@gmail.comKyawzintun2050@gmail.com

Changes in CD4 count after antituberculous therapy in HIV Patients coinfectd with tuberculosis (2010)

**Dr. Phyo Thiha**

Cryptosporidium infection in human immunodeficiency virus sero-positive patients with diarrhoea and their immune status in Waibagi Specialist Hospital, 2008

**Dr. Wai Wai Oo**

waiwaiodr@gmail.com

Clinical significance of antithrombin III in severe Malaria, 2006 (one year)

**Department of Preventive & Social Medicine**

**Dr.Kyaw Hlaing**

Empowerment of community to improve quality & sustainability of directly observed treatment, short course in control of TB in Kyauk-se district.

**Dr. Kyi Kyi Sein**

Gender Analysis on socio-cultural consequences of leprosy in Myanmar (2000)

**Dr. Khin Nyo Mi Lwin**

Knowledge, attitude and practice related to DHF among housewives (2003)

**Dr. Kyaw Thu**

Factors influencing the development of physical disabilities in persons affected with leprosy attending at central special skin clinic YGH.(2003)

**Dr. Soe Moe**

Burden of TB in Myanmar (2002)

**Dr. Tun Aung Kyi**

Patients satisfaction with leprosy services provided at CSSC of YGH (2003)

**Dr. Aye Thein**

Drug resistance among new sputum smear (+)ve TB patients in 6 study townships in Yangon (2004)

**Dr. Thar Tun Kyaw**

Study on effect of utilization of insecticide treated mosquito net on Malaria (2004)

**Dr. Myat Ohnmar Win**

Treatment seeking behavior of Malaria patients (2004)

**Dr. Win Thura**

Gender perspective on knowledge, attitude & health seeking practice of TB patient (2004)

**Dr. Zaw Linn**

Factors influencing on outcome of severe & complicated malaria (2005)

**Dr. Nay Yi Yi Lin**

Factors affecting patient's delay of pulmonary TB (2007)

**Dr. Ohnmar Kyi**

Personal factors among TB patients attending at TB centre , Yangon (2007)

**Dr. Myint Than Tun**

Community response for preventive measures of DHF (2008)

**Dr. Myint Naing**

Economic Burden of TB patients taking treatment at township TB centre (2008)

**Department of Paediatrics**

**Dr Aye Aye Mu**

The study of relationship between indoor air pollution and acute respiratory infection (pneumonia ) in under 5 children

**Dr. Myo Khine**

18 months follow up study of HIV exposed children born in NOGH

**Dr. Khin Aye Nu**

A study on association between pneumonia and malaria in children age between 2 months and 5 years.

**Dr. Aye Aye Thant**

A study on the clinical course of HIV positive children

**Dr Khin Myittar**

kmyinttar@gmail.com

Association of round worm infestation and respiratory symptoms in children

**Dr. Htwe Htwe Sein**

A study on usefulness of ELISA test in sero diagnosis of childhood tuberculosis in children admitted to NOGH and SPH .

**Dr. Moh Moh Aung**

A study of cardiac involvement among the children with DHF /DSS in North Okkalapa General Hospital

**Dr. Win Thandar Shwe**

A study on usefulness of rapid diagnosis test (paracheck PF) for malaria diagnosis in children.

**Dr. Wai Wai Shein**

A study on family and community practices relating to the two leading IMCI target diseases (ARI, diarrhoea )

in a selected rural area of Guo Bin Gauk township

**Dr. May Su Han**

Predictability of low WBC count less than 5,000/cumm as an additional screening test for the diagnosis of DHF in Myanmar patients,2005

**Dr. Myo Min Gaung**

A comparative study of knowledge, attitude and behaviour on HIV infection between in school and out -of- school adolescents,2005

**Dr. May Lei Soe**

Usefulness of acute illness observation scale (AIOS) in severity assessment of acute respiratory tract infection in children 2 to 59 months

**Dr. Myint Myint Hwe**

A study of maternal judgement of disease severity in under 5 children with acute respiratory infections.

**Dr. Marlar Soe**

The study of Escherichia coli associated acute watery diarrhoea in under 5 years old children admitted to NOGH.

**Dr. Hnin Hnin Aung**

hnin2aung@gmail.com

The effect of zinc supplementation in children with acute watery diarrhoea.

**Dr. Ko Ko Mg Mg Myint**

kkmmmyint@gmail.com

The effect of zinc supplementation on morbidity in children with severe pneumonia

**Dr. Aung Thu Zin**

Antibody response to hepatitis B vaccine in term and preterm infants born in NOGH.

**Dr. Khine Khine Mon**

Relationship between nutrition status and severity of dengue haemorrhagic fever

**Dr. Mya Mya Ohn**

Effect of prenatal and postnatal zinc supplementation on prevalence of respiratory symptoms, diarrhoeal status and weight gain of the fully breast fed.

**Department of Pharmacology**

**Dr. Nwe Nwe Yee**

High-Throughput Screening of Herbal plants against Mycobacterium Tuberculosis:

Standardization of an Active Source of a Plant (2003 -2008 )

**Dr.Khin Chit**

mokc@mptmail.net.mm

Pharmacological and Bacterial factors that can affect the outcome of fixed dose combination therapy in the treatment of pulmonary tuberculosis (2004 -2008 )

**Dr.Marlar Myint**

kwhmim@mptmail.net.mm

Pharmacokinetic of Piperaquine in Myanmar Healthy Volunteers and Acute, Uncomplicated Falciparum Malarial Patients after Oral Administration of Artemisinin-piperaquine Co-formulation (2007 -2010)

**Dr.Aye Soe**

Drmas08@gmail.com

Significance of Pharmacokinetic and genomic factors on drug susceptibility pattern of multi

drug therapy(MDT) in leprosy(December 2006-July 2010)

**Dr.Thinn Yu Aung**

thinuag@gmail.com

Comparison of Pharmacokinetics of Kanamycin in Multi-drug Resistant Tuberculosis Patients and Healthy Volunteers (2007-2009)

**University of Pharmacy**

**Institutional Personnel Strength**

**Administrators**

Rector	1
Registrar	1
Assistant Registrar	1
Finance Officer	1

**Teaching Staff** 62 (54 are scientists - 12 doctors, 26 pharmacists, 16 others)

**Laboratory Technician** 19

**Other Staff (clerical and other supportive)** 27

**Yearly Pharmacists Production**

**D.P.M.S. (Pharmacy)**

1966 -1991 146

**B.Pharm. (Two-year Bridge Course)**

1992 - 1998 46

**Diploma in Pharmacy (One-year Course)**

1998 - 2001 212

**B.Pharm. (Regular)**

2000 (1994 intake) - 2011 1412

**M.Pharm.**

2006 (2003 intake) - 2011 44

Number of projects = 9

Total number of scientists in the Institute= 54

Number of scientists working on Tropical Diseases= 9

**New products developed: .**

- 1) Assessment of Pharmaceutical Quality of Pipermissinin, the first legally manufactured ACT in Myanmar for FDA approval (Yamin Ko Ko *et al.* 2009)
- (2) Efficacy and Safety of Piperaquine in uncomplicated falciparum malaria patients admitted to Loikaw General Hospital, Kayah State, Myanmar

**Scientific Expertise:**

**Prof. Marlar Myint** (M.B.B.S, M. Med. Sc., Dip. in Med. Ed., Ph.D.) has worked in collaboration with Pharmacology Research Division, Department of Medical Research (Lower Myanmar) since 1988. She has done Pharmacokinetic Studies on first-line antituberculosis drugs, rifampicin, isoniazid, pyrazinamide, ethambutol on newly diagnosed TB patients and chronic TB patients from 1988 to 1995. Research on Malaria has been started since 2008 and ongoing research is being carried on. She has supervised 3 theses on malaria and 3 theses on diarrhoeal diseases

**Zarni Myint**

*In vitro* Antimicrobial activity of *Quisqualis indica* Linn. on bacteria causing common gastrointestinal infections (2008)

**Yamin Ko Ko**

Quality of two fixed-dose Dihydroartemisinin-Piperaquine combinations and pharmacokinetics of Piperaquine in Myanmar healthy volunteers after taking the two preparations (2009)

**Thiri Kyaw Soe**

Quality of anthelmintic chewable Albendazole Tablets by two different formulation techniques and efficacy on Ascariasis(2009)

**Khine Zar Pwint**

Antimicrobial activity of Essential oil Thymol and Formulated Thymol Cream obtained from *Carum copticum* Benth and Hook Fruit on certain skin pathogens (2009)

**Su Su Yee**

*In vitro* Antimicrobial Activity of *Azadirachta indica* A. Juss. (Neem) extracts on bacteria which commonly cause Diarrhoeal Diseases (2009)

**Khine Kyi Han**

Determination of Piperaquine Concentration in RBCs<sub>s</sub> and plasma of Myanmar Healthy Volunteers and Patients with Uncomplicated *Falciparum* Malaria (2010)

**Ei Ei Thin**

Simultaneous determination of HIV-1 Protease Inhibitors, Lopinavir and Ritonavir in Syrup by Chemometrics-assisted Spectrophotometric approved and HPLC Method

**Phyu Phyu Thwin**

Effect of high-fat food on pharmacokinetics of Piperaquine after oral administration of Dihydroartemisinin-Piperaquine co-formulation in Myanmar healthy volunteers



## **Myanmar Academy of Medical Science (MAMS)**

### **Scientific expertise**

**Professor Myo Myint** (President)

Eric Brook Medal of World Orthopaedic Concern for development of Orthopaedic Services in Myanmar

**Dr Soe Thein** (secretary)

Awarded Asia Pacific Society for Medical Virology Excellence Award in 2006

## **Myanmar Medical Association (MMA)**

### **Scientific expertise**

**Dr.Samuel Kyaw Hla**,Paediatrician, Professor of Paediatrics,engaged in the prevention and treatment of Childhood diseases in Myanmar.Current position is Vice President of MMA,Vice Chair person of CCM and Chairman of Programme Management Unit,MMA.

**Dr.Soe Aung**, Former Deputy Director General of Department of Health and former WHO STC on Malaria and Former Programme Manager of VBDC,Myanmar.

And current position is Director/Adviser,Programme Management Department ,MMA.Involved in planning of Clinical trials on SEQUAMAT ( 2004/2005) and Bed net intervention trials and Monitoring Therapeutic Efficacy Studies in collaboration with DMR.

**Dr.Myo Min**, Project Manager,QDSTM Project,MMA is actively participating in conducting OR activities on RDTs in collaboration with DMR.

**Dr.Win Naing** ,former Malariologist,is engaged in OR on BCC Malaria in collaboration with DMR and University of Medicine ,Yangon and University of Public Health.

**Dr.Tin Aye**,Deputy Director,Programme.Management Department is fully engaged on OR on Defaulters and DOTS providers on Tuberculosis.

**Dr.Khin Swe Win**, Technical Adviser on TB ,engaged in OR on Defaulters and DOTS providers on Tuberculosis.

**Dr. Myint Zaw** ,Project Coordinator, MMA, is fully engaged in prevention and control of HIV among Reproductive age groups.

## Central Myanmar

### Department of Medical Research (Central Myanmar)

#### Infrastructure and services:

##### Man Power

	Set up	Appointed	Vacant
Officer	155	30 (19%)	125 (81%)
Other Rank	293	95 (32%)	198(68%)
Total	448	125 (28 %)	323 (72%)

#### On-going Departmental Activities

##### 1. Research Activities

- (a) Communicable diseases research
- (b) Non-communicable diseases research
- (c) Traditional Medicine research
- (d) Health Systems research
- (e) Environmental Health research

##### 2. Technology Development Activities

- (a) Technology establishment, application and transfer
- (b) Workshops
- (c) Demonstration of laboratory techniques
- (d) Technical assistant to others (Post-graduate students and technicians from various laboratories)
- (e) Research capability strengthening
- (f) Dissemination of research findings
- (g) Training of researchers and technicians to local and international institutions

##### 3. Collaboration of research activities with other departments and NGOs

##### 4. Collaboration with international organizations and institutions

- (a) WHO/TDR
- (b) Niigata University, Okayama University and Nagasaki University of Japan

##### 5. Health services activities

- (a) Cervical cancer screening
- (b) Laboratory support to *Myittar Sanyae Clinic* of MMCWA

## **Research Units**

- (1) Pathology Research Unit
- (2) Immunology Research Unit
- (3) Bacteriology Research Unit
- (4) Biochemistry Research Unit
- (5) Traditional Medicine Research unit
- (6) Traditional Medicine Research unit
- (7) Laboratory Animal Services Unit
- (8) Medical Entomology Research Unit

### **(1) Pathology Research Unit**

#### Equipments

- ***GENETIC ANALYZAR (SEQUENCER)***
- ***(real time) RT-PCR MACHINE***

#### Facilities of Pathology Research Unit

- Immunological based techniques
- Molecular biological based techniques Genetic analysis
- Gene sequencing (eg. Influenza and Cholera gene detection)
- Cell culture

### **(2) Immunology Research Unit**

#### Facilities of Immunology Research Unit

- Cervical cytology examination (cervical cancer screening)
- Cytology examination of any fluids

### **(3) Parasitology Research Unit**

#### Facilities of Parasitology Research Unit

- Diagnosis of malaria by rapid test kit
- Malaria culture
- In-vitro anti-malaria drug efficacy testing
- In-vivo anti-malaria drug efficacy testing

### **(3) Bacteriology Research Unit**

Facilities of Bacteriology Research Unit

- PCR test for Vibrio cholerae
- Real time PCR tests for Chlamydia, Gonorrhoea, Mycobacterium tuberculosis
- Sequencing for Vibrio cholerae (pr. VC gene)

### **(4) Virology Research Unit**

Facilities of Virology Research Unit

- Diagnosis of HIV, HBV, HCV, dengue and influenza infection by rapid tests
- Diagnosis of HIV, HBV and HCV by ELISA
- Viral load monitoring of HCV & HIV infection by RT-PCR
- Diagnosis of influenza virus infection by RT-PCR
- Identification of strain and drug resistant mutation of influenza virus by sequencer and/or real time RT-PCR

### **(5) Biochemistry Research Unit**

Equipments -

- **ATOMIC ABSORPTION SPECTROPHOTOMETER**
- **HIGH PERFORMANCE LIQUID CHROMATOGRAPHY**

Facilities of Biochemistry Research Unit

- Biochemical tests
- Enzyme levels (CK-MB, LDH, GGT)
- Glucose homeostasis tests (Glucose level, HbA1C level, Oral glucose tolerance test)
- Iron profile (Total iron, TIBC, Ferritin)
- Mineral levels (Calcium, Phosphate)
- Trace element levels (Arsenic, Copper, Lead, Mercury, Selenium, Zinc)
- Vitamin levels (Vitamin C, Vitamin E)
- Water chemistry tests (alkalinity, arsenic, chloride, free residual chlorine, copper, total hardness, permanent hardness, hydrogen peroxide, iron, lead, manganese, mercury, oxygen, pH, total dissolved solids, sulphate, zinc)

## **(6) Traditional Medicine Research unit**

### Facilities

- Extraction of traditional medicinal plants
- Qualitative phytochemical tests
- Quantitative determination of total phenolic content
- Animal toxicity testing
- Drug efficacy testing

## **(7) Laboratory Animal Services Unit**

### Facilities

- Care of laboratory animals
- Preparation of animal food
- Animal Toxicity Test
- In vivo drug efficacy testing

## **(8) Medical Entomology Research Unit**

### Facilities

- Mosquito rearing (Anopheles, Aedes, and Culex species)
- Insecticide susceptibility test
- Bioassay test

## **Post graduate Staff**

PhD (Pharmacology)	1
M.Med.Sc (Public Health)	2
M.Med.Sc (Pathology)	2
M.Med.Sc (Microbiology)	2
M.Med.Sc (Biochemistry)	1
M.Med.Tech	1
M Pharm	2

**Post-Graduate students under training**

<b>Officer</b>	<b>No.</b>
M.Med.Sc (Pathology)	1
M.Med.Sc (Microbiology)	1

**Research Activities (Completed)**

Communicable disease	(11)
Non-communicable disease	(10)
Health systems research	(6)
Traditional medicine	(8)

**On going Research Activities**

Communicable disease	(6)
Non-communicable disease	(3)
Health Systems Research	(2)
Traditional Medicine	(2)
Environmental Health	(1)

**Scientific Expertise:****Dr. Yi Yi Myint**

Molecular Biology and Molecular Pathology.

Therapeutic efficacy of Myanmar traditional antimalarial drug (MTM 61-A) for the treatment of uncomplicated Plasmodium falciparum malaria

**Dr. Maung Maung Toe**

As a research scientist and Director(Research) mainly involved in Epidemiology and social science research over 15 years. During the research work he had gained experiences in malaria research, sexual and reproductive health research including HIV/AIDS and STIs, which were funded by WHO/HRP and WHO/TDR. In addition he has to do both quantitative and qualitative data management including data analysis on advanced statistics using software such as EPI-INFO version 6.04b, STATA version 6.0 , SPSS version 12.0 and ETHNO graph software. As a director of Research Department, he is also involved in research management work to prioritise, plan, monitor and evaluate the research projects, mainly on clinical research, bio-socio research.

**Dr. Aye Moe Moe Lwin**

Member, Strategic Information, Monitoring and Evaluation for Technical Strategic Group on HIV/AIDS, National AIDS Program and UNAIDS

**Dr Khaing Win Htun :**

Serological response of chemoprophylaxis on high risk contacts of new leprosy cases in Ngaung-Don township.

Duration :2006-07. Sources of Funding : M.Med.Sc(Microbio-logy) Thesis . Presented in Conference(s): MHSR (2008). Published in Journals :MSHRJ

Study of HIV prevalence in leprosy patients in Central Myanmar. MHSR (2010)

Duration: 2008. Sources of Funding : WHO TDR small grant. Presented in Conference(s): MHSR (2010).

**Daw Hau Kyng**

In vitro testing of herbal medicines with traditional reputed anti-malaria activity. Duration :2008-09. Sources of Funding :WHO/APW

Colorimetric in vitro drug sensitivity assay for un-complicated *Plasmodium falciparum* using with traditional reputed anti-malaria activity. Duration :2010-11. Sources of Funding : WHO/APW

## **Department of Health**

**Dr. Saw Lwin (Deputy Director General – Disease Control)**

**Email: drsawlwin09@gmail.com**

In-charge of Vector Borne Diseases Control Project

National Leprosy Control project

National TB Programme

National HIV/AIDS Programme

Central Epidemiology Unit

**Dr. Soe Lwin Nyein (Director , Epidemiology)**

**Email: drslnyein@gmail.com**

Surveillance and Response of communicable diseases

(17) diseases under national surveillance

Active hospital surveillance of principle endemic diseases and EID

Total number of scientists in the Institute= 10

Number of scientists working on Tropical Diseases=10

### **Infrastructure and services:**

Endemic disease surveillance and outbreak response

EPI and vaccine preventable disease surveillance response

### **Experience in Communicable Disease Surveillance & Response**

- \* Field experience in Communicable Disease outbreak (SARS, AI, Cholera, Meningococcal/Meningitis, Plague, Leptospirosis, Malaria)
- \* Experience in Cross Border Communicable Disease Surveillance and Response Activity (Myanmar-China, Myanmar-Bangladesh, Myanmar-Thailand)
- \* Implementation of International Health Regulation

## **VBDC**

**Dr. Thar Tun Kyaw (Deputy Director- Malaria)**

**Email: thartunk@gmail.com**

Vector Borne Diseases Control Programme

Malaria, DHF, Lymphatic Filariasis, Japanese Encephalitis



**Dr. Ni Ni Aye (Deputy Director – DHF)**

**Email. Niniaye2009@gmail.com**

DHF, filariasis, malaria

**Dr. Mar Lar Soe**

**Email: malarsoe1968@gmail.com**

- Control in infectious disease/ tropical infectious diseases
- Malaria prevention and control programme
- HIV/AIDS
- Diarrhoea, viral hepatitis, TB,
- malaria, DHF, Lymphatic filariasis

**Dr. Htar Htar Lin (EPI)**

**Email: dr.htarhtarlin@gmail.com**

Establishment of Rota Virus surveillance

Fund GAV/WHO 96 Lakhs

**Dr. Khin Nyein Lin**

**Email: khinnyeinline@gmail.com**

**Dr. Nu Nu Khin**

**Email: drnunukhin11@yahoo.com**

Polio eradication project (Ayeyarwady Division), GE outbreak in Ayeyarwady Division, Malaria Control, DHF prevention and control, Lymphatic filariasis elimination

**Dr. Khin Than Win**

**Khinthanwin.dr.malaria@gmail.com**

Polio eradication project (Ayeyarwady Division), GE outbreak in Ayeyarwady Division, Malaria Control, DHF prevention and control, Lymphatic filariasis elimination

**Dr. Nay Yi Yi Lin**

**Email: nayyiyilin@gmail.com**

- Polio, measles, chicken pox, tetanus, diphtheria, whooping cough
- Viral hepatitis, diarrhoea, cholera
- DHF, malaria, LF, JE, TB

**Dr. San Hone**

**Email: sanhone@gmail.com**

-Sexually Transmitted Diseases

**Leprosy Control Programme**

**Email: Myanmar.Lep@gmail.com**

**Dr. Oke Soe**

**Dr. Tin Maung Aye**

**Dr. Than Lwin Tun**

**TB Control programme**

**Dr. Cho Cho San**

**Email: drchochosanmph@gmail.com**

**Dr. Sithu Aung**

**Email: mywaddy@gmail.com**

Funding (MOH/DOH)

WHO, JICA, JATA, 3DF, PSI, Bill & Melinda Gate Foundation)

50 Lakhs

**Dr. Thandar Lwin**

**Email: tdarlwin@gmail.com**

**Dr. Nyan Win Myint**

**Email: drnwmyint@gmail.com**

Communicable Diseases (Diseases under National Surveillance)

Funding; international DAAD 20 Lakhs

**Dr. Htun Tin (CEU)**

**Email: htuntin.dr@googlemail.com**

Oral cholera vaccine control of severe diarrhoea cases

## **Upper Myanmar**

### **Department of Medical Research (Upper Myanmar)**

**New product developed:** Antimalarial drug from Pan Kha

#### **Scientific Expertise:**

##### **Dr. Kyaw Zin Thant**

Virologist with international expertise in molecular biology

##### **Dr. Khin Lin**

Expertise in Malaria:

- Monitoring Therapeutic efficacy of antimalaria drugs in sentinel sites (2008-2011)
- Validation of malaria diagnosis and treatment provided by basic health staff (2009-2010)

Expertise in Dengue:

- Community Based Dengue Control in Chan Aye Thar San township (2005-2006)

Output of the project :

- Dug resistant status of antimalaria in Mekong region
- Monograph

##### **Dr. Hla Soe Tint :**

Expertise in Malaria, TB and DHF

- Predictors for defaulting in Anti-TB treatment in selected townships of Upper Myanmar (2006-2007)
- Community based DHF control in selected township of Mandalay district (2006-2007)
- Patients' perspectives on choosing public or private sector for malaria treatment in Upper Myanmar (2008-2009)
- Hazard model analysis on time required for sputum conversion among TB patients receiving DOTS regime,(2008-2009)
- Community acceptance on ITN in selected rural communities, (March 2010)

##### **Yi Yi Mya**

Expertise in Malaria vectors

- Seasonal prevalence and biting patterns of malaria vectors in hard-to-reach area (2008-2009)

**Dr. Thida**

Expertise in TB

-Accessibility of community to health Services for TB control in selected township in Northern Shan State, Myanmar

**Dr. Hein Myo Htet**

Expertise in Diarrhoea and Dysentery

-Effect of tropical medicine (Formulation No.23) on causal bacteria of diarrhoea/dysentery, In-vitro study

-Effect of Piper betel Linn. on bacteria diarrhoea/ dysentery, In-vitro study

### 5.3 Funding

There are a number of agencies and organizations involved in funding of tropical diseases. Some fund their own R&D work and some fund extramural R&D projects.

#### University of Nursing

Sources of funding:

- National = Department of Medical Science, Ministry of Health
- International= WHO
- Total funding for the Institute in the past 10 years (**Kyats in Lakhs**)= (10621)(**About Kyats Ten thousand six hundred and twenty one Lakhs**)
- Total funding allotted for Tropical Diseases in the past 10 years (**Kyats in Lakh**= 204 (**About kyats Two hundred and four lakhs**))

#### University of Public Health

Source of funding:

- National = Departmental budget
- International= BWHO/APW for biennium
- Others = Own budget

Being a recently established University, the cost allotted for construction = **Kyats 86,428 Lakhs**

According to respondents, Total funding allotted for Tropical Diseases since establishment = **Kyats 251 Lakhs** only.

#### Department of Medical Research (Lower Myanmar)

- National = Departmental budget
- International = WHO Regular Budget, WHO/TDR/SEARO, WHO/TDR, WHO/ SEARO ,Mekong Sub-region project IMCJ, ILEP, JICA, Korea, IAEA, Matsumae International Foundation Japan, Nagasaki University Japan, Okayama University Japan, Osaka University Japan,, Pediatric Dengue Vaccine Initiative, University of Malaya, Malaysia, Wellcome Trust, WHO/Alliance, WHO/TDR/IDRC, WHO/TDR/RCS, WHO/USAID, WHO/WPRO, WHO-HRP
- Non-Governmental Organization = Myanmar Medical Association (MMA)
- Others = Own funding

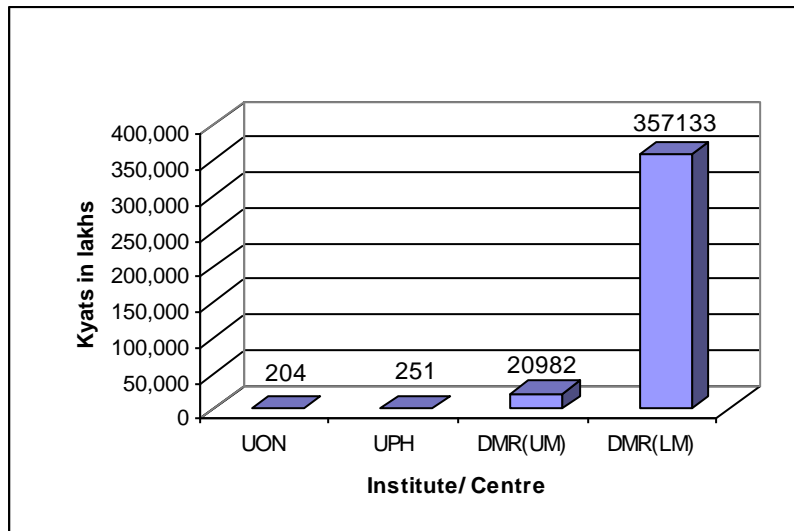
Total funding amount for Tropical Diseases for the last 10 years = **Kyats 357133 in Lakhs**

## Department of Medical Research (Upper Myanmar)

- National = Departmental budget
- International = WHO-SEARO, WHO-HRP

Total funding for the Institute in the past 10 years = **Kyats 31,473 in Lakhs**

Total funding allotted for Tropical Diseases in the past 10 years = **Kyats 20,000 in Lakhs (About 2/3 of the above-mentioned budget)**



**Fig. 6 Tropical Diseases Funding by Institutes/Centres since 2000**

The following Institutes/ Centres did not receive any financial support for their research projects.

### **National Health Laboratory (NHL)**

It was mentioned that there are no funded research projects. Most of the publications are through routine surveillance, public health laboratory networking, collaborative projects and undergraduate and postgraduate learning and teaching activities.

For some collaborative activities, NHL provides laboratory support, training, quality control and assurance and in return, NHL was provided with materials and logistics and some technologies and trainings.

Regarding the universities, undertaking these research activities was through their own self funding. Some staff trainings had been supported by WHO/TDR.

## **University of Medicine 2**

### **Sources of funding:**

Mainly from the Departmental budget

- National = Department of Medical Science, Ministry of Health
- International = China Medical Board of New York, Inc., Postgraduate School of Medical and Dental Sciences, Niigata University, Niigata, Japan, Okayama University, Japan and Queensland University of Technology (QUT), Australia
- Other = Researchers' own funding

**Total funding for the Institute in the past 10 years** = Common research lab. instruments bought by the fund supported by China Medical board and CRL income. Also donated by Postgraduate School of Medical and Dental Sciences, Niigata University, Niigata, Japan.

**Total funding allotted for Tropical Diseases in the past 10 years** = Most of the projects were funded by researchers themselves. It is difficult to estimate the total funding allotted for the tropical diseases.

## **University of Pharmacy**

### **Funding and Resource Gaps**

Researchers have to spend their own money for expenses of the research activities. Resource persons from other Universities, Departments under Ministry of Health and Departments from other Ministries supervise for research works. Laboratory facilities (machines and equipment) are provided by those Universities and Departments (have to pay bench fees).

## 5.4 OUTPUTS

A total number of 377 **projects on tropical diseases** were handled by the six chosen Institutes in a time period of 2000-2010 (**Table 1**). Out of these **249 publications** were made and **162 publications (65.1%) were from DMR (LM)** and the second highest publications was from **NHL with 41 publications (16.5%)**. These publications were directly related to the year of establishment or degree of funding and/or sanctioned staff scientists.

**Table 1. Comparison of publications and paper read at conferences among 6 institutes/centres In Myanmar since 2000**

Institute/ Centre	No. of Projects handled	Publication		Paper read at conference		Remarks
		National	International	National	International	
DMR(LM)	223	111	51	233	40	Long establishment (1963)
DMR(UM)	80	20	12	65	7	Established only in (1999)
DMR(CM)	20	4	–	2	–	Established only in (2003)
UPH	15	8	2	15	–	Limited funding for research projects
UOP	9	–	–	8	–	Own funding for research projects
NHL	30	28	13	44	22	No directly funded research projects



Generally hand books are available in some institutes and centres studied, but only in DMR(LM) , annual reports were available. Thus, numbers of publications and papers presented at conferences since 2000 by diseases of DMR (LM) could be shown as percentages . Hepatitis (mainly B and C) papers were the most published (27.4%) followed by Leprosy (18.3%) and malaria (16.6%). However, malaria papers were the most presented at conferences (24.2%) followed by hepatitis (20%) , TB (20%) and leprosy (11.2%). (Table 2)

**Table 2. Numbers of publications and papers presented at conferences (national & international) from annual reports of DMR(LM) since 2000 by diseases**

Sr.No.	Disease	Publication		Paper presented	
		No.	%	No.	%
1	Malaria	31	16.6	69	24.2
2	Diarrhael Diseases	5	2.6	11	3.8
2.1	Rotavirus diarrhea	2	1.1	1	0.3
2.2	Cholera	1	0.5	0	0
2.3	Amoebic dysentery	1	0.5	1	0.3
2.4	Enterotoxigenic E.coli	2	1.1	3	0.9
3	Leishmaniasis	1	0.5	2	0.6
4	Helminthiasis	0	0	1	0.3
5	Pneumonia and Meningitis	0	0	2	0.6
6	HIV/AIDS	8	4.3	15	5.2
7	Leprosy	34	18.3	32	11.2
8	Tuberculosis	26	13.9	57	20
9	Dengue	22	11.8	31	10.8
10	Japanese encephalitis	1	0.5	2	0.6
11	Typhoid / Paratyphoid	1	0.5	1	0.3
12	Hepatitis	51	27.4	57	20
	<b>Total</b>	<b>186</b>	<b>100</b>	<b>285</b>	<b>100</b>

According to 43 scientists (PIs) who responded to the survey questionnaire, malaria was the highest project handled (57 projects) resulting in 25.5% of the total 223 projects handled followed by tuberculosis (39 projects) and hepatitis (38 projects). (Table 3)

**Table 3. Percentage distribution of projects handled in DMR (LM) since 2000 by diseases**

<b>Sr.No.</b>	<b>Disease</b>	<b>Project</b>	<b>Percentage</b>
1	Malaria	57	25.5
2	Diarrhael Diseases	5	2.2
2.1	Rotavirus diarrhea	2	0.8
2.2	Cholera	1	0.4
2.3	Amoebic dysentery	2	0.8
2.4	Enterotoxigenic E.coli	2	0.8
3	Leishmaniasis	3	1.3
4	Helminthiasis	1	0.4
5	Pneumonia and Meningitis	4	1.6
6	HIV/AIDS	15	6.7
7	Leprosy	28	12.5
8	Tuberculosis	22	9.8
9	Dengue	39	17.4
10	Japanese encephalitis	3	1.3
11	Typhoid / Paratyphoid	1	0.4
12	Hepatitis	38	17.0
	<b>Total</b>	<b>223</b>	<b>100</b>

In the four universities studied, UM2 had the highest theses (66 theses) followed by UMM (41 theses) on tropical diseases. In UM2 , HIV theses (19 ) were studied making it the highest number of tropical disease studied. These theses were undertaken mainly by staff scientists for obtaining post graduate degrees (mainly Masters and a few PhD degrees).(Table 4)

**Table 4. Distribution of theses by Tropical diseases among four Universities in Myanmar**

Sr.No.	University	Mal	Den	HIV	TB	Lep	Hepa	Helm	Fila	Diarr	P/M	Total
1	UM2	10	6	19	14	1	4	2	0	5	5	66
2	UOP	4	0	1	1	0	0	1	0	2	0	9
3	UON	0	0	6	2	0	0	0	0	0	0	8
4	UMM	5	4	12	6	1	4	0	2	3	4	41

UM2 = University of Medicine 2

UOP = University of Pharmacy

UON = University of Nursing

UMM = University of Medicine Mandalay

## **6. Comparative Analysis**

This exercise of mapping of institutes with capacity and capability in Tropical Diseases was carried out in order to assess if these institutions as a whole had all the elements required for control and elimination of the tropical diseases or whether there was a better way of “virtual” networking and coordination between them in the form of an Institute dedicated to Tropical Diseases. There is an urgent need to improve the existing networks for surveillance and clinical trials.

**Table 5. Strengths of key institutes at a glance**

Institute	Diseases covered	No.of scientists involved	Strengths	Total Public ations #	Remarks
DMR(LM)	Mainly Malaria, Dengue, Hepatitis, Leprosy, TB HIV/AIDS,JE, filariasis, ARI, Diarrhoea Diseases caused by (Rotavirus, Cholera, amoebic dysentery,	43	In affiliation with other Institutes/Departments/ Hospitals through tropical diseases clinical research units.(CRU). Presence of WHO Collaborative Centre for Research and Training on Malaria and National Poison Control Centre (NPCC)	162	Established since 1963
DMR (UM)	Malaria, HIV/AIDS, Tuberculosis, Dengue, Diarrhoea Dysentery.	30	In affiliation with University of Traditional Medicine, Departments/Hospitals in Mandalay. Presence of Traditional Medicine Garden.	32	Established in 1999.
DMR (CM)	Diarrhoeal Diseases caused by (Rotavirus, Cholera, amoebic dysentery, Giardiasis, shigellosis and Enterotoxigenic <i>E.coli</i> ; Typhoid /Paratyphoid HIV/AIDS	5	Well Equipped Genetic Analyzer (Sequencer), (real time) RT-PCR machine, Atomic Absorption Spectrophotometer, High Performance Liquid Chromatography	4	Established less than 10 years ago.
UPH	Malaria, Dengue, HIV/AIDS, Hepatitis, Tuberculosis	8	Post graduate Medical teaching and training institute; degree conferred to Dip. Hospital administration, Medical Education, MPH, PhD Public Health	10	Established recently (only 4 years ago).
UOP	Malaria, tuberculosis, diarrhoea, ascariasis HIV	9	Yearly Pharmacists Production DPMS, B.Pharm, M Pharm	-	

UM 2	HIV, TB, malaria, dengue, HBV & HCV diarrhoea, pneumonia, leprosy, worm infestation	75	Institute for graduate and post graduate Medical teaching and training,	5
UON	HIV/AIDS Tuberculosis	8	WHO Collaborating Centre for Nursing and Midwifery Development. Tobacco or Health Medal, WHO (1994).The United Arab Emirates Health Foundation Prize (WHO) Development of Guidelines - Guidelines for management of quality in nursing and midwifery education - Guidelines on nursing care for Dengue Haemorrhagic Fever patients	-
NHL	Malaria Amebiasis Giardiasis Helminthiasis Cholera Shigellosis Enterotoxigenic E.coli Pneumonia and Meningitis, Leprosy Tuberculosis, Typhoid/ paratyphoid Rota virus diarrhea HIV/AIDS, Dengue Japanese encephalitis Hepatitis		NHL has been designated as the coordinated and reference center, which shall also undertake monitoring and quality assessment of the laboratories at peripheral, intermediate and central levels through out the country	41 . Routines of NHL is running within government budget and support of INGOS and UN organization mainly WHO. There is no separate budget for research work and no directly funded research projects. The papers published are mainly through collaborative activities with other local and abroad institutes

## **The gaps as perceived by the respondents**

Based on the questionnaires circulated to the scientists working in the area of Tropical diseases following is a list of the common issues and gaps that need to be addressed in order to encourage research in Tropical Diseases in Myanmar as perceived by the respondents

### **Brief description of the problem(s)/constraints faced in implementing the project**

#### **University of Nursing**

##### **Problems**

*In our university, researchers have to conduct their research with their own expenses that they can not have a chance to conduct them as much as they are capable. If they are financially supplied adequately, they can devote their life and effort more to conducting research, and more advanced and quality research will be brought out.*

##### **Resource Gap**

*Currently, the allotted budget received from the government is mainly used for the maintenance expenses of the buildings, for the salary to be paid to the faculty/ staff, to purchase the teaching / learning materials for the improvement of teaching that only a little amount of budget is used for the research activities.*

##### **Other specific comment(s)/suggestion(s)**

The University of Nursing, Yangon needs regular Tropical Diseases Research (TDR) grants for faculty members to achieve higher education in order to contribute in the provision of high quality nursing care within the Tropical Diseases Control Activities in Myanmar.

Faculty members should be given foreign training off and on so that they can be exposed with the ways and means of foreign countries and consequently, quality nursing care can be given to the community and there will be more nursing quality research papers in the future. Then, the education standard of nursing personnel will be promoted.

## **University of Public Health**

### **Problem**

- Limited funding problem in PhD intervention.
- For project with own funding, we face with limited facilities and financial difficulty.

## **Department of Medical Research (LM)**

### **Problems**

- Financial constraint, administrative, logistic problems to receive budget in time.
- Socioeconomic and climatic changes of the country hinder the implementation of the project.
- Calibration, validation and standardization of equipment and chemicals ,which are essential for vaccines production in accordance with WHO current GMP, could not be established in our country
- Advanced technological training, equipments and reagents will be needed for development of good qualified research projects
- Delay in funding caused difficulties in implementation of the research project, timely reporting of progress reports and final reports
- Since the first project was further expanded for PhD degree, the duration of study was longer and the investigator faced financial difficulty.
- Delayed in funding process, collaboration with different departments and partners took time
- Validation and standardization of equipment and chemicals ,which are essential for vaccines manufacturers in accordance to WHO current GMP , could not be established in my country
- Standardization of herbal medicine and clinical trial of traditional medicine and medicinal plants were extensively studied but there was difficulty to fulfill the sample sizes of patients for the clinical trials.

### **Comments/suggestions**

- To avoid sending an inappropriate person to the meeting/conference. The organizing committee of this meeting should emphasize that only the PI or Co PI should attend the meeting.
- Publication in international journal (charge per page) is an issue.
- Transfer of Technology from developed countries for production of vaccines against TDR diseases should be facilitated



- Grants opportunities should be promoted including TDR training grants for MSc and PhD scholarships for young researchers.
- As most of the malaria patients are poor, RDTs should be provided free and to be entirely supported by the Government.
- Required more funding to conduct future research on challenges and opportunities in intervention delivery mechanisms for Myanmar Artemisinin Resistance Containment (MARC) in tier 1 areas.
- Required more funding to conduct future research on dengue prevention in high risk endemic areas of Myanmar
- Research and development of new vaccines such as, TB, Cholera, HIV, Dengue, JE, etc, by using advanced technology needs to be improved in Myanmar.

## **University of Medicine 2**

### **Problems**

- Funding is the main constraint, as almost all the researchers have to fund themselves.
- Technical expertise and input are also a constraint.
- Data dissemination and data utilization are also very weak and most of the findings do not reach the potential users.
- Difficulty is also found in finding publication for the research papers.
- Some absence of selected patients during research

### **Comments/suggestions**

- It is dire necessary to establish the research fund for the University to support research activities of the University
- It is recommendable to establish a repository for research data and findings so that future researchers are aware of what have been done previously.
- Capacity building and strengthening of researchers and technicians of the CRL is also necessary to upgrade the quality of research
- It is also advisable to develop prioritized area for the research to avoid duplication and maximize the cost benefit
- To establish a long term research projects for the specific research area is also recommended

## **University of Pharmacy**

### **Comments/suggestions**

- Need adequate funds and grants
- Need training abroad for research methodology

### **Funding and Resource Gaps**

- Researchers have to spend their own money for expenses of the research activities.
- Resource persons from other universities, departments under Ministry of Health and departments from other ministries supervise for research works. Laboratory facilities (Machines and equipments) are provided by that universities and departments (have to pay bench fee)

### **Limitations for Research Activities**

- No fund or grant (financial constraints)
- Limited laboratory facilities
- Teaching staff have no time for research activity as there is poor students-teachers ratio (overwork with teaching)
- Poor incentive for doing research

## **Department of Medical Research (UM)**

### **Problem**

- Insufficient Manpower, Materials and Money
- Insufficient training (especially overseas training)

### **Comments/suggestions**

- Creation of training opportunities (especially long-term training in abroad)
- Human Resources Development
- Sufficient funding for research projects
- Materials upgrading and maintenance

## 7. DISCUSSION

Myanmar is a developing country facing two burdens of diseases. One burden is Communicable Disease and another burden is Non-communicable Diseases. One can say that Communicable Diseases are diseases of under-development but still with the development, being a tropical country, Myanmar will be facing some major tropical diseases no doubt, whatever level of socio-economical level it has achieved.

Among the Communicable Diseases, Malaria tops the list and others are TB, HIV/AIDS, and the rest such as ARI and Diarrhoeal diseases are neglected tropical diseases. These diseases apart from HIV/AIDS and TB had been wiped out in developed countries due to their socio-economic development and better sanitation.

The major aim and objective of this WHO Project was to access profile, strength, funding, outputs and comparative analysis of Institutions for Tropical Diseases. Mapping of Institutes/Centres with expertise in tropical diseases in Myanmar may not be possible basing on publications of the Principal Investigators as for various reasons, few papers were not published despite the implementation of numerous projects. Output may not be publication but may be paper read in local or international conferences and technical reports.

GPS and GIS technology are already in use by national disease control programme but there is a need to improve and update the database already available. Already, institute/centres are localized in Yangon City from where tropical diseases research was undertaken through out the length and breadth of Myanmar. To cover more areas in Myanmar, Department of Medical Research (Upper Myanmar) was established in 1999. This Department, although it is based in Pyin Oo Lwin township, is within Mandalay region. Another reinforcement for Upper Myanmar are the newly established Institutes/Centres in Magway region. University of Medicine (Magway) and University of Community Health (Magway) are located in Magway City and together they comprised the Institutes /Centres with some expertise in Tropical Diseases for Upper Myanmar.

After establishing Institutes/Centres in Upper Myanmar, Institutes/Centres for Central Myanmar was established. Department of Medical Research (Central Myanmar) was established in December 2002. For Institutes/Centres with limited or no involvement in tropical diseases such as University of Dental Medicine (Yangon, Mandalay) and University of Medical Technology (Yangon, Mandalay), data were not collected.

There are also scientists from Ministry of Defence, Ministry of Science and Technology, and Ministry of Education who are working on tropical diseases research and are not included in this mapping due to limited timeline of the present project. However, some scientists from Ministry of Defence are already designated as professional staff in the Malaria Clinical Research Units under the umbrella of WHO Malaria Collaboration Centre based in DMR (LM). The Tropical Diseases projects implemented by scientists from Ministry of Science and Technology, and Ministry of Education, are mainly in the form of post-graduate theses.

Another problem is the change in posting of Principal investigators to multiple Institutes/Centres within a few years, either by promotion, transfer or retirement. For those who are still working, the accumulative knowledge/expertise on Tropical Diseases are of profound value and the Institutes/Centres where these scientists are presently based should make use of this opportunity to enhance the expertise in Tropical Diseases for their Institutes/Centres.

## **CONCLUSION**

There is a need to strengthen and update internet facilities in every Institutes/ Centres working in tropical diseases. Should have annual reports or if not possible at least updated handbooks. There is a need to share sophisticated analytical instrument facilities albeit for a fee. There is a need to encourage career development in each discipline for scientists and researchers. If the situation permits, incentives should be made available for outstanding scientists and researchers.

## **REFERENCES**

1. Ministry of Health , Department of Medical Research (Lower Myanmar), Annual Reports (2001-2010)
2. Myanmar Health Sciences Research Journal, (2000-2010)
3. Malaria Research Findings Reference Book (1990-2000)
4. Dengue Research Findings Reference Book (1990-2003)
5. Health in Myanmar 2011, Ministry of Health
6. National Health Accounts Myanmar 2002-2005 , Ministry of Health, WHO ,Nay Pyi Taw
7. The growth and development of Medical Research in Myanmar (1886-1986), Aung Than Batu
8. University of Medicine Mandalay, Handbook 2008

### National Health Committee

The National Health Committee (NHC) was formed on 28 December 1989 as part of the policy reforms. It is a high level inter-ministerial and policy making body concerning health matters. The National Health Committee takes the leadership role and gives guidance in implementing the health programmes systematically and efficiently. The high level policy making body is instrumental in providing the mechanism for intersectoral collaboration and coordination. It also provides guidance and direction for all health activities. The NHC is reorganized in April 2011

#### National Health Committee

- State/Region Health Committee
- District Health Committee
- Township Health Committee
- Ward/Village Tract Health Committee

NHC is chaired by Union Minister, Ministry of Health. It is a ministerial level committee meeting 3 monthly and the Terms of Reference are:

1. To advise government on national health matters.
2. To advise government on formulation of national health policy.
3. To provide guidance on matters relating to development of National Health Plan.
4. To advise cabinet in matters in relating to cooperation and coordination with UN agencies such as WHO, UNICEF etc.
5. To advise cabinet in matters relating to developing health related laws.

The National Health Programmes operating in the country under the guidance of National Health Committee are:

1. Community Health Care programme
2. Disease Control programme
3. Hospital Care programme
4. Environmental Health programme
5. Health System Development programme
6. Organization and Management programme
7. National Immunization programme.

**National Ethical Committee** is chaired by the Deputy Attorney General and comprises of Director General (Department of Health), Director (Office of the Attorney General), and one lady writer, Director (National Archives Department) as members and Director General (Department of Medical Research) as secretary and Deputy Director General as joint secretary.

**National Committee for Malaria Control and Management** is chaired by the Minister of Health and comprises of 39 representing members of various ministries and non-governmental organizations. It is a ministerial meeting level committee meeting annually since 1993. It's Terms of Reference are:

1. To implement the malaria control and management activities with nationalistic approach.
2. To access the existing malaria control and management policies and revise as necessary.
3. To access the implementation and outcome of the malaria control and management program regularly.
4. To coordinate the collaboration of various departments for proper implementation.
5. To report the malaria situation to Ministry of Health.
6. To provide effective health education on malaria at various levels.

## Private sector organizations that contribute to Tropical Diseases in the area of Drugs, Diagnostics and Vaccines

There are only 2 companies that have GMP certificates, but only 1 has Web-link

### Drugs

Serial No.	Company	Web-link
1.	<b>FAME Phamaceuticals, Yangon , Myanmar ISO 9001:2000 ISO 14001:2004 OHSAS 18001:2007 GMP Certified Tel: 95-1-685083, 682199, 681098</b>	<b><a href="http://www.famepharma.com">www.famepharma.com</a></b>

**Questionnaires used in the survey (Institutional Profile and PI Profile)**

**(Refer separate file attached)**



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