

**MINISTRY OF HEALTH
DEPARTMENT OF MEDICAL RESEARCH
(LOWER MYANMAR)**



**Golden Jubilee Commemorative Volume
(1963-2013)**



Golden Jubilee Publication

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10 June 2013

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Foreword

A Golden Jubilee is a rare opportunity for any organization to showcase its achievement. The Department of Medical Research (Lower Myanmar) is celebrating its 50th Anniversary on the 10th of June 2013, thus getting an opportunity to highlight its contribution to the Health of the Nation. Because of this occasion, the 50th Anniversary Commemorative Volume was brought to life with many contributions from Emeritus Medical Researchers as well as researchers of all generations.



On our 50th Anniversary, it is fitting for us to pay tribute to the pioneers, our forefathers who built the foundation and culture of research, who planted the seeds of research so that we may enjoy the fruits of victory in the present day. To the many leaders of our institute who have guided us through the years, we owe our eternal gratitude.

When we look back on the past 50 years, we find important milestones in every decade, events that have led up to what the Department of Medical Research (Lower Myanmar) (DMR) is today. The 1960s saw events such as the formation of the Burma Medical Research Council in 1962 followed by the establishment of the Burma Medical Research Institute (BMRI), now, the Department of Medical Research in 1963 which began the era of organized medical research supported and co-ordinated by the state. The majority of research from 1965 to 1970 focused on communicable diseases, nutrition and indigenous medicine. The 1970s and 1980s witnessed infrastructure development and major expansion of research capacity in DMR with the completion of the Clinical Research Centre in 1974 and the Biomedical Research Centre in 1980. In these years the focus lay on clinical research on infectious diseases such as leprosy, diarrhea and hepatitis. Health Services Research was initiated in the early 1970s involving control services on infectious diseases like tuberculosis, leprosy, trachoma and small pox and in later decades broadened to Health Systems Research including not only Health Services Research, but also Health Behaviour Research, Health Economics Research and Health Policy Analysis etc. The 1970s and 1980s also brought out some of the best results in clinical and biomedical studies on snake bite, malaria and dengue haemorrhagic fever.

All these research projects and more expanded, extending into the 1990s, with increased international support, linkage and technical cooperation from many UN agencies and development agencies. Innovative studies beginning from early 1990s included the development of local immunodiagnostic test kits; studies on the prevention of hepatitis infection by vaccination and the development of vaccines. With these developments, a new Diagnostic and Vaccine Research Centre was opened in 1996. The new millennium opened doors and advances in the field of molecular biology, chromatographic and spectrophotometric techniques allowing in depth analysis of tissues, microorganisms, drugs, poisons, environmental toxins and herbal compounds opening up a whole new era of state-of-art research. With this expansion of research and developmental functions in DMR (LM), a National Blood Research Centre in 2002 and a National Poison Control Centre in 2003 were added to the previous setup.

In the present day, the missions of DMR reflect the various health needs of the people of the nation targeting those health problems according to the priorities set in the National Health Plan. The missions encompass research on communicable and non-communicable diseases, investigating nutritional factors and life style changes affecting health, strengthening research capacity through development of infrastructure and human resources for medical research, carrying out health systems research highlighting effective and efficient health delivery systems, carrying out research on traditional medicine for safe and effective utilization, promoting research on occupational, environmental and climatic factors affecting human health, enhancing technology development and analytical services applicable in the diagnosis, management and control of diseases or conditions affecting the health of the people of Myanmar. The common goal for us all at the Department of Medical Research (Lower Myanmar) is striving to attain a healthier nation through medical research, in other words, "Research for Health" initiative. Let us all cherish our inheritance and do our utmost in the present day, to pass on to our descendants, an inheritance they will be proud of for the next 50 years ahead.

Dr. Kyaw Zin Thant
Director General
Department of Medical Research
(Lower Myanmar)

**Message of Felicitations by His Excellency Professor Dr. Pe Thet Khin,
Union Minister, Ministry of Health on the occasion of the Golden Jubilee of
The Department of Medical Research (Lower Myanmar)**

It is with great pleasure that I congratulate the Department of Medical Research (Lower Myanmar) on its Golden Jubilee celebrations.

Article 11 of the National Health Policy (1993) clearly states, to encourage conduct of medical research activities not only on prevailing health problems but also give due attention in conducting health systems research. The Ministry of Health has always recognized that the innovative and outstanding results of medical research have been a corner stone in achieving the development of a healthier nation leading to the productivity and prosperity of its people. Thus, the vision of the Department of Medical Research (Lower Myanmar) which is to achieve a healthier nation through application of research findings is fitting in every aspect of its essence.



Looking back on the past 50 years, it is indeed commendable for this department for its rich history, tradition and achievements. Achievements not only in the field of science but in infrastructure development and international collaborations all over the world.

In the 50 years that has made the Department of Medical Research (Lower Myanmar) - DMR (LM) what it is today, I wish to pay tribute first and foremost to the personnel who are the work force of this institution and have given their utmost to this department beginning with the leadership of its eleven Directors General who were the heart and soul of this Department and towers of strength in every way.

Reflecting back on all the projects DMR (LM) has undertaken and achieved success, have revealed the efforts this department has undertaken on resolving major health issues affecting our country as well as the perseverance undertaken for the development of all disciplines, Basic Research, Applied Research and Health Systems Research. Being designated as a World Health Organisation Collaborating Centre for Research and Training on Malaria since 2003 shows without a doubt the contribution DMR (LM) has made for health, as Malaria is one of the highly prioritized diseases in the National Health Plan. Some other achievements showing major impact for the health of our nation include Hepatitis B vaccine development and innovative research on snakebite and its management. Findings from research on communicable diseases including drug resistance tuberculosis, emerging and re-emerging infectious diseases and non-communicable diseases such as diabetes and nutritional disorders have made important contributions to the health of our people. Also, the research findings in health systems research especially for effective and efficient health care delivery systems including reproductive health and the achievements in the field of traditional medicine research leading to transfer of technology are some of the highlights of the many successes of this department. The establishment of the National Blood Research Centre and National Poison Control Centre, the Hepatitis Carrier Clinic, the Cervical Cancer

Screening Clinic are among the many services that DMR (LM) has given to the public which deserve to be commended.

It is also very gratifying to see the wide scope of international relations that have developed and strengthened over the past 50 years between the Department of Medical Research (Lower Myanmar) and many world known international organizations. These international ties have led DMR (LM) to the forefront of the international scientific community. Not only has DMR (LM) stood with head held high as an organization with good international relations but also has had undoubtedly steadfast collaborations with other departments under the Ministry of Health as well as with departments under other Ministries. This has been apparent in the many events hosted by DMR (LM) including Annual Health Research Congresses which have been the focal points of knowledge exchange and resource sharing and has led to many of this department's successes over the past 50 years.

I have no doubt that DMR (LM) will as in the past and again in the future take major efforts to creating revolutionary discoveries and contributions to the health of our people in the years that lie ahead. I wish the Department of Medical Research (Lower Myanmar) always to be the epitome of excellence and to attain success in all future endeavours for the next 50 years to come!

H.E Professor Dr. Pe Thet Khin

Union Minister

Ministry of Health

Message of Felicitations in Commemoration of Golden Jubilee by
Her Excellency, Dr. Myat Myat Ohn Khin,
Union Minister for Ministry of Social Welfare, Relief and Resettlement

Ever since its inception, the Department of Medical Research (Lower Myanmar) has reached this memorable landmark event of Golden Jubilee reflecting wonderful commitments of researchers and eminent collaborators throughout these years. I am feeling proud of dedicated researchers and would like to convey my hearty congratulations for all their tremendous performances, achievements, and impact which are obviously visible, decade after decade. The research work especially basic, applied, and health systems research is demanding and challenging as well as rewarding for betterment of our society. I am really happy in my heart to see the 50 years of journey with progress, achievements and sustainable growth and dignity of the Institute. The attempts of researchers in promoting innovative works, technologies, and methodologies are noteworthy. During the last five decades of existence, researchers are also involved in service provision for important health problems in the country. It is essential to ignite researchers to continue their mission and widen their vision more than at present to serve the nation and to share their expertise for knowledge translation and dissemination of important research findings to the community. In this auspicious occasion of celebrations, may I wish the Institute for many upcoming achievements and recognitions to follow as an icon in health research and may I extend my warmest greetings and felicitations to all affiliated partners for every success.



H.E Dr. Myat Myat Ohn Khin
Union Minister
Ministry of Social Welfare, Relief and Resettlement



Message of Felicitations by Professor Dr. U Mya Tu

As the first and founder Director General of this great institution, the Department of Medical Research (Lower Myanmar), it gives me immense pride to be able to attend its Golden Jubilee Celebrations and to send you this Congratulatory Message. Of course, it was not called by that name at its Inauguration in 1963. We had bandied about several possible names, like the ‘Medical Research Institute of Burma’; ‘National Institute of Medical Research, Burma’; and many others. Finally we decided on the name ‘Burma Medical Research Institute’ and that was how it was called in the Burma Medical Research Council Act when it was promulgated by the Government of the Revolutionary Council in 1962. When the Government Departments were reorganized and renamed in 1972, the Burma Medical Research Institute became the “Department of Medical Research” and when it had siblings in ‘Upper Myanmar’ and in ‘Middle Myanmar’, its name was once again changed to that of the “Department of Medical Research (Lower Myanmar)”



Little did I realise at its inauguration in 1963 that I would live to see the day that the new-born institution would be celebrating its 50th Birthday! I have been fortunate indeed, to be contributory at its birth and to have nurtured it through its first fifteen years - its adolescence. Like a proud parent, I have watched with loving eyes and see it grow into a mature institution with lots of achievements to its credit. The institution can now be proud of its record with its expanded research facilities and the cadre of scientists and trained research manpower capable of utilizing up-to date research technologies and consequently in the quality of the research being conducted.

All credit is due to the leadership provided by the successive Directors General who carried on the traditions of the institution and who have fostered and have continued to maintain a research climate, and to all the scientists and other staff of the institute who have greatly contributed to the achievements of the institute. I am sure in the decades to come, our institution will continue to grow and flourish.

I would like to congratulate all the past and present members of this premium institution.

May you continue to be able to contribute towards achieving the aim of medical research in Myanmar as enunciated in the preamble to the Burma Medical Research Council Act of 1962 on establishing the Burma Medical Research Institute, (Department of Medical Research) viz.

- To improve the health of the people of Burma (Myanmar),
- To advance medical and allied sciences in the country



Message of Felicitations by Professor Yoshihiro Hamashima

Congratulations on Golden Jubilee of Department of Medical Research

Yoshihiro HAMASHIMA

JICA Expert, Emeritus Professor

Kyoto University

Kon-nichi-wa, Ogenki-desuka (How are you)? This is Hamashima from Kyoto University, Japan. Congratulations on half a century anniversary of Department of Medical Research from the opening in 1963.

It is my great honor and appreciation to be able to send my congratulation message to you today. I never forget the wonderful memory of DMR, previous Directors General, Professor Mya Thu, Professor Aung Than Batu and many many wonderful staff of DMR. DMR has promoted the development of basic medical research in Myanmar.



Japanese Government planned to send Professor Noboru Higashi and me of Kyoto University to the Department of Medical Research to have collaborative research of mainly virus infections: dengue fever, Japanese B encephalitis, rabies, and also malaria. I myself was responsible for the modern immune-fluorescence technique.

We arrived at the Rangoon Airport in the midnight on July 13, 1968. I was surprised with pleasure to find many DMR staff at the airport and they all treated us like old friends. I understood most Myanmar people are so kind and I respect them. At that time, Myanmar had closed the door to all countries except the diplomatic people. I never forget the kindness of DMR staff.

Dr. Higashi later made plans to build up a new research center, medical library and animal house. As you know, a big discovery happened from DMR as E-type infectious hepatitis virus was discovered by electron microscopy at the Department of Medical Research.

It is my great pleasure to know that recently Myanmar is changing better and better. I hope the happiness of Myanmar people through the economic growth and scientific development. I wish young researchers come to Kyoto University or Okayama University where Professor Okada belongs. It is better for you to ask your need and through official request to the Myanmar Government and the Japanese Government.

I wish Myanmar becomes the best country in the world.

Sayonara, Arigatoh. See you again.

(Professor Hamashima is now approaching 90, and is in good health with keen memories, although his visual acuity is a bit falling. He spent 1,035 days in Myanmar during 33 visits between 1968 and 1991.)

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Message of Felicitations by Professor Shigeru Okada

Congratulations on Golden Jubilee of Department of Medical Research (Lower Myanmar) Shigeru Okada, M.D., Ph.D.

Professor Emeritus (Okayama Univ.), Honorary Professor (University of Medicine 1)
Chairman of the Board of Directors Myanmar-Japan Collaboration Project of
Fostering Human Medical Resources (MJCP)

I wish to extend my congratulations on the occasion of the Golden Jubilee of the Department of Medical Research (Lower Myanmar). I am very proud of my affiliation for almost 20 years, and I am very happy to have many supporting Japanese friends around me who have played some part in the tremendous accomplishments of this Department.

It was December 1988, that Professor Hamashima of Kyoto University and JICA expert took me to this country for the first time in my life. In 1996, the collaboration with DMR (LM) started with a project funded by the Monbusho International Scientific Research Program. My second visit was in December 2000, although it seemed like yesterday that I started working with the members of DMR.



That collaboration had led the way for the signing of the Agreement of Cooperation in 2002 between the Okayama University, Japan and the Department of Medical Sciences, Department of Medical Research (Lower Myanmar) and we had celebrated the 10th year anniversary of the Agreement in DMR (LM) in November 2012. Our cooperation between DMR (LM) and Okayama University since 2006 include: (i) Training courses for Myanmar doctors and other medical personnel at the Okayama University and its affiliated institutions (ii) research on thalassemia and hepatitis (iii) Establishment of Clinics for Hepatitis Carriers and Cervical Cancer Screening (iv) Donation of Rural Health Centers and Sub-centers in Cyclone Nargis devastated areas in the Yangon Region (v) Presentation at Symposiums at the Myanmar Health Research Congress since 2004 (vi) Dispatch of Spinal and Reconstructive Surgery teams to Yangon General Hospital and Naypyitaw General Hospital and (vii) a pilot study for the removal Arsenic contamination of drinking water in the Ayeyarwaddy Region

I hope the Department of Medical Research (Lower Myanmar) will promote the growth of the healthcare system in Myanmar by executing the basic and clinical comprehensive strategy with Myanmar's successful economic development in mind. I have been very happy to share the common objective to promote the health care of Myanmar people with the help of many supporters from Japan.

Thank you.



Message of Felicitations by Professor Takehiko Koji
25 Years' Track between Department of Medical Research (Lower
Myanmar) and Nagasaki University, Japan
Takehiko KOJI, Ph. D.

Dean, Nagasaki University Graduate School of Biomedical Sciences

Professor, Department of Histology and Cell Biology, Nagasaki University School of
Medicine and Graduate School of Biomedical Sciences

Congratulation on the 50th Anniversary of Department of Medical Research (DMR) (Lower Myanmar)! I strongly feel that it would be my great honor to be involved in the research activities of DMR during a half of the century.

I was in Yangon (Rangoon at the time) in the mid of December, 1987. It was my first visit to Myanmar (Burma at the time) as an expert of JICA project on Myanmar infectious diseases, which was headed by Professor Yoshihiro Hamashima and Paul K. Nakane (a founder of enzyme-immunohistochemistry). I was Instructor in Department of Cell Biology, Tokai University School of Medicine and engaged in the introduction of nonradioactive in situ hybridization to detect the genome and mRNA of various hepatitis viruses in Myanmar tissue specimens in the Department of Virology, where I was acquainted with Dr. Soe Thein and Dr. Kyaw Moe during one month stay. In the season, Bougainvillea was in full bloom and I was impressed with the brilliant and dreamy scene.



In the mid of December, 1990, I came back to Yangon again and held a wet-lab workshop, for the first time, in the Department of Virology, DMR. Dr. Kyaw Zin Thant joined the lab work of in situ hybridization. Since I had moved to Department of Histology and Cell Biology, Nagasaki University School of Medicine as Assistant Professor, together with Professor Paul K. Nakane in 1989, this year should be recorded as the first cooperation with DMR and Nagasaki University. I remember well that Professor Nakane and Mis Iida discovered the presence of hepatitis E virus in the bile preparation at the time with their great enthusiasm using electron microscope of the Division of Pathology.

Since 1996, I have been engaged in the study on the effect of iron overload upon hepatocyte kinetics firstly under the support of Dr. Shigeru Okada's Grant-in-Aid from the Japan Society for the Promotion of Science for 5 years and then my own Grant-in-Aid from the same source for the following 9 years. In those days, it was known that hepatocellular carcinoma (HCC) is developed in the age of early 30s in Myanmar, while it was in the age of 50s in Japan. Thus, I hypothesized that excess uptake of iron from foods and water might be involved in the juvenile development of HCC under the influence of hepatitis virus infection. During the period, I was cooperated with many Myanmar Scientists such as

Dr. Aye Kyaw, Dr. Ne Win, Dr. Moh Moh Htun and Dr. Kyaw Soe under the support of DGS including Dr. Paing Soe, Dr. Kyaw Min, Dr. Khin Pyone Kyi, Dr. Myo Khin and Dr. Htun Naing Oo. Consequently, we found that a marked deposition of iron in the liver of Myanmar HCC patients, but not in Japanese ones, and a significant acceleration of hepatocyte proliferation after partial hepatectomy was detected in iron-overload rats. These results seem to indicate the harmful effect of excess uptake of iron upon liver, especially with the infection of HBV and HCV, maybe through the stress by reactive oxygen species.

In parallel with the research activities, we held wet-lab workshops continuously to introduce how to do various molecular histochemical techniques including advanced immunohistochemistry. Until now, our wet-lab workshop was opened 9 times and the total number of Myanmar participants is reaching to 400. From the participants, we accepted about 10 medical researchers of DMR (Lower Myanmar) and Yangon Medical Institute II to stay in Nagasaki University for a further training of their histochemical skill. I believe the diagnostic stand-point as well as in medical research.

Finally, it would be of great honor to Nagasaki University if we could cooperate with many friends working in DMR in the next 50 years and extend our activities to much more wide-ranging fields covering medicine, science and technology. And I really hope that DMR will be further developed to be one of Asian control centers of tropical diseases as well as a top of medical research to protect Myanmar people's health. Let's make rapid progress to our peaceful and prosperous future!

Message of Felicitations by Professor John Aaskov
Director, WHO Collaborating Centre for Arbovirus Reference and Research
Queensland University of Technology, Brisbane, Australia

I would like to congratulate the Department of Medical Research on its first fifty years of service to the health of the people of Myanmar.

It was extremely far sighted of the Government of Burma (now the Republic of the Union of Myanmar) to have established a Department of Medical Research in 1963 given the resources, human and financial, that are needed to sustain an organisation like this. I have always been impressed by the calibre of the early Director's General who provided the leadership to propel the Department of Medical Research down the path it has taken and it seems very appropriate that the founding fathers – U Mya Tu and U Aung Than Batu can be recognised in the 50th anniversary celebrations. It also seems remarkable that all but one of the Directors General are still alive. I can't think of another Institute like this where this would be the case.



Some of the attributes of good leadership are the ability to make a clear assessment of the tasks that need to be undertaken and then to develop a strategy to make best use of the resources available. A look at the projects being undertaken by DMR today reveals a clear focus on health issues that are a significant concern to Myanmar. The designation of DMR as a World Health Organisation Collaborating Centre for Malaria Research and Training is a clear and unambiguous recognition of the contribution DMR has made, and is likely to continue to make, to reducing the burden of this disease. A number of the publications by DMR staff in international refereed scientific journals also would be the envy of many medical research institutes around the world.

I also would like to take the occasion of the 50th anniversary of DMR to thank all the members of the Virology Research Division for their help and friendship since I began collaborating with them in 1985. I have been back to DMR almost every year since then and always look forward to these visits – I hope the Virology Research Division did too!! We have demonstrated that lessons learned, and novel observations made, in Myanmar can be of interest to the global research community. It also has been a privilege to have a number of my Myanmar colleagues spend time in my laboratory at the Queensland University of Technology in Brisbane. I also have watched with pleasure and satisfaction, the careers of several DMR staff whose PhDs I supervised.

Medical research always has a social dimension both in terms of the people it is meant to help and their circumstances and in the approach and hypotheses posed by the researchers. I would like to thank my colleagues in the Department of Medical Research for persevering with my continuing social education over the last decades.

There are quite a few cricket players who can make 50 runs but only a few, great ones, who can make 100. I regret that I won't be around to see a Department of Medical Research, very different to the one we see today, I expect, bring up its 100 years – as I am certain it will do.



Congratulatory Remarks

On behalf of the International Tuberculosis Research Center (ITRC), I am honored to deliver this congratulatory remark at the 50th anniversary celebration of establishment of the Department of Medical Research (DMR) (Lower Myanmar).

I understand that DMR has contributed to the Nation for organizing medical research in various fields, promoting research capability, and supporting researchers from health institutes and universities in Myanmar since its establishment. It is also my understanding that DMR has been involved in numerous research projects on more than 16 infectious diseases with six major projects on malaria, tuberculosis, dengue, hepatitis B, leprosy, and hepatitis C. Last two years, I visited more than three times DMR for promoting research collaboration between Myanmar and Korean scientists. Particularly, with financial support from the Korea International Cooperation Agency (KOICA), ITRC has been working for constructing a research and training building on molecular biology of infectious diseases and for coordinating training programs and collaborative research project on malaria, tuberculosis, and hepatitis B.



For your information, ITRC was established with financial supports from the Korean Centers for Disease Control and US-National Institutes of Health eight years ago and has been conducting numerous research projects on tuberculosis covering both basic research and clinical trials with new drugs for multi-drug resistant tuberculosis. Recent publications of our work “Linezolid for treatment of chronic extensively drug-resistant tuberculosis” in the New England Journal of Medicine, 2012 and our contribution on “Prevalence of and risk factors for resistance to second-line drugs in people with multidrug-resistant tuberculosis in eight countries: a prospective cohort study” in Lancet, 2012 are examples of the major accomplishments.

Likewise, I hope that the collaborative research projects between Myanmar and Korean scientists are successful, particularly after the completion of the KOICA’s Myanmar- Korea Research Center building, for control of communicable diseases not only from Myanmar but also from many other countries in the region including Korea. Although ITRC focuses on tuberculosis research only, I will try to do my best to bring research scientists from Korea specialized on other infectious diseases as well in order to synergize resources available in both countries in the future.

Lastly, I congratulate again from my heart the Golden Jubilee Celebration of DMR and I wish sincerely the symposium successful.

Sun Dae Song, MD, PhD
Chairman of the Board
International TB Research Center
Changwon, Republic of Korea



An appreciation of the Department of Medical Research

It was my great good fortune and privilege to be able to work on snake-bite with Dr Aung Than Batu and his staff at the DMR in the 1980s.

My attention had first been drawn to the severe medical problem of snake-bite in Myanmar by Swaroop and Grab's survey for WHO published in 1954. Data from the colonial era (1936-40) indicated snake-bite mortality rates above 15/100,000/year in half the districts of the rice growing areas irrigated by the Irrawaddy and Chindwin rivers. The problem was worst in Sagaing District where the rate was 37/100,000/year. Dr U Ko Ko prioritised this problem while he was Director General of WHO SEARO and I had read about the complexities of Russell's viper bite envenoming in publications by Drs Maung Maung Aye and Aung Khin in the 1970s.



Soon after moving to Thailand in 1979 to establish the Wellcome, Mahidol University-Oxford Tropical Medicine Programme, I approached Dr Aung Than Batu with a view to collaborating in clinical research on snake-bite, specifically Russell's viper bite, which was clearly a national priority. Tharrawaddy township hospital (medical officer Dr Maung Maung Lay) was chosen as the site for clinical studies of snake-bite and malaria, supported by laboratories at DMR, notably immunology (Dr Tun Pe), pathology and blood coagulation (Dr Daw Than Than) and biochemistry (Dr Thein Than) and the clinical snake-bite unit headed by Drs Myint Lwin and Daw Tin Nu Swe. Younger members of the team included Drs Myo Khin, Tin Tun, Phyu Phyu Sein and Khin Ei Hahn. Additional funding was provided by the Wellcome Trust, enabling the participation of myself and Drs Rodney Phillips (physician/ nephrologist) and Ron Hutton (haematologist), together with laboratories in Oxford, London's Royal Free Hospital and Glasgow. To my knowledge, this was the strongest coalition of clinicians and scientists ever deployed to tackle a snake-bite problem anywhere in the world.

The success of the programme can be judged by its product, a rich contribution of important publications in the Lancet and other international journals, covering epidemiology, clinical manifestations, pathophysiology, treatment and prevention. The findings have relevance far beyond Myanmar. I am very grateful to Dr Aung Than Batu for his dynamic leadership and for his vision in founding the snake-bite unit in DMR to address the many practical issues surrounding the management of this problem. My only disappointment is that many of the exciting results of the research have not yet been implemented at the public health level and that antivenom production in Myanmar is currently facing some difficulties.

The multidisciplinary structure of DMR and its predecessor, the Burma Medical Research Institute, has enabled it effectively to tackle many health care challenges during the course of 50 years of State sponsored organized medical research in Myanmar. The clinical snake-bite programme is just one example, with which I happened to have been personally involved. I congratulate the DMR, its successive Directors General and their staffs for this achievement and offer my warmest best wishes for their future endeavours.

Professor David A Warrell DM DSc FRCP FRCPE FMedSci

Emeritus Professor of Tropical Medicine, University of Oxford
International Director (Hans Sloane Fellow), Royal College of Physicians

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Acknowledgement

This volume is dedicated to all researchers who have contributed to the progress of DMR during the previous five decades. I sincerely thank the Golden Jubilee Commemorative Volume Publication Committee and all senior and junior researchers who have assisted this Committee in the preparation of this volume. I would especially like to extend my thanks to Professor Mya Tu, Professor Aung Than Batu and Dr Ko Ko for their excellent contributions to this volume. On behalf of the Organizing Committee, I would like to apologize for any errors or for any missing information and I would welcome any feedback from the readers.

Dr. Myo Khin

Chairman

Golden Jubilee Celebration Organizing Committee

Department of Medical Research

(Lower Myanmar)



Golden Jubilee Commemorative Volume Publication Committee
Department of Medical Research (Lower Myanmar)



Left to Right:

First Row Dr. Lei Lei Win, Dr. Win Aung(Co-chairman), Dr. Hlaing Myat Thu(Chairman),
Dr. Khin Thet Wai, Dr. May Aye Than
Second Row U Tin Maung Maung, Dr. Mo Mo Win(Secretary), Dr. Ni Thet Oo,
Dr. Aye Win Oo

BLESSINGS
FOR THE DEPARTMENT OF MEDICAL RESEARCH (LOWER MYANMAR) ON
ITS 50TH ANNIVERSARY

Professor Dr Mya Tu

This occasion is a very emotional one for me.

When we were celebrating the 10th anniversary in 1973, I remarked to my colleagues that I may be around for the 25th anniversary celebrations in 1988 but most certainly not in 2013 for its 50th anniversary. It seemed such a long way off then. But here I am today to welcome the 50th birthday of the institution! I never thought then that I would live that long to witness its Golden Jubilee. So I hope you will forgive me if I consider this beloved institution as a child of mine and feel very strongly for its welfare, success and prosperity. I therefore wanted to give my Blessings to it personally while attending this 50th anniversary celebration ceremony at this institution, for most probably, my last time.

Fifty years ago on this very day, the 10th of June 1963, the Burma Medical Research Institute/the Department of Medical Research (Lower Myanmar) was born. Although the Burma Medical Research Institute officially came into existence that day, actually it was not the beginning of the research institute. There had been a long period in gestation. Today, on its 50th anniversary, I would like to recount and put on record the sequence of events and the extraordinary circumstances which led to the creation of the Burma Medical Research Institute, and to give my Blessings and express my thanks to the actors involved.

Day Dreaming of a Medical Research Institute in Myanmar

When I returned from the UK in 1956 after my post-graduate studies, I tried to continue the research which I conducted for my doctoral thesis. But it was difficult. First there was no infrastructure for research at the Faculty of Medicine. I sorely felt isolated at the lack of mutual support and a forum for the discussion of research results and generating new ideas. I discussed the situation with Dr William Law, who was the Head of Pharmacology at the Faculty of Medicine, Lanmadaw and who was also a PhD graduate from Edinburgh University. He was experiencing the same feelings as I was, so we agreed that it might be a good idea to form a medical research society to provide such a forum. We approached several other Faculty members and other prominent medical doctors, who fully supported the idea. Colonel Min Sein, the Professor of Medicine as well as Professor Colonel Shwe Zan, the Professor of Clinical Medicine, gave their blessing. So, the Burma Medical Research Society was officially formed at a meeting held at the Faculty of Medicine, Lanmadaw in 1957. Colonel Min Sein, who was Dean of the Medical College at the time, was elected the first President of the Society. I was elected the Secretary. I think it is a twist of fate for the future development of medical research in the country that attending that meeting was Colonel Hla Han, who was then the Director of Medical Services of the Defence Forces, Ministry of Defence. He later became Minister of Health and was largely instrumental in putting the organization of medical research in this country on a sound footing. He became a Founding member and a member of the Executive Committee of the newly formed Society. Professor Dr. U Ko Ko who had shown an interest in research since

his return from Edinburgh after his post-graduate studies in Public Health was also at the meeting and became a Founding Member.

When I was drafting the Constitution of the Burma Medical Research Society, I had included as one of the aims of the Society as: “the establishment of a Medical Research Institute”. You can imagine how impractical and at the same time idealistic we were at that time. We had simply put the establishment of a Medical Research Institute as one of the aims of the Society because we so much wanted to have one. We had no means of obtaining a building to house a research institute. But that did not prevent me from fantasizing. There was a huge double-storied brick building on Halpin Road (now Pyidaungsu Yeiktha Road), and every day as I drove past that house on my way to the Faculty of Medical on Lanmadaw, I would day-dream that that building had been obtained as the Medical Research Institute and I would be organizing its infrastructure. I read up the organizational structures of the National Institute of Medical Research, at Hampstead, and then at Mill Hill, the National Institutes of Health, Bethesda, the Medical Research Institute, Colombo and the Medical Research Institute, Kuala Lumpur.

It was pure fantasy, considering that the Society’s income through membership fees was just Kyats 500.00 a year, and we could not foresee any other means of financial aid such as grants or donations from international or foreign government foundations.

But the day-dreaming days of establishing a medical research institution was about to end. One day in August 1962, Major Ko Ko Gyi, (later Lt. Colonel) who was Officer on Special Duty at the Ministry of Education under the Minister of Health and Education Colonel Hla Han, came to my office at the Faculty of Medicine, Lanmadaw to tell me that Colonel Hla Han had told him the Government intended to form a Medical Research Council and to establish a Medical Research Institute, and to contact me to discuss and draft a proposal for consideration by the Cabinet. You can imagine my joy and ecstasy at this development. I had been living this dream for the past 5 or 6 years and now it was about to come true. From that moment and throughout that night, I worked on the draft proposal, typed it out myself, and the next morning got in touch with Major Ko Ko Gyi to discuss the draft proposal after which he took it back to his office to submit it to Minister Col Hla Han. About a month or two later, U Tun Thaung, who was Additional Secretary at the Ministry of Health and Education informed me that he had put our draft proposals for the formation of a Medical Research Council in the form of an ACT. The Burma Medical Research Council Act was promulgated as Act No; 37 of the Revolutionary Government of the Union of Burma, on October 6, 1962.

Handing over of the Harcourt Butler

The Department of Medical Research (Lower Myanmar) is celebrating its Golden Jubilee because 50 years ago on this very day, the 10th of June 1963, the Harcourt Butler Institute of Public Health buildings located at No. 5, Zafar Shah Road were handed over officially to the Burma Medical Research Council which had been formed earlier on October 6, 1962. Soon after, I was appointed as Secretary of the Council and given the responsibility of opening the Burma Medical Research Institute. At first I did not know where I was to open the Research Institute, but soon afterwards, Lt. Col. Dr Maung Lwin, who was Additional Secretary at the Ministry of Health at the time,(and later the Minister of Trade) told me that they had decided to transfer the Harcourt Butler Institute buildings to the Burma Medical

Research Council, to open the Burma Medical Research Institute. After that first Council meeting, activities moved quickly to prepare for the opening of the Burma Medical Research Institute. A Committee was formed comprising Dr U Pe Khin, the Director (later Director General) of Health Services, Dr. N. Ahad, the Director of Pasteur Institute, and Deputy Director (Laboratories), the Assistant Director, Professor U Ko Ko, who was then the Officiating Director of the Harcourt Butler Institute. Dr Daw Tin Tin Myint, the Director of the Harcourt Butler Institute was away abroad on study leave at that time. Major Ko Ko Gyi and I were on the Committee representing the Burma Medical Research Council. Originally the Committee had decided that moving the Harcourt Butler Institute would be completed by the 31 May 1963, and the Burma Medical Research Institute would be able to occupy the buildings by 1st June 1963. However there was some delay in moving the Harcourt Butler Institute assets to the Pasteur Institute. So the actual handing over of the building to the Burma Medical Research Council was postponed to the 10th June 1963. Professor Dr U Ko Ko was the one who officially handed over the Harcourt Butler buildings and its assets including the Library which included a lot of valuable old historic books and documents and journals. I was the one who accepted the Harcourt Butler Institute buildings and its assets on behalf of the Burma Medical Research Council. Although this was such a momentous occasion for medical research in the country, the occasion was a low-keyed affair.

What happened to the Burma Medical Research Society?

At this juncture, I would like to put on record for historical purposes, the role the formation of the Burma Medical Research Society acted as a catalyst in the establishment of the Burma Medical Research Council and the Burma Medical Research Institute. The formation of the short-lived Burma Medical Research Society was a great step in the development of organized medical research in the country. As I have already stated above, Colonel Hla Han became a Founding Member of the Burma Medical Research Society and was elected to the first Executive Committee of the Society. It must have influenced him profoundly for 5 years later when he became the Minister of Health and Education, one of the first things he did was to take steps to enact the Burma Medical Research Council Act. At the 2nd Burma Medical Research Council Conference held in 1968, he himself gave the background for the decision to form the Burma Medical Research Council as follows:

” Some years back, a group of doctors who realised that medical research is important and essential for the country got together and formed the Burma Medical Research Society. The Society did not get the financial support of the Government and had to be content with supporting medical research within its own limited financial resources.... ”

However, sad to say, with the growth and development of the Burma Medical Research Institute, the days of the Burma Medical Research Society were numbered. Most of the aims and objectives of the Society was now being taken over by the Institute. Moreover the Institute had more financial resources than the Society to implement its activities. But the more cogent reason was the edict of the Government regarding the formation of non-governmental or private associations or societies. The Society held a meeting in 1963 to discuss the issue. It actually turned out to be its last meeting. The attending members decided that since the main aim of the Burma Medical Research Society was the promotion of medical research in the country, and that since the activities to achieve that aim was more effectively

being carried out by the Burma Medical Research Institute, there was no more need for the Burma Medical Research Society, and that it was decided to close down the Society, with all its assets transferred to the Burma Medical Research Institute.

Logo of the Department of Medical Research

At this point in my reminiscence of the early history of the Department of Medical Research (Lower Myanmar), I would like to draw your attention to the significance of logo of the Department of Medical Research. The logo being used today was originally designed as the logo of the Burma Medical Research Council and was approved at one of the early meetings as its identifying emblem. It was designed to symbolise the aims and objectives of medical research in Myanmar as set out in the Preamble to the Burma Medical Research Council Act, that is :

- (a) improving the health of the people residing in the Union of Burma;*
- (b) advancing medical and allied sciences in the country through research;*
- (c) coordinating the work of individual scientists and organizations interested in medical research.*

The logo depicts in the centre, the Rod of Asclepius entwined by a single serpent, which usually symbolises medicine and healing. (This is commonly and erroneously called the Caduceus, which is the staff of Hermes with two snakes and wings) and in this logo is used to represent medical research in the country. This symbol of medicine and healing and medical research is set in the map of the Union of Myanmar which is darkened signifying the need for more scientific knowledge through medical research to improve the health of the people which is one of the aims of medical research as set out in the aim of the Burma Medical Research Council. Radiating out from this symbol of medical research are light rays signifying the spread of the light of knowledge into the dark background of the map and beyond the borders of the country. The map of Myanmar is cupped by two garlands. Bordering and surrounding the logo were two concentric circles in between which were inscribed the words Burma Medical Research Council in English and Myanmar.

Looking at the logo today, I noticed several differences from its original. First, the concentric circles with its inscriptions of the name identifying the organization had to be changed. But did it need to be deleted altogether? If one of the purposes of having a logo is for the identification of the organization, how can one identify from the present logo that it represents the Department of Medical Research (Lower Myanmar)?

Secondly, it was noticed that after 50 years and even before that, the light rays emanating from central symbol of medical research had somehow disappeared and the map of Myanmar was again filled with darkness . Did “something get lost in translation”?

With the passage of time and the changes in organization and development, it is inevitable that the logo will need to be altered and adapted to the changing times and circumstances. But have these changes and adaptations somehow altered the symbolism depicted in the original logo signifying the aims of medical research for the country?

All this may seem trivial but the realisation of the symbolism of the logo and its meaning and its significance to the aims and objectives to medical research is important in

that it should be a constant reminder to the researchers in this Department of Medical Research (Lower Myanmar) as to the guiding principles in their research activities.

What happened to the Burma Medical Research Council?

At the first meeting of the Burma Medical Research Council held on 23 March 1963, Colonel Hla Han the Minister of Health had this to say about the background in the formation of the Council:

“...After the Revolutionary Government took over, I was convinced that it was important for Burma to be able to keep abreast of medical science elsewhere in the world....I believe that the teaching of medicine will be progressive only if medical research is also undertaken. The Burma Medical Research Council Act was promulgated because it is believed that medical research is important. As drawn up by us the BMRC will not work like a department of Government, but like the National Fitness Council, it will work with the support of outright grants from the Government.....”

When in 1972, there was a general reorganization of all government departments, the Burma Medical Research Institute was redesignated the Department of Medical Research and became one of the four departments directly under the Ministry of Health. The Burma Medical Research Council no longer functioned as the governing body of the Burma Medical Research Institute (Department of Medical Research). It just withered away.

Achievement of the Objectives of the Department of Medical Research (Lower Myanmar)

Today there is much to be proud of the achievements of the Department of Medical Research (Lower Myanmar). According to the policy of the Government, it has helped to develop two new medical research institutions – the Department of Medical Research (Upper Myanmar) in Pyin Oo Lwin, and the Department of Medical Research (Central Myanmar).

Blessings

I would like to conclude with Blessings to

- the now defunct Burma Medical Research Society which gave the impetus and acted as a catalyst for the rapid progress of medical research in the country;
- the now defunct Burma Medical Research Council;
- The medical researchers who have participated in developing this institution – the Department of Medical Research (Lower Myanmar) during its formative years.....
- all those medical researchers who have continued to devote their lives and efforts to achieving the aims and the ideals of the institution; and
- the Department of Medical Research (Lower Myanmar)

May the Burma Medical Research Society rest in Peace and may the role it played as a catalyst in the medical research revolution in the country be acknowledged and not forgotten in the annals of medical research in the country;

The actual life span of the Burma Medical Research Council lasted a decade (from 1962 when the Burma Medical Research Council Act was promulgated to 1972 (when the

governmental departments were reorganized. Yet the actions taken by the Council during those ten years were far-reaching and long-lasting as evident by the thriving scientific and research activities in the various medical and health institutes in the country today. May its memory be venerated.

May Good Blessings be on all those who have been associated with the advancement of medical research in the country, and was involved in the development of the Burma Medical Research Institute and the Department of Medical Research in those early days.

- the late Colonel U Min Sein, who was Dean of the Faculty of Medicine, Lanmadaw who gave his full support to the idea of forming of the Burma Medical Research Society and became its first President;
- the late Dr. William Law, who was Head of Pharmacology, Faculty of Medicine, Lanmadaw, who together with me, initiated the formation of the Burma Medical Research Society;
- the late Colonel Dr Hla Han, who became the Minister of Health and Education. He was the crucial and critical figure in the development of organised medical research in the country;
- Lt- Col. Ko Ko Gyi, who when he was Officer on Special Duty at the Ministry of Health and Education under Minister Col. Dr Hla Han, discussed with me the draft for the formation of the Burma Medical Research Council and the Burma Medical Research Institute. He was later given the responsibility of opening the a new Institute of Medicine 2 at Mingaladon of which he became its first Rector. He was a member of the Burma Medical Research Council, and he used to drop in frequently into my office at the Burma Medical Research Institute to find out how the development of the Institute was progressing.
- Professor Dr U Ko Ko who at that time was Assistant Director of Health at the Department of Health. He was one of the first and few doctors in the Directorate of Health who was interested in research and he became a founding member of the Burma Medical Research Society. He was Deputy Leader of the Scientific Expedition sponsored by the Burma Medical Research Society, to Arumdum Valley in northern-most tip of Myanmar to study the pygmy Taron people. Dr U Ko Ko was very interested in the welfare and progress of the Burma Medical Research Institute. Remember he was the one responsible for handing over the Harcourt Butler Institute of Public Health buildings on behalf of the Directorate of Health, to me receiving them on behalf of the Burma Medical Research Council. He, like Lt-Col Ko Ko Ko Gyi would also frequently visit me in my office to discuss research matters. Professor U Ko Ko later became the Regional Director of the WHO South East Asia Region from which position he retired.
- Professor Dr U Aung Than Batu who at the time of the promulgation of the Burma Medical Council Act in 1962 was posted to the Mandalay General Hospital as a Civil Assistant Surgeon. . He was a team member of the Scientific Expedition sponsored by the Burma Medical Research Society, to Arumdum Valley in northern-most tip of Myanmar to study the pygmy Taron people He was selected to go to Israel on a Fellowship to study research methods at the world famous Hadassah Medical Centre. When he returned in 1963, he was transferred to head the Haematology and the Clinical

Research Division of the Department of Medical Research. Since that time, he has been an influential voice in the administrative and research affairs of the Department of Medical Research. After my retirement as Director General in 1977 to join the World Health Organization, Dr Aung Than Batu was the logical choice to lead the Department of Medical Research as its Director General. He retired in 1987 to join the World Health Organization Regional Office in New Delhi from where he eventually retired from the position as Director, Research and Human Resources in 1993. Dr Aung Than Batu, even in his retirement has continued to provide leadership and advice to promote the research activities at the Department of Medical Research (Lower Myanmar).

- The late Dr Kywe Thein who was the Nutritionist at the Department of Health and was attached to the Joint Nutrition Project of the Government of the Union of Burma and UNICEF. The Nutrition Project was occupying one of the laboratories and some offices when the Harcourt Butler Institute building was handed over to the Burma Medical Research Council, so Dr Kywe Thein and his staff, U Hla Pe, U Chit Maung and U Pe Win all willingly gave of their voluntary services in setting up the new laboratories of the Burma Medical Research Institute and all three of them later became staff of the Institute.
- The Retired Directors General of the Department of Medical Research – the late Dr. U Khin Maung Tin who developed the Experimental Medicine Research Division and also personally headed the Liver Diseases project.
- Professor Dr Daw May May Yi who kept the spirit of research alive during her tenure as Director General of the Department of Medical Research (Lower Myanmar). In the early formative years of the Burma Medical Research Institute, Dr. May May Yi, as Professor of the new Institute of Medicine 2 and her staff, took an active part in assisting the development of the Burma Medical Research Institute especially its Physiology Research Division. I would like to record my thanks and appreciation to: Professor Lilian Po, Professor Daw Thin Thin Hline, Professor Daw Hnin Hline, Professor Khin Seinn Win, Dr Bani Hla Win and U Hla Win.
- Professor Dr Margaret Tu who developed the Bacteriology and Parasitology Departments of the Burma Medical Research Institute;
- Professor Dr Daw Khin Kyi Kyi, who was the Professor of Pharmacology at the Institute of Medicine 1, Lanmadaw and helped in developing the Pharmacology Research Division and participated and advised in the Traditional Medicine and drugs research project;
- Dr Daw Khin Thet Htar who developed the Library of the new Burma Medical Research Institute from the nucleus of the books, bound journals and the official records and papers received from the Harcourt Butler Institute, and designed the new Central Biomedical Library and Information Centre when it was being built by the Japanese Government through the Japan International Cooperation Agency (JICA);
- U Hla Pe, who was the Biochemist at the Nutrition Project under the Directorate of Health and who later joined the Burma Medical Research Institute and developed the Biochemistry Research Division;

- U Khin Maung Lwin who organized the Epidemiology and Statistics Department;
- U Toe Myint while still working at the Union of Burma Applied Research Institute, came to help voluntarily to select, order and set up the instruments for the Burma Medical Research Institute, and later joined the Burma Medical Research Institute to develop the Instrumentation Research Division;
- U Ba Than, who was Office Superintendent of the Office of the Director of the Harcourt Butler Institute, and very efficiently arranged for the transfer of the Harcourt Butler Institute buildings to the Burma Medical Research Council. He soon joined the Burma Medical Research Institute and continued to assist in the administrative affairs during its very busy formative years.

I couldn't have done what I did for the development of the Burma Medical Research Institute and the Department of Medical Research in its early years, without the help, encouragement, and contribution of their time and energy so willingly and happily given.

If I have omitted to mention the names of some colleagues who have helped in one way or other in those early years, I sincerely apologise. Please put down to my ageing, failing memory.

I close with the following Blessing to all the present and future medical researchers, staff and the leaders of this Department of Medical Research:

*“May you have the hindsight to know where you’ve been;
The foresight to know where you are going; and
The insight to know when you have gone too far.”*

My Best Wishes to you all, and a Fond Farewell.

GROWTH AND DEVELOPMENT OF THE DEPARTMENT OF MEDICAL RESEARCH: FIFTY GOLDEN YEARS (1963-2013)

Professor Aung Than Batu

INTRODUCTION

Present at the Creation

I had the good fortune and privilege of being present at the creation of the institutions from which DMR directly descended.

I was a member of the Burma Medical Research Council when it was formed in 1963. Dr Mya Tu, Secretary, and another member, Major Ko Ko Gyi, (former Rector of the Institute of Medicine 2, Yangon) are the only members of the BMRC present today. I was invited in 1962 by Dr Mya Tu, the then Director of the Burma Medical Research Institute, to join BMRI and become one of "a new breed of clinical investigators"- which I did. I was then First Assistant to the Professor of Clinical Medicine and had returned two years previously from the United Kingdom with the then very prestigious Membership of the Royal College of Physicians of Edinburgh, (MRCP, Edin). I was set for an enviable and lucrative career in clinical medicine and teaching, as one of the very few of my generation (and of the previous generation) who possessed this prestigious MRCP. However, I deliberately abandoned that lucrative clinical career and joined BMRI to become a Clinical Scientist. I was the only highly qualified clinician at BMRI/DMR for a long time, eventually becoming the Director-General of Medical Research, Myanmar, and Director of Research & Human Resources, WHO South-East Asia Region.

I have never regretted the decision to join BMRI.

There have no doubt been personal rewards but the intellectual reward of being a part of the thrill and excitement of BMRI/DMR at that time, and of being immersed in the research culture of our times at BMRI/DMR, could not have been surpassed anywhere else in Myanmar. As Carl Sagan, the eminent scientist has said in another context - "understanding is a kind of ecstasy" (i.e. understanding nature, through research).

Therefore, the thinking and writing of this account of the growth and development of DMR, which I was requested to do for the Commemorative volume of the Golden Anniversary of DMR, was a nostalgic memory trip as well as an appraisal of the accomplishments and lapses of DMR for which I was, in part, responsible; and also a look into the future of DMR. All this I did. But I have not set them all down here, because of space considerations, as well as because all this may not be the intention of the Commemorative volume.

They are contained in another book I have written, which will be published in time for the Golden Anniversary of DMR: It is "Further Development of Medical Research in Myanmar (1987-2011)." This is the sequel to the previous volume "Growth and Development of Medical Research in Myanmar (1886-1986)" published in 2003. The two volumes give the definitive history of medical research in Myanmar from 1886 to 2011- a span of about one and a quarter century, a half century of which is the period of the DMR and its predecessors. I am privileged to have been a part of DMR and of having contributed to the development of DMR and therefore to the advancement of health in my country. I am privileged to have the opportunity of continuing to contribute as Emeritus Medical Researcher.

Aung Than Batu
April 2013, Yangon.

BEFORE DMR

Alien plants on Myanmar soil*

Medical research in British Burma during the colonial period - Medical research developed to some extent in British Burma during the years of colonial rule. By about 1900 the early glimmerings of medical research could be detected but it was unorganized, sporadic and on an individual basis; only around the 1920's was it possible to discern some public health and epidemiological research that was directed and systematically carried out ; clinical and biomedical research were unremarkable excepting the single instance of the discovery of Melioidosis. Such research depended predominantly on Indian Medical Service (IMS) officers and expatriates who were the principal investigators and, with a few exceptions, Myanmar nationals were not called upon as collaborators.

Nevertheless, there were a few outstanding Myanmar medical research scientists during that period who later became leaders of the medical profession in Independent Myanmar. They were: (a) Dr U Maung Gale, (later to become Dean, Faculty of Medicine, Rangoon University, Rector of the Institute of Medicine (Mandalay) and Director of the Directorate of Health Services) who did pioneering epidemiological studies of food intake and the diet of communities throughout the country in 1939-41(b) Dr Min Sein (later to become Professor of Medicine and Physician at the RGH and Dean of the Faculty of Medicine, Rangoon University) who conducted the earliest clinical studies of cardiac beri-beri in 1939, and also did pioneering studies of indigenous medicinal herbs, drugs and remedies.

There was no deliberate build-up of medical research capability, nor training of medical research workers. The medical research capability that had developed in British Burma was alien, without deep roots. It may be likened to alien plants transplanted onto virgin Myanmar soil-poorly nourished, frail and easily uprooted by the winds of change that swept through the country when World War 2 reached Myanmar in 1941. After independence Myanmar had to begin anew to plant and nurture its own medical research capability and to cultivate a research culture on Myanmar soil.

Indigenous seedlings**

The early years after Independence (1948-1961)

Medical research in the early years after independence could be likened to indigenous seedlings sprouting in a few places here and there on the virgin Myanmar soil which was as yet un-ploughed and unfertilized; but the climate was benign and generally favorable and the seedlings were reaching upwards towards sunlight.

*Excerpts from "Growth and Development of Medical Research In Myanmar (1886-1986)Part 1

** Excerpts from Growth and Development of Medical Research in Myanmar (1886-1986) Part 2

This period of about 15 years approximately after Independence marked the beginning of medical research by Myanmar into the health problems of the people of Myanmar. Significant epidemiological studies and operational research was begun in several areas of public health importance: malaria, leprosy, tuberculosis, filariasis, nutrition, indigenous medicinal plants. The findings were directly utilized in launching national health programs. Primarily conducted at first by international experts sponsored by international aid agencies in partnership with national counterparts, research was not always sustained after termination of the pilot projects except in some areas like nutrition and public health where research interest and expertise remained.

Clinical research was unremarkable; although clinical expertise was available and there was abundant clinical material, most clinicians were as yet untrained in clinical research methodology and little clinical research of significance was done. Biomedical research was also rudimentary; although well trained biomedical scientists had returned from abroad, the tools for this type of research was lacking and little could be done.

Communication between medical researchers and those in other scientific disciplines had begun in some areas of common interest especially medicinal plants; but interaction between the scientific and professional societies were few and far between.

A land mark event was the founding of the Burma Medical Research Society which was the first scientific society devoted to the promotion and conduct of medical research in Myanmar. The Society elected Colonel Min Sein as its first Chairman and Dr Mya Tu as Secretary. The Society created an awareness of the need for medical research in Independent Myanmar, encouraged members to take up research, held research meetings regularly and published papers in the Proceedings. It undertook the Taron Scientific Expedition in 1962 to enquire into the cause of dwarfism among the Tarons living in the Adunlong Valley of Kachin State in northernmost Myanmar. This was a period of awakening interest by individual scientists and the start up of research in several areas of public health importance at several health institutions although government was as yet unable to provide substantial support.

THE BEGINNINGS OF THE DEPARTMENT OF MEDICAL RESEARCH AND ITS PREDECESSORS

The Burma Medical Research Institute (BMRI) was the predecessor institution from which the Department of Medical Research (DMR) was directly descended and the birth of BMRI may be regarded as the birth of DMR. Although there was a change of designation from BMRI to DMR, institutional aims and essential scientific and research functions and organization remained the same.

The Burma Medical Research Council (BMRC), which was formed by an Act of Government, was the mother organization which gave birth to BMRI and therefore this account of the beginnings and the growth and development of DMR will begin with the creation of BMRC and BMRI.

The Burma Medical Research Council Act was promulgated by the Revolutionary Government of the Union of Burma on October 6, 1962.

The Burma Medical Research Council Act. 1962 Act No. 37 of the Revolutionary Government of the Union of Burma, dated October 6, 1962
(Preamble)

The Revolutionary Government of the Union of Burma desirous of (a) improving the health of the people residing in the Union of Burma;(b) advancing medical and allied sciences in this country through research;(c) coordinating the work of individual scientists and organizations interested in medical research , hereby forms the Burma Medical Research Council.

It should be noted that the Act explicitly mentions advancement of medical and allied sciences in this country through research as the second aim or purpose of the Act.

The BMRC, under the authority conferred upon it by the Burma Medical Research Council Act 1962, then decided to establish the Burma Medical Research Institute at its first meeting held on March 28, 1963. The Burma Medical Research Institute was established on June 1, 1963 and went into actual operation when the buildings previously occupied by the Harcourt Butler Institute of Public Health at No.5, Zafar Shah Road, Rangoon were handed over to the Burma Medical Research Council on June 10, 1963.

Formation of the Burma Medical Research Institute

The Burma Medical Research Council under the authority conferred upon it by section 6 (D) of the Burma Medical Research Council Act. 1962 decided to establish the Burma Medical Research Institute at it 1st meeting held on March 28 1963. The Burma Medical Research Institute was established on June 1st 1963 and went into actual operation on June 10 1963 at No. 5, Zafar Shah Road, Rangoon.

Subsequently in 1972, a general re-organization of all government departments took place and the Burma Medical Research Institute became the **Department of Medical Research**

under the direct control of the Ministry of Health as one of its four departments; the Burma Medical Research Council became defunct and no longer functioned as the governing body of BMRI/DMR. The functions of BMRI, which had also been acting as the executive arm of BMRC, devolved upon DMR and DMR, by default, took on the research promotion, coordination and support functions of BMRC and continued doing so by implicit concurrence of the Ministry of Health till 1993 when a general reorganization of Government and re-allocation of tasks again took place. Thus, the Department of Medical Research came into existence; and later was re-designated the **Department of Medical Research (Lower Myanmar)** when the Department of Medical Research (Upper Myanmar) was established in 1999 and the Department of Medical Research (Central Myanmar) in 2003.

In celebrating the Golden Jubilee-the 50th year- of the founding of The DMR and its predecessor institutions, we should recall the words spoken by Colonel Hla Han, then Minister of Health and Education, at the Second Burma Medical Research Conference, held on 23-26 October, 1968. In the Inaugural address he gave the background of the decision to establish the BMRC and the BMRI.

He said,"..... Some years back a group of doctors who realized that medical research is important and essential for the country got together and formed the Burma Medical Research Society. The Society did not get the financial support of the Government and had to be content with supporting medical research with its own limited financial resources"

"It is because we believe that the Government should actively support research that the Burma Medical Research Institute is established. It is because we believe that no matter how poor the country may be, research should be supported because it is essential for progress. It is because of these reasons that the Government has been supporting medical research as much as its financial resources permit....."

We who heard him were moved, thrilled and filled with great expectations. True to expectations Government set out to organize the health research system so that the essential functions of governance, capacity development, knowledge generation, utilization and management of knowledge, and resource mobilization would be properly carried out. The BMRI/DMR not only received governmental support within its means, but government mobilized external support from the Japanese Government, JICA , WHO, UNDP and other sources to build up much of the infrastructure and research capacity that we see in DMR(LM) today.

THE FIRST DECADE (1963-1973) - First Growth Spurt

Nurturing growth

After the early years of gradual development this period of about a decade was one of rapid, accelerated growth of medical research in Myanmar. Medical research which hitherto may be likened to young seedlings sprouting in virgin unfertilized soil, was now nurtured and given nutrients and fertilizers so that the young plants thrived and grew rapidly. Several major factors were responsible for this.

(1) Predominant was the establishment of the Burma Medical Research Council and the Burma Medical Research Institute which began functioning in 1963. This was a land-mark event in the development of medical research in Myanmar. It was the beginning of organized medical research supported and coordinated by the State. The outburst of research activities in the country during this period, in the academic institutions and service departments, was sparked by the stimulus, support and exemplary research activities of the newly created Burma Medical Research Council and the Burma Medical Research Institute.

(2) At the same time, there was strong governmental encouragement of research in general, which was underlined by the formation of the Research Policy Direction Board in 1965 and the appointment of the Research Development and Coordination Committee, with twelve main scientific divisions.

(3) Another important factor was the reorganization of some central units at DHS in 1962-63, as a consequence of which research capacity of DHS was greatly enhanced in addition to other service benefits.

Firstly, the Central Epidemiology Unit (CEU) was established in 1962 whereby there was a strategic concentration of public health and epidemiological expertise readily available for epidemiological service and research.

Secondly, the several laboratories under the DHS were amalgamated as the National Health Laboratory in 1963. Its several divisions developed plans for expansion of laboratory facilities and technological development that would strengthen its service functions as well as give them the capability of providing laboratory support for public health research.

(4) Also important was the opening of the first few postgraduate diploma courses by academic institutions in 1963. This added a new source of research scientists and clinicians-cum-clinical-researchers. Although producing only a few postgraduates with research training at the beginning there was great potential for expansion.

The Burma Medical Research Council

The Burma Medical Research Council was formed by an Act of the Revolutionary Government of the Union of Burma on October 6, 1962. The duties and responsibilities of the Council were as given as below:

Duties and responsibilities of the Burma Medical Research Council

The Duties and Responsibilities of the Council were:

- (1) Prepare programs for research in the medical and allied sciences.
- (2) Approve the basic policy for the development of research
- (3) Approve research projects
- (4) Establish and administer the Burma Medical Research Institute which is to carry out research in medicine and the allied sciences.
- (5) Promote and coordinate and support research in the medical and allied sciences by individuals or organizations in Burma.
- (6) Contact, communicate and collaborate with foreign research organizations in important research activities.
- (7) Provide training courses for staff of the BMRI and other potential employees.
- (8) Disseminate the results of research that may be beneficial to the people and promote their utilization.
- (9) Undertake such activities as are relevant or beneficial for the purpose of the Act.
- (10) Make rules and regulations for carrying out its responsibilities and for assigning duties to its officers and staff-provided they do not contravene the provisions of the Act.

The Burma Medical Research Council was set up as a separate semi-autonomous organization under the Ministry of Health. The BMRC Act provided for a separate "Burma Medical Research Council Fund" which would receive Government's allotment to the Council to carry out its mandate as well as income and contributions from other sources, and from which the Council was empowered by its Bye-laws to prepare, approve and administer its own Budget, create and abolish posts, and make rules for disbursements of research grants.

An Appointments Committee and a Research Grants Committee to be assisted by a Research Grants Screening Committee and a Research Coordination Committee were appointed by the Council to take action on these matters.

With regard to the formulation and execution of its research policy the Council sought to obtain a broad representation of views from the medical scientific community and formed six Scientific Advisory Committees covering a wide range of subjects, with membership comprising experts and leaders in different disciplines from the health services, medical education and medical research: The Scientific Advisory Committees formed were on: - Clinical Research; Nutrition Research; Research in Preventive Medicine; Research in Pathology, Microbiology and Parasitology; Drugs Research; and Research in Anatomy, Biochemistry, and Physiology.

The Burma Medical Research Institute, established soon after in 1963, became the executive arm of the Council and under its supervision took care of administrative and financial matters as well as the research management functions in accordance with the policy, general directives and authorization of the Council.

[A] Mode of Implementation of the Burma Medical Research Council Mission

The Council at its first meeting in March 1963 decided that the mode of implementation of its mission would be as outlined below

- (1) Establish the Burma Medical Research Institute
- (2) Establish Research Units-for clinical research and non-clinical research
- (3) Appoint Expert Technical Committees- short term and standing Committees
- (4) Award Research Fellowships- Training and Travelling Research Fellowships
- (5) Award Research Grants to independent workers

These five tasks were carried out by BMRC and its successor organizations in due course. Establishment of the BMRI in 1963 was the first task done. The other four tasks may seem common and routine nowadays but in the 1960's BMRC was the first to have taken such action in the medical field. The purpose of each of the tasks and instructions on how the awards should be given and the terms of reference are precise and unambiguous and are good examples to be followed. Progression of research support from award of Research Grant, to Fellowship and finally to establishment of a Research Unit with a tenure of 5 years, as envisaged by BMRC, was practical and likely to be cost-effective.

[B] The Work of the Burma Medical Research Council

(1) Research promotion –One of the well known methods of research promotion was to convene Medical Research Conferences. The First Medical Research Conference held on 21 February 1965 was also of symbolic value being the first in Myanmar devoted to medical research. It marked the beginning of a series of medical research conferences and analogous scientific meetings which became regular outlets for the presentation and critical discussion of research papers and the results of research in the medical sciences, exchange of research ideas, diffusion of scientific knowledge, establishment of scientific contacts and an important means of promoting research.

(2) Research planning- The formulation of a national policy for medical research and medical research development in the country was one of the most important of the responsibilities of BMRC and is separately described elsewhere and includes the preparation of research programs in the medical and allied sciences. This is done through its Standing Expert Technical Committees and Scientific Advisory Committees and principally by BMRI, its executive arm, where also most of the research was being carried out (see under BMRI).

Regarding the development of medical research policies and plans BMRC took advantage of the occasion of the 2nd Burma Medical Research Council Conference held from 23-28 October 1968 to involve the participants of the Conference in the planning process. It was a significant, unprecedented event, because for the first time ever in Myanmar, participants which included leaders and key persons in the medical services, medical education and medical research were able to express their opinion on the future development of medical research in the country. Participants were divided into five Syndicates respectively for Medical Research Policy, Research in the Basic Medical Sciences, Clinical Research,

Research on Medical Education, Epidemiological research in order to identify research needs and to suggest future research programs; consensus was reached at the final plenary session. It cannot be said that definite plans, which were all relevant and applicable, emerged from the conference. It was a fermentation process rather than a production line. Not all the ideas and suggestions were followed up nor did all participants take up the challenge. However, they helped to guide the BMRC and some of the participants also, as leaders of the medical services, medical education and medical research, to plan needful research programs and projects in the years to follow. In general there was a heightened awareness of the need and opportunities for research and a sense of excitement and anticipation at the future prospects for medical research in the country.

(3) Research Support- The several types of research support provided by the BMRC have been described above. It was envisaged that research support in important research areas will progress from research grants and fellowships to the establishment of research units with tenure of five years but this seldom happened in this order. All these different types of research support eventually became available and were made use of.

Research grants for research in the medical sciences were, for the first time in Myanmar, awarded annually by BMRC from its beginning in 1963. Their principal value at that time was in enabling individuals of various departments and institutions to do research so that research began to be undertaken in places where previously there was none and research problems previously ignored were began to be investigated. During 1963 to 1970 sixty research grants were disbursed and distributed in all the major clinical disciplines as well as in the basic medical sciences, the recipients being senior staff of the respective teaching hospitals, staff of teaching departments and Directorate of Health. Most of the projects were successfully concluded and published. Some useful results were obtained but the process was deemed to be of equal importance.

Expert Technical Committees -initially one Committee was set up to study Intestinal Helminthic infections in Myanmar and another to study Physical Fitness in Myanmar. Their Reports to BMRC provided excellent guidelines for intervention and for future studies.

Clinical Research Units - Initially Clinical Research Units for Malaria were set up in No.2 Military Hospital, Yangon and in the Sao San Tun Hospital at Taungyi. Others were opened later.

Other technical support – apart from financial support technical assistance such as for library services, statistical services, use of equipment, especially those not available anywhere else such as the Electron Microscope and advice with respect to study design and analysis of results was given by the BMRI to those who needed it, especially those doing research for the first time. BMRI was the only source of such support at that time.

The Burma Medical Research Institute

The Burma Medical Research Institute was established on June 1st 1963 and went into actual operation on June 10 1963 at the former Harcourt Butler Institute of Public Health, No. 5, Zafar Shah Road, Rangoon.

Purpose of the Burma Medical Research Institute

The mission of the Burma Medical Research Institute shall be-

- (a) to provide central laboratory facilities for research in the field of medical sciences;**
- (b) to train research workers in the medical sciences, and**
- (c) to provide postgraduate education**

The Institute was under the charge of the Director who was assisted in administrative matters by an Executive Officer. He was guided by a Policy Advisory Committee appointed by the BMRC, and took into consideration the advice given to BMRC by the six Scientific Advisory Committees appointed by BMRC.

BMRI acted as the executive arm of the Burma Medical Research Council.

Beginning with one administrative department in 1962/63 ten (10) research divisions were set up in 1963/65 and more were added later so that by 1969/70 there were altogether 18 departments, and two special research laboratories as hereunder:

Year	Department
1962-63	1. Administration
1963-64	2. Nutrition
	3. Physiology
	4. Pharmacology
	5. Experimental Medicine
	6. Haematology
	7. Radioisotope
	8. Medical statistics
	9. Instrumentation
	10. Bacteriology
1964-65	11. Library
	12. Publications
	13. Virology
1965-66	14. Animal services
	15. Parasitology
1966-67	16. Biochemistry
1967-68	17. Epidemiology
	• Goiter Unit laboratory
	• Electron Microscope Laboratory
1969-70	18. Medical Entomology

These were accommodated in one main building and several small buildings and outhouses at the site of the former Harcourt Butler Institute of Public Health, adjacent to the Cantonment Gardens, at the foot of the Shwe Dagon hill.

Development of Research Capability at BMRI

(a) Scientific personnel- starting with only 4 technical personnel in 1962/63 this increased in steps till by 1969/70 the total staff strength had reached 177, of whom 50% held postgraduate degrees or diplomas and many had been trained abroad in their respective research subjects.

(b) The tools for research-at the beginning BMRI had to make do with some equipment kindly made available or loaned by other institutions especially the Nutrition Project of the DHS, the Institutes of Medicine and the Medical Corp Central laboratory, Ministry of Defence.

Soon however the increase in research departments and scientific personnel was accompanied by a rapid corresponding increase in equipment and supplies – ranging from simple necessities like pipettes and balances to complex sophisticated instruments such as the electron microscope, liquid scintillation counter and ultracentrifuges. Although looking back now the list of equipment may appear humdrum it was the first time such a large array of equipment had become available for medical research and none of the health institutions yet possessed the many advanced instruments which then existed at BMRI.

(c) Laboratory animals- an adequate range and quantity of laboratory animals were bred, stocked and supplied to researchers for experimentation.

(d) Library-starting with 800 bound back volumes handed over from the Harcourt Butler Institute of Public health in 1963, the Library as an essential tool, had been built up so that in 1972 its holdings included 2846 books, 5293 bound periodicals and most important the BMRI Library was subscribing to 226 periodicals and 90 more were being received in exchange so that in all 316 current periodicals were being made available to all medical personnel and postgraduates students.

(e) Instrumentation department was established to maintain and repair instruments.

(f) Epidemiology and Medical Statistics was established.

(g) Field Research Areas were organized with the help of the Department of Health.

RESEARCH

Research strategies, programs and projects were formulated by BMRI since its beginnings in 1963. Although not systematic at first, nevertheless there was manifest attempt to do it on a rational basis.

In the beginning the choice of research programs was problem-based as well as opportunistic. The major health problems of the country were well known and problem areas requiring research were many and not difficult to identify. Some research programs were chosen by BMRI on the basis of the Interdepartmental Committee on Nutrition for Defense/Government of Burma survey which identified major opportunities for nutritional improvement and problem areas requiring further studies. Thus, anemia, thiamine deficiency, and liver diseases were the programs chosen and carried out with the collaboration of the National Institutes of Health, Bethesda, USA with the support of PL480 Funds; physiological norms and indigenous drugs projects were added because of perceived needs, as well as availability of trained scientists and laboratory resources.

In 1970, in accordance with the recommendation of the 2nd BMRC Conference 1968, research at BMRI became mission-oriented. Six research missions were selected to deal with the country's major health problems, and research needs. Research programs were formulated for each of the missions, based on assessment of health problems, gaps in knowledge, research needs, resources available and feasibility. The process was rational but a practical, objective method of weighing and choosing between competing needs was not available and the programs produced had to retain a considerable degree of flexibility. The research missions were not changed or modified for a long time-but the research programs and projects under the missions were later replaced or added to according to change in the health situation, technology, and resources.

Research quickly took off in areas where trained researchers were already in position at BMRI and research groups under good leadership could be quickly assembled; it only awaited the adequate equipment, supplies, an operating budget and well defined objectives to take off and gain momentum. These conditions were fulfilled in areas such as anemia, goiter, thiamine deficiency, indigenous medicinal plants, physiological norms, energy metabolism, and epidemiology of accidents. In other areas research capability had to be gradually built up. Overall research output, in proportion to researchers in position, was commendable. 73 papers were published between 1962 to 1970, rising from 2 in 1965 to 27 in 1969. Some of the researches were pioneering work never done before in Myanmar and contributed to the understanding and management of important diseases and health conditions.

Research missions of the Burma Medical Research Institute

As recommended at the 2nd BMRC Conference, BMRI adopted a mission-oriented approach for carrying out research from 1970 onwards.

- | | | |
|-----------|---|---------------------------------------------------------------------------------------------------------------------------------------|
| Mission 1 | : | To investigate nutritional factors affecting national health. |
| Mission 2 | : | To investigate infections affecting national health which require further elucidation for effective control and therapeutic measures. |
| Mission 3 | : | To investigate nutrition-infection interactions. |
| Mission 4 | : | To investigate factors other than nutrition and infections affecting national health. |
| Mission 5 | : | To carry out drugs research. |
| Mission 6 | : | To develop services that will aid medical research. |

The rationale for some of them was as follows.

Research Mission 1. To investigate Nutritional matters affecting national health. The nutritional status of the population has been repeatedly studied since the colonial period, and after Independence, by the Nutrition Project of DOH, by BMRI/DMR and others; and the impact of various interventions had also been assessed. In drawing up the Second Five Year Plan of the BMRI, the nutritional problems were reviewed. It was found that the nutritional conditions which needed further elucidation were anaemia, goiter, protein-calorie malnutrition, and Vitamin A deficiency. It was also felt that since the calcium content in the Burmese diet is low, its effect on health should be investigated.

Research Mission 2. To investigate infections affecting national health which require further elucidation for effective control and therapeutic measures. The DHS has launched several public health campaigns with respect to Tuberculosis, Venereal Diseases, and Malaria and was undertaking research projects aimed at better control; and BMRI will not conduct similar research projects but will give the assistance required. Research on some other Infectious disease would be done.

Research Mission 3. To investigate nutrition-infection interaction. Malnutrition and infectious diseases are the two major causes of morbidity and mortality in the country. It was then being increasingly realized that the interrelationship between these two factors are important and need study by BMRI.

Research Mission 4. To investigate factors other than nutrition and infection affecting national health. This was to enable research on other factors that may emerge.

Research Mission 5 To carry out Drug research. This was because traditional medicinal herbs were believed to be potential sources of new drugs and remedies

Research Mission 6 To develop services which will aid medical research. This was actually not a research mission but a research support mission.

During the 1963-70 period BMRI carried out 29 diverse research projects on the health problems identified and for which resources were available. They ranged from investigations of anaemia, beri-beri, goiter, diarrhea in children, bacteriology of Rangoon water supply, indigenous medicinal plants to physiological norms and biomedical telemetry system.

Summing up

The decade 1962-1972 was a period of rapid growth of medical research in Myanmar, led by the creation and development of BMRC and BMRI.

There was rapid growth in research manpower as shown by the creation of a medical research cadre and career structure. Commencement of postgraduate training leading to Masters degree started to add additional researchers. Equally important was the increased mobilization of the large potential of existing medical scientists for research, by research promotion and research support of BMRC/BMRI

There was rapid growth in the tools for research because of the large influx of new scientific equipment to BMRI and to a lesser extent to IM 2 and MCC Lab. Also the increased availability and use for research of existing equipment at service and teaching institutions.

There was rapid growth in access to new scientific ideas and emerging knowledge because of expansion of the library system and increased number of research meetings.

There was rapid growth in the organization, promotion and support of medical research because of establishment of BMRC and BMRI and government recognition of research as an important condition for national development.

Medical research in Myanmar at this stage may be likened to young plants which are thriving well but not yet reached maturity.

SECOND GROWTH SPURT AND MATURATION (1973-1986)

The one and half decades from 1973 to 1986 was another period of sustained vigorous growth of medical research in Myanmar. The first growth spurt which occurred in the 1960's was followed by this second spurt in the 1970's and 1980's.

The chief factors responsible for these developments were:

1. Major expansion of the research capacity of the Department of Medical Research –
 - completion of the Clinical research Centre in 1974
 - completion of the Biomedical Research Centre complex in 1980
2. Multiplication of postgraduate academic courses in the medical sciences in the Institutes of Medicine
3. Large increase in international support for medical research especially to DMR
4. Increase in research capacity of the Dept of Health and Defence Medical Directorate
5. Sustained government promotion and support of medical research

1. Expansion of research capacity of the DMR

1.1 Physical facilities

Completion of the Clinical Research Centre- a three story Clinical Research Centre building was built by the Government and completed in 1975.

*Completion of the Biomedical Research Centre complex-*this joint Myanmar-Japan Government Project was started in 1976 and completed and became operational in 1980. It comprises:

Biomedical Research Centre-This new four storey building contained research laboratories fully equipped with up-to-date equipment, research instruments and facilities for advanced research in various biomedical subjects.

Central Biomedical Library and Conference Centre-this contained the library with modern library equipment, temperature and humidity controlled storage space and racks, room for special collections, a large reading room, study carrels; and a large conference room and small meeting rooms suitable for national as well as regional and international scientific conferences.

Laboratory Animal facility-this new building was fully equipped with facilities for breeding, maintenance and sufficient supply of all types of laboratory animals including gnotobiotic and specific pathogen free animals.

On completion of the Biomedical Research Centre in 1980, the 15 Research Divisions and 5 Support Service Divisions of DMR were re-located and re-grouped as follows:

Biomedical Research Centre- Physiology, Biochemistry, Pathology, Immunology, Bacteriology, Virology Research Divisions.

Clinical Research Centre- Clinical Research, Experimental Medicine, Nutrition, Pharmacology, Parasitology, Nuclear Medicine Research Divisions and the Instrumentation Divisions

Socio-medical Research Centre- Epidemiology, Medical Statistics, Entomology Research Divisions, and the Publication Division and its Photographic Unit. All these were accommodated in the renovated pre-World War II Harcourt Butler Institute building.

Other facilities-The Insectary and accommodation for large laboratory animals were located in various outhouses in the compound.

Clinical Research Units- Three clinical research units were established. The Clinical Research Unit for cerebral malaria, and the Clinical Research Unit for Snake bite were located at hospitals located in or draining high disease prevalent areas (Taunggyi, Tharawaddy and at No: 2MH), with Clinicians/Senior Teachers of the Institutes of Medicine as Honorary Heads. The Clinical Research Unit for Indigenous Medicine was accommodated within DMR compound.

Computer Laboratory-was established as a central facility in the library building while some Research Divisions installed separate computers of their own.

1.2 Staff expansion - Commensurate with the increased research activities DMR staff increased several fold .In addition to the increase in permanent core-staff there was a large inflow of temporary contractual researchers and technicians financed by the many research grants awarded to DMR by international agencies.

1.3 International Support, Linkage and technical cooperation for research and development of DMR

DMR received support for its research and development activities from several UN agencies including WHO, UNICEF, UNDP, IAEA, and from aid and development agencies of several countries including JICA, USAID, International Development Research Centre (IDRC), Wellcome foundation. Such support boosted DMR's research capacity to a great extent. Chief of the benefactors was the Japanese government with the grant-in-aid for the Biomedical Research Centre complex followed by a long period of technical cooperation from JICA.

DMR scientists have cooperated with scientists from abroad who visit DMR under the sponsorship of different agencies. Some come as consultants to initiate or advise in the planning of research projects, while others are visiting scientists who work together with DMR scientists in the field, in hospitals and in the laboratories.

A large number of DMR scientists and technician received training in various research institutions abroad with the help of research training fellowships and grants from international agencies and governments. Most of this training was project-tied and for a specific purpose related to the research project so that on return there was an immediate discernible impact on the implementation of the research project.

2. DMR's Role in the growth of medical research in the country during this period

When in 1972 the Burma Medical Research Council ceased to function the research promotion, co-ordination and support functions of the Council which BMRI has been carrying out since 1963 as the executive arm of BMRC now had to be assumed by BMRI/DMR; this was implicitly endorsed by the Ministry of Health on matters concerning medical research.

DMR continued to play a major role in the development of medical research in the country which began since BMRI was established in 1963. DMR's growth was a major component of the total growth of medical research in Myanmar. DMR consolidated its position as the leading medical research institution in the country; furthermore it became recognized as one of the premier research institutions with research capability and facilities equal to some of the foremost medical research institutions in SEAsia.

3. Research projects and research activities of DMR during this period

The majority of research projects undertaken by DMR during 1982-86 are directly concerned with high priority health problems specifically identified in successive People's Health Plans (PHP) or related to strategies and approaches being employed by PHP.

Research is the main task of DMR and DMR's achievements in research are considerable, especially when taken in relation to the diversity of health problems it has been obliged to study and the relatively small numbers of scientists forming the core of DMR's research staff.

DMR has successfully conducted research notably in diarrhea, viral hepatitis, dengue haemorrhagic fever, ascaris infection, malaria, goiter and snake-bite. DMR's researches in these areas have had direct impact on some of the way these diseases are understood, diagnosed, prevented, or treated in Burma. Some of the researches have not been done before anywhere; they are of high scientific quality and contribute significantly to medical science; some of the research findings are first in their respective field.

In the remaining research areas DMR's performance has been modest but satisfactory. Some of the researches in these remaining areas such as weaning foods, nutritional assessment standards, standardization of traditional drug and dengue hemorrhagic fever are important and of potential value to Burma, but they are still in progress and their full impact will be evident only later.

4. Research Promotion, Support, Coordination and Research Training

With respect to DMR's other function, the accomplishments are variable. DMR has actively promoted medical research in Burma in a number of ways, by holding research meeting and seminars, by organizing work-shops on research methodology, by awarding research grants and by a variety of other informal methods. However, the response has not been entirely satisfactory and DMR's task of promoting medical research in other institutions cannot be

said to have been an unqualified success. There has been increased research activity in some institutions and some departments, but the overall effect is slight.

DMR's capacity to provide research support for individuals and departments outside DMR is limited. DMR's research grants help to promote research, provide research support, and give an opportunity for training in research. These research grants are having a desired effect but the amounts awarded yearly are relatively small, and do not provide for purchase of equipment or supplies from abroad, which is a constraint.

Apart from awarding research grants DMR is giving research training by accepting a considerable number of postgraduates of teaching institutes; Such training has been fairly successful as judged by the numbers as well as the quality of research these carried out at DMR under its supervision.

5. Dissemination of Research Findings

DMR's research findings are disseminated through research papers, review articles and by presentation at professional meetings. More important, relevant and applicable research findings are presented during the planning phase of the People's Health Plans.

6 Research Support Services

The five service divisions of DMR provided support for research undertaken by DMR and to a limited extent for research done in other institutions.

The Central Biomedical Library (CBL) is open to all researchers, teachers in the Institutes of Medicine and senior health personnel and provides a variety of special services.

The Publication Division helps DMR staff and other researchers in preparation of photographic materials and in other ways. It publishes proceedings of Research Meetings, Work-shops and Seminars held at DMR.

7. Summing up

The volume, scope and depth of medical research in Myanmar increased remarkably during this period largely as a result of rapid expansion of the research capacity of the Department of Medical Research. The multiplication of postgraduate courses for MSc/MMedSc at the Institutes of Medicine was also a major factor; and steady growth in research capacity of the Department of Health and Directorate of Medical Services of the Defence Ministry also contributed.

The benefits of research may be seen in important public health programs, in clinical practice, and as contribution to new knowledge in certain areas. Public health research was playing a significant role –by providing timely, scientifically valid information to health planners and health providers – in the containment and control of new threats to health in the country, and in the success of public health programs. Clinical research was contributing

appropriate diagnostic methods and treatment regimes relevant to patient care for common diseases in Myanmar. Clinical, public health and basic medical scientists were together contributing new knowledge at the advancing edge of science in certain subjects.

Public health research including HSR and clinical research had become self sustainable activities in Myanmar, even though the quality may be variable. Basic research had developed substantially at DMR but was still fragile being more dependent upon external inputs and advancing technologies.

Twenty five years after its beginning as a state sponsored, organized activity, medical research at DMR has matured and was already bearing fruit; and to some extent also elsewhere in Myanmar.

THIRD PHASE- CHANGE WITH CONTINUITY

(A) Organizational and structural changes

The political and economic changes that occurred in 1988 in the country also brought about large changes in health policy and health research policy.

1. Changes in the Health Research System

Important changes in the Myanmar Health Research System have taken place. The health research system has five essential functions-(1) stewardship - to develop strategic visions for health research in response to knowledge needs of the health services (2) capacity development for health research (3) knowledge generation (4) utilization and management of knowledge for health improvement (5) mobilization of resources for health research.

Improved stewardship became possible when the Health Research Policy Board was formed and started functioning within a hierarchy of bodies and committees that make health policy and health research policy.

The health research system expanded considerably and changed shape when two new DMR's were established, Institutes of higher learning in health were elevated to University level and new Universities were added.

2. New Departments of Medical Research

A new DMR was opened at Pyin Oo Lwin in 1999 to take on responsibility for medical research matters in Upper Myanmar; another new DMR was opened at Nay Pyi Daw in 2003 for medical research matters in Central Myanmar; while the previous DMR was re-designated the Department of Medical Research (Lower Myanmar) and became responsible for medical research matters in Lower Myanmar.

The mission of the three Departments of Medical Research, as stated in the Burma Medical Research Council Act 1963 and implicitly accepted unchanged throughout by the Ministry of Health of successive Governments and by the DMR's, is " To promote medical research in the country; to undertake research in support of health programs which address the health needs of the country; to advance medical science in the country and contribute towards scientific knowledge" – however, the mission to undertake research in support of health programs which address the health needs of the country has always been paramount.

Research needs being generally similar throughout the country the research programs of the DMR's are also generally similar but some programs and projects, especially those of DMR (UM) and DMR (CM) may also have a regional orientation and a focus on the research needs of regional health problems. In practice, allocation of tasks do not strictly depend upon geography alone but also upon research capacity; and DMR (LM) with the largest research capacity of the three was assigned many of the major national level research programs and projects; and took on the greater work load of the collaborative projects undertaken by all three. The Department of Medical Research (Lower Myanmar) may be regarded as the first among equals.

The two new DMRs are gradually opening research divisions and laboratories, building up infrastructure and acquiring and training research and technical personnel but have yet to reach full sanctioned capacity.

3. Expansion of DMR (Lower Myanmar)

The DMR (LM) expanded physically in accordance with the broadening of its research and developmental functions. A new Diagnostic and Vaccine Research Centre building was constructed and the Centre was opened in 1994-1997. A new National Blood Research Centre was added in 2002 and a National Poison Control Centre in 2003. A Hepatitis B Vaccine Plant or Vaccine Development Factory was constructed at Ywar-thar-gyi, Hlegu, in 2002 for industrial scale production of Hepatitis B vaccine.

The DMR (LM) also expanded its human resources quantitatively and qualitatively by recruitment as well as by training internally and externally

(B) Changes in Research Direction

1. New research needs

“In Myanmar, through successive development periods up to 1986, research planning and the research agenda had been according to disease entities and disease mechanisms, predominantly concerning diseases due to infection. In later years with the looming threat of the double burden of illness and recognition of the increasing importance of behavioral, socio-cultural factors underlying communicable and non-communicable diseases, a shift in the research strategy and emphasis was called for. Research strategies which take into consideration the epidemiological transition going on and which address both the double burden of illness – diseases due to deficiencies as well as diseases due to mal-adaptation, as the WHO Advisory Committee on Health Research puts it – were needed. Research strategies, plans and programs which were based on disease origins, which cut across disease entities and which deal with the underlying influences – such as urbanization, industrialization, demographic transition, life styles- were not visible up to the closing years of the development period ending 1986”¹

2. Response to new research needs

The appropriate response to the new research needs began to emerge during the new phase of growth and development in the 1990-2000 decades as reflected in the new organizational set up and change in research emphasis and research strategy of the DMR (LM), DMR (UM) and DMR (CM)

The 6 missions of DMR had remained unchanged since the 1970's, although in practice they were regarded as flexible and implementation of the missions had shifted in emphasis to accommodate new needs and opportunities. Since the reorganization of the government in 2011, promulgation of health policy and health research policy and constitution of the Health Research Council the mission of DMR has been re-stated as follows:

- | | |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Mission 1 | To investigate communicable diseases with emphasis on emerging and re-emerging diseases affecting health of the people. |
| Mission 2 | To investigate non-communicable diseases affecting National Health. |
| Mission 3 | To investigate nutritional factors and life style changes affecting health. |
| Mission 4 | To strengthen research capacity through development of infrastructure and human resources, necessary for medical research. |
| Mission 5 | To carry out health systems research highlighting effective and efficient health delivery systems including reproductive health. |
| Mission 6 | To promote research on accidental, occupational, environmental and climatic factors affecting human health. |
| Mission 7 | To carry out research on traditional medicine for safe and effective utilization within the existing health care system. |
| Mission 8 | To promote research culture at medical and related health institutions and to provide academic and technical training for post graduate students. |
| Mission 9 | To enhance technology development and analytical services applicable in the diagnosis, management and control of common diseases or conditions. |

Research strategy and direction changed as hereunder:

(a)Research direction upstream -A new and important development is that the DMR's, while conducting research that would help solve current and emerging priority health problems of the country, also began directing their research efforts upstream to study disease origins such as the socio-economic determinants of health and disease. DMR (LM), in particular, built up its capacity to undertake socio-medical research; it trained social scientists and introduced qualitative methods of research, and expanded the previous small nucleus of social scientists into a strong team with the capability of taking on important socio-medical research projects as well as to provide social science training to the newly established DMR's in upper and central Myanmar.

(b)Research direction downstream - Moreover, the DMR's were venturing downstream as well, into health technology development research which in previous decades was rudimentary at the DMR. Now, the DMR (LM) began producing vaccines, diagnostic kits and protective devices - which is a major shift in strategy. Hitherto, DMR had stopped short at invention and innovation, and although it may sometimes undertake production of new medical products and devices on a pilot, laboratory scale in order to demonstrate efficacy and feasibility, it then leaves further large scale production and manufacture to others (such as MPF), as in case of the Viper Venom Toxoid in the 1970's. Now, however, DMR (LM) acquired the technology, developed the facilities, and not only succeeded in producing a plasma derived Hepatitis B vaccine, it went on to manufacture this vaccine on a commercial scale at the Diagnostics and Vaccine Development Centre; furthermore, DMR imported technology from Korea and produced industrial scale Re-combinant Hepatitis B Vaccine at its Vaccine Production Factory in Hlegu. It also ventured into commercial production of protective boots against snake-bite.

Such twinning of research and manufacture within a research institute and the placement side by side of research facilities of a research institute and manufacturing facilities of a commercial enterprise may also be seen in other countries - in India (at the Indian Institute

of Immunology, Chandigarh), in Israel (at the Weizmann Institute of Science,) and in many developed countries. The realities of the present situation in the relationship between medical science, biological science and industry worldwide and now in Myanmar as well is that research institutions and Universities should not or would not be able to stay aloof from industry; it is a symbiotic relationship, a good example of which is Genentech - the first biotechnology company.

(c)Research cum service functions - Another entirely new development in the functioning of the DMR was that it has deliberately stepped across the arbitrary, hazy boundary between research and service, to take on some service functions as well. Thus the recently opened Poison and Toxin Centre at DMR(LM) not only conducts research into environmental poisons but also performs analytical service to detect poisons in food and has even opened a “hot line” to give emergency information and advice to the public.

(C) Technological Changes

1. Advances in Information technology

BMRI/DMR has from its beginnings been making early use of technology to access, store, retrieve and share information, such as developing the Union Catalogue of medical library holdings in Myanmar, and being the focal point for WHO’s Health Literature and Information Service (HELLIS) network, etc.

The rapid and tremendous advances in information technology in recent years enables large amounts of data and information to be handled very rapidly and efficiently; and the DMR’s have seized the opportunities that have opened up. All three of them possess and effectively use computers and software for research and management of research. All or most research divisions and research units are interconnected by a Local Area Network (LAN) and have access to the internet and to websites and data bases abroad. The libraries have become the nodal points for electronic transmission of data and information and repositories of electronic databases; they are rapidly becoming redundant as places for storing and lending books and printed material. This of course, is part of similarly changes in the country as a whole which is trying hard to keep abreast of the rapid and tremendous advances in information technology taking place worldwide.

The DMR’s, especially DMR (LM), are making effective use of the advances in information technology with great beneficial effect on research and the way research is done. There need no longer be any substantial or significant gap in the information available to hinder research.

2. Health Technology Development and transfer

Technology development has always been given strong emphasis by DMR (LM) and its predecessors and is one of the major strategies that have enabled it to keep abreast of developments in medical science elsewhere and to be the leading institution for medical research in the country.

BMRI/DMR has been at the forefront in transferring advanced up-to-date medical technology into the country. In the 1960's and 1970's decades, It was the first to use microbiological assay, radio-isotope labeling, radio-biochemistry, cell culture, parasite culture, chromatographic techniques, electron-microscopy, telemetric transmission of cardiac function, and many others. It pioneered the opening of new fields of study in medicine such as –virology, biochemistry, haemoglobinopathies and thalassemias, hepatology, others. Although In those early years it also made minor improvements and adapted imported technology, it did not make significant changes nor invent new technology. In recent decades, the DMR's, especially DMR (LM), have continued the pioneering tradition in health technology development and focused on Health Technology Development Research as a separate, priority field of study

DMR (LM) has established advanced techniques in molecular biology and molecular genetics including Polymerase Chain Reaction (PCR) and Reverse transcriptase PCR (RT-PCR) which has enabled it to precisely identify and genotype the bacterial, protozoal and viral agents of diseases like tuberculosis, malaria, dengue and HIV/AIDS. A concomitant development was the establishment of an Infectious Disease Laboratory (at bio-safety level 3) Other advanced techniques including high performance liquid chromatography (HPLC) ,atomic absorption spectro-photometry and Fourier transform infra red spectroscopy are being used for toxicological analysis in environmental studies.

A major advancement in technology was in the area of Hepatitis B vaccine development as part of the new downstream direction of research development. Development of the Hepatitis vaccine and its commercial production required large transfer of technology to DMR from abroad, followed by innovation and adaptation at DMR according to conditions in Myanmar. Plasma derived Hepatitis B vaccine can be produced on a commercial scale at the Vaccine Research and Development Centre according to WHO Good Manufacturing Practice (GMP); and Recombinant DNA Hepatitis B Vaccine can be similarly produced at the DMR Vaccine Factory at Hlegu .

(D) Changes in Human Resources for Research

Human Resource Development

The development of human resources for research is paramount-especially dedicated, qualified researchers. Skilled, well trained technicians are also important and essential for most types of research where complicated/sophisticated instruments have to be used routinely or where large quantities of data have to be collected routinely.

The number of doctors with postgraduate research degrees (MSc.,M.Med.Sc., Ph.D.,Dr.Med.Sc.,etc) has increased greatly in Myanmar over the years, a considerable number being added every year; but only a few enter a career in academic medicine or medical research and so the pool of qualified medical researchers is limited. The DMR's draw upon this limited pool, as also other Departments and institutions with research programs, but to a much lesser extent. Therefore there is a large unfulfilled demand for qualified medical researchers and the number of sanctioned posts which remain unfilled is large, especially in DMR (UM) and DMR (CM).

(E) Continued International support, partnership and links.

DMR (LM) has already gained a reputation for well-planned and executed research projects relevant to the country's health problems; this together with the excellent research infrastructure available continue to be a powerful attraction to the international research funding agencies seeking good and rewarding investments for health research and development in Myanmar; this reputation was reflected onto the other DMR's - (UM) and (CM) which opened later.

The principal source of international funding of the DMR's is WHO, TDR and HRP whose long term institutional strengthening grant (LID) and resource maintenance grant (RMG) continue to support much of the research and research development activities. UNDP provided support to DMR (LM) for further expansion of Medical instrumentation Division. UNDP also provided the support that enabled DMR (LM) to venture for the first time into commercial scale production of a vaccine: viz. plasma derived Hepatitis B vaccine.

(F) Continued National level scientific partnerships and links

The DMR's, in accordance with their functions and as coordinated by the Ministry of health and the Health Research Policy Board, forms partnerships and links with other Departments and health institutions under the Ministry of Health to collaborate in research activities as well as to provide support for health service programs, medical education and training programs of these other Departments and institutions.

However The DMR's have no formal standing partnership with other Departments and institutions under other Ministries and have, with a few notable exceptions no ongoing collaborative research with other research institutions such as Central Research Organization, the Development Centre for Pharmaceutical Technology, and the Veterinary Research Institute (VRI) although there are occasional ad-hoc, short term collaborative research projects such as with the ARI on development of high iron content rice strains and there are always ad hoc contacts and interaction at scientist level.

(G) Change with continuity in health research

The *Health Research Program* of the National Health Plan(s) is the framework within which the DMR's carry out their research and research development programs

The Health Research Program (HRP) was formulated in accordance with the National Health Research Policy and the Health Research Policy Guide-lines (HRPG) and also took into consideration the top ranking diseases identified in the National Health Plans.

The Health Research Plan was implemented mainly by the Departments of Medical Research, although other Departments sometimes participated as collaborators in the implementation of the HRP by the DMR's or they may sometimes undertake some of the relevant research projects on their own.

The *general objective* of HRP is to conduct research in order to solve the health problems of the community.

The *specific objectives* are:

- (1) Research on communicable diseases including emerging and re-emerging infectious diseases threatening national health
- (2) Research on non-communicable diseases highlighting diseases relating to changing life styles
- (3) Research on environmental health (within the general objective of research on other health problems which need further elucidation) with an emphasis on the hazards of environmental pollutants.
- (4) Health Systems Research with special emphasis on health delivery systems
- (5) Traditional Medicine research with emphasis on traditional drugs.
- (6) Academic and technology development applicable to disease diagnosis, prevention , control and management
- (7) Research capacity strengthening through development of infrastructure and human resources for effective health research

Within the general framework of the above research and research development activities *DMR (LM) adopts additional criteria* in choosing specific disease and health problems for research, namely:-

- (1) Magnitude and priority as a health problem,
- (2) Probability of finding a solution or an important clarification,
- (3) Benefits expected from the application of the results of successful research efforts,
- (4) The potential usefulness of the research in finding solutions to other problems, and
- (5) The existence of a situation which covers a special advantage for a particular research and which should be exploited.

The newly opened DMR's probably used criteria which are similar to the above. Being newly opened and still building up resources they could undertake only a few of the research programs described below and carried out by DMR(LM), except for some research on malaria, reproductive health, HSR and a few others.

There may be ad-hoc shifts and changes quantitatively and qualitatively in research undertaken due to rapid changes in health conditions and developments in medical science or due to unforeseen feasibility and resource constraints.

It is noteworthy that whereas Nutrition research has been high on the priority research programs at DMR/BMRI from inception it is not now included separately as an objective, perhaps reflecting the fact that much is already known, through decades of research, about nutritional diseases and deficiencies and methods of solving or ameliorating them and that the results of research are already being incorporated in ongoing health care programs. For example, goiter and iodine deficiency disorders have been eliminated as a scourge in Myanmar and only mopping-up operations are in progress. Nutrition research is now being undertaken as a component of studies on Non-communicable diseases.

New fields of study have been opened up for the first time at the DMR's. Research in reproductive physiology was being done at IM2 in the early 1970's and some collaborative research on Maternal and Child Health was done by the Ob & Gyn. section of MMA in the 1980's but it was limited and not sustained. The new WHO/HRP sponsored research program on Reproductive Health, undertaken principally by DMR (LM) and DMR (UM) in collaboration with the Women's Hospitals in Yangon and Mandalay, is wide ranging and will open up many new research topics as well as develop necessary infrastructure.

Environmental health research has become recognized as a separate research objective reflecting harmful changes in the environment in Myanmar. Research to detect and monitor toxicological hazards -physical, chemical, biological—and development of measures to prevent and lessen their deleterious health impact is now being done.

Although snake-bite is not ranked in the top fifteen priority diseases in the National Health Plan 2006-2011 snake bite research continues at the DMR especially at DMR (LM), one important reason being the promising results in the experimental production of anti-snake venom from hen eggs with the possibility that this may in future overcome deficiencies in the manufacture of ASV from horse serum.

1. *Research on Communicable disease*

Research on communicable diseases emphasized the three major diseases which are malaria, tuberculosis and HIV/AIDS; and include diarrhea, dysentery, viral hepatitis, DHF, leprosy, and others.

(a) **Malaria research**

DMR (LM) /BMRI started malaria research after the discovery of drug resistant malaria parasite in Myanmar in 1969, in which a DMR clinical scientist participated. By the 1970-80's it had established new research techniques in parasitology, biochemistry and entomology which hitherto were unavailable in Myanmar. Using animal models DMR was able to demonstrate significant anti-malaria activity in the *Artemesia annua* plants grown in Myanmar from seeds available from elsewhere. Malaria research continues now in DMR (LM) at many of its Research divisions especially Parasitology, Entomology, Epidemiology and the two Clinical Research Units for Malaria.

Research on drug resistant malaria parasites is the main focus and includes detection and monitoring of current and emerging anti-malarials, especially Artemisine derivatives, as well as the renewed efficacy of chloroquine for *P vivax*. The clinical aspects are investigated on patients in hospitals and public health aspects are studied on communities in the field. Parasitology Research Division is the only place in Myanmar where, since the 1980's, malaria parasites are cultured in-vitro and drug sensitivity may be tested. It is the only place where molecular techniques are used to detect resistant gene mutation. **Entomological research** continues at the Medical Entomology Research Division where insecticide resistance has been tested since the 1980's. It studies the bionomics and role of various *Anopheles* strains in malaria transmission. It is only place where mosquito colonies are been continuously bred and maintained and where biochemical, immunological (Elisa) and genetic methods including cyto-genetic techniques are used to study mosquito strains, their infectivity and population genetics. **Epidemiology Research Division** has been involved in malaria research since the early years; it pioneered the study of forest fringe malaria as a distinct ecological zone. It now engages in studies to study the effectiveness of various social interventions to prevent, detect and treat malaria at home and in the community.

(b) Tuberculosis research –

Up to 1986 DMR (LM)/BMRI were not involved in TB research. Later, with the recognition of tuberculosis as among the top priority diseases in the National Health Plan, DMR took on tuberculosis research. It uses Polymerase Chain Reaction (PCR) to identify DNA of *Mycobacterium tuberculosis* and gives laboratory support for research which needs to detect *M. tuberculosis* in minute amounts of biological material such as research on TB meningitis and research on co-infection with HIV and TB. It undertakes (in collaboration with DOH) the testing of anti-tuberculosis drug resistance pattern among various special groups and communities and evaluation of the utility of various diagnostic test kits for TB.

(c) HIV/AIDS research –

HIV/AIDS was beginning to loom as a threat to Myanmar by about the early 1980's. Recognizing this DOH began a program of surveillance which included serological testing and screening for HIV antibodies in different population groups. DMR also quickly responded by setting up Elisa and Western Blot tests and screened sex workers with negative results. Since DOH had adequate facilities to conduct the type of epidemiological studies that were required at that time and was doing a better job at it DMR discontinued all testing and did not pursue any more research on HIV/AIDS.

DMR resumed research on HIV/AIDS when it became the second ranking priority identified in the National Health Plan. It set up advanced molecular methods not readily available elsewhere to study the HIV virus including Reverse transcriptase polymerase chain reaction (RT-PCR) and in collaboration with NHL the inexpensive Peptide enzyme immunoassay (PEIA) tests. These were used to study molecular diversity of HIV 1 and to determine prevalence of HIV 1 subtypes among different risk groups from sentinel sites in Myanmar. Surprisingly very little directly relevant research was done by the Epidemiology and HSR Research Divisions of DMR and most of such research was carried on by DOH.

(d) Dengue infection and Dengue hemorrhagic fever research –

This subject has been studied by DMR (LM) since the 1970's when DHF first appeared in Myanmar. An important contribution to the understanding of DHF/DSS was the result of a study by DMR virologists in collaboration with others from DOH in the late 1980's that sequential infection with Dengue 2 was the probable pathogenesis for DSS. This was the only study (apart from earlier Thai study) that has provided valid scientific evidence that risk of developing DSS is significantly higher in secondary dengue infections, particularly with dengue serotype 2. A new impetus to Dengue research was given when advanced virological, molecular and genetic methods were introduced to DMR from the 1990's onwards- such as PCR, RT-PCR and techniques to clone and sequence the virus isolates. New contacts between DMR and WHO Collaborating Centre for Arbovirus Reference and Research in Brisbane, Australia made some of this possible. Studies on genetic diversity in Myanmar dengue virus were carried out and new observations were made on the genetics of Dengue 1 virus in Myanmar. Molecular epidemiology studies were undertaken and phylogenetic trees drawn with the DNA sequences of dengue viruses to identify the

emergence of new viral strains and establish the relationships between Myanmar dengue strains and global strains. Analyses of dengue 1 viruses isolated from one of the largest outbreaks of dengue in Myanmar revealed that the lineage that had been circulating for the past 25 years had become extinct and two new lineages of dengue 1 (DEN-1) had emerged. These studies have important implications for the formulation of an effective dengue vaccine as well as timely implementation of control measures in preventing DHF outbreaks.

(e) Research on Viral Hepatitis-

Viral hepatitis has been studied by DMR (LM)/ BMRI since its earliest years in the 1960's. By the 1970's and 1980's DMR was doing pioneering research on Non-A non B hepatitis in Myanmar which later turned out to be Hepatitis E. It studied the epidemiology of vertical and horizontal transmission of Hepatitis B virus and demonstrated the possibility of preventing vertical transmission by vaccination with plasma derived Hepatitis B vaccine and later a yeast based Hepatitis B vaccine was also tested. The results paved the way for future program of Hepatitis B control in Myanmar. Innovative studies from early 1990 s to date included the development of local immunodiagnostic test kits; studies on the prevention of hepatitis infection by vaccination and the development of vaccines; the molecular biology, immunology and the genetics of hepatitis viruses; and the epidemiological and clinical consequences of infection. It developed new treatment modalities for chronically infected patients which are appropriate for developing countries. DMR has emphasized the emerging danger of hepatitis C infection in Myanmar which has been tested positive in 2.5% of the general population 25% in patients with liver disease. DMR is pursuing research on clinical and preventive aspect of this infection which poses a danger of developing liver cancer. Clinical trials have been conducted to test various agents including interferon and immune-modulators and systemic phlebotomy..

In collaboration with WHO, UNDP, IAEA and JICA, DMR has developed several immunodiagnostic test kits which have been used for routine screening, diagnostic and confirmatory purposes as well as for sero-epidemiological surveys. These are RPHA and ELISA and RIA test Kits for hepatitis B, micro PA test and ELISA test kits for hepatitis C, ELISA tests for hepatitis A, hepatitis E and alfa-fetoprotein.

Another important leap ahead is the successful setup of the molecular biology laboratories at DMR to carry out the molecular and genetic research on hepatitis viruses .Molecular research is being done by using Reverse Transcription (RT) and Polymerase Chain Reaction (PCR). Determination of HCV types and subtypes by RT PCR amplification and nucleic acid sequencing is being done and further phylogenetic analysis revealed that 3 new type 6 subgroups exist in Myanmar

The outstanding achievement for DMR is the successful development of hepatitis B vaccines; the development and small scale production of plasma-derived hepatitis B vaccine in collaboration with WHO and UNDP, which has been used all over Myanmar since 1997. Later, the development of recombinant hepatitis B vaccine was carried out at the WHO GMP standard Hepatitis B Vaccine Plant at Hlegu Township with assistance from Republic of Korea in 2004. Clinical trials conducted by DMR scientists in 2006-2007 confirmed the

safety and immunogenicity of both vaccines in newborns. The local development of effective vaccines will play a key role in the control of viral hepatitis in Myanmar.

(f) Research on Diarrhoea and Dysentery-

Research continues as before on etiological agents and drug resistance using conventional serological as well as newly developed molecular methods. Studies were done on decontamination of water, and reduction of bacterial pathogens by means of alum, sunlight, citrous lime-juice. Studies continue on rotavirus diarrhoeas including efficacy, safety and complications of rotavirus vaccines. Recently molecular biology techniques have been introduced and PCR is now being used to detect and characterize etiological agents of diarrhoea prevalent in Myanmar.

(g) Research on Acute Respiratory Infections-

This is mainly on identification and surveillance of causal agents and drug resistance using conventional, serological methods as well as newly developed molecular methods.

(h) Research on Avian influenza and Severe Adult Respiratory syndrome (SARS)-

DMR did confirmation tests on 8 clinically suspected cases of Avian Flu using RT-PCR. All cases were negative and this was re-confirmed at WHO Collaborating Centers in Japan and Australia as negative for H5N1 virus.

(i) Leprosy research-

DMR is the only place where mouse foot-pad inoculation method of drug sensitivity testing is being done since the 1980's. DMR continues to provide this service to DOH during the mopping up operations for remnant of leprosy cases in Myanmar. Leprosy control activities are being used as an entry point for a new HSR project.

2. Research on Non-communicable diseases

(a) Snake bite research-

DMR/BMRI started research on snake bite in the 1970's. Establishment of a Clinical Research Unit at Tharawaddy Hospital, up to date laboratory facilities and collaboration with Oxford University scientists enabled DMR to undertake an extensive program of research into the clinical, hematological, biochemical, pathological and therapeutic aspects of viper envenomation, which contributed much to current understanding of the mechanism underlying the clinical features and complications leading to death in some cases. They indicate how best to manage snake bite and viper envenomation. The sound scientific results of snake bite research of that period are the solid basis for further research now.

Another phase of extensive research including some innovative approaches began at DMR from the 1990's onwards.

The research done could be classified as follows:-

Research on anti-venom- this included studies of potency, efficacy, stability and kinetics. Innovative study on the experimental production of potent ASV from chicken eggs was successfully carried out. Although such research originated elsewhere in Australia and India in 2010 and before, further modifications and adaptations had to be done at DMR. Clinical trials have been carried out and demonstrates the efficacy of the ASV from chicken egg. Production of ASV by this method will be easier and less expensive than in horses. There is good prospect that large scale production of ASV by this method will replace or supplement the present inadequate production in horses.

Research on clinical features was carried out extensively in different geographical places in Myanmar- to find common features, differences and prognostic factors.

Epidemiological research – this included incidence, case fatality rate, survival factors, knowledge/attitude/practice and treatment seeking/avoidance behavior; snake bite survey and control.

Research on First aids and preventive measures - this included trials in monkeys and humans to demonstrate the efficacy of compression-immobilization technique; tourniquet efficacy; and effectiveness of intramuscular injection. Research was done on boots to modify them so as to be safe against snake bites.

Research on immune diagnosis- this includes assessment of dip-stick, immunoassay and immune-metric methods.

Research on immunology- this included study of the cellular response and the humoral antibody response in green pit viper, king cobra, Russell viper bites; and humoral response to toxoid and to traditional immunization.

Research on pathophysiology and sequelae- this included hematological changes like disseminated intravascular clotting; endocrine, biochemical and cardiovascular changes; hepatic involvement; histological changes in many organs; renal function disturbances including acute renal failure and dialysis.

Research on venom-this included venom injected and venom yield; its composition, biological and biochemical properties. It also includes variations in amount according to age, length of snake, geography and season.

Research on toxoid-this included its properties like stability and reversion, immunogenicity, antibody response, trials

Research on different snakes- this included cobra, green pit viper, king cobra ,krait, Malayan pit viper, sea snake bites and spitting viper bites..

Research on management –this included management using anti-venom, heparin and management of acute renal failure; management in cases of unknown bites.

(b) Research on Environmental Health-

National Poison Control Centre (NPCC) was established in 2003 with 6 objectives one of which is: To conduct research on the hazards of poisoning, its prevention, control and management, and to apply and make recommendations from the findings in clinical and environmental settings. It also aims to provide analytical toxicology services, conduct surveillance and monitoring of hazards of poisoning and provide preventive toxicological information to the community, especially high risk population groups. NPCC is currently conducting research on:- presence of various toxic chemicals like arsenic, lead, pesticide in ground water, food, and in the blood of selected groups; presence of bacteriological and mycotoxins in food and furthermore it is studying the consequence and effects of such poisonings. It is also studying the present situation of acute poisoning in hospitals (YGH, YCH) and of pesticide residues in the environment (Inlay ecosystem) and poisoning in the community.

(c) Nutrition research-

BMRI/DMR (LM) has been conducting Nutrition research since inception and made pioneering studies on Iron and folic acid nutrition among Burmese population groups. DMR (LM) is now continuing similar types of studies in general. Nutritional studies are now more focused on adolescent age groups both female and male. An innovative new research project on iron content of rice varieties in Myanmar and measures to produce a mutant strain with high iron content induced by gamma irradiation was carried out in collaboration with the Agricultural Research Institute. A new program of research on the diet of Diabetics in Myanmar has been started.

(d) Physical Fitness-

The importance of the study of Physical Fitness was recognized by the Burma Medical Research Council when it established the "Expert Technical Committee for the Study of Physical Fitness of the Burmese" in 1968. This Committee undertook some studies and laid down a program of research which served as guidance for many future years.

DMR collaborated with the Dept of Sports and Physical Fitness in studies of athletic performance and physical fitness during the early years since 1968 and up to about 2000 decade. Later it took up the WHO Project on Adolescent Health focusing mainly on the social and behavioral aspects as well as physical fitness of adolescents.

(e) Research on health of the elderly and of youth-

Research on the Elderly program at DMR started in 2009. Base line data on health and resource needs of the elderly is being collected

(f) Research on reproductive health-

This new research program was in accordance with Guideline of the HRPG and made possible by long term institutional strengthening grant of WHO/UNDP Human Reproductive

Health Program (HRP) and carried out in collaboration between the 3 DMR's and Women Hospitals of the DOH. It focuses research not only on health problems during pregnancy and childbirth such as pre-eclampsia but also on reproductive health in hitherto unreached target groups like adolescent youth and vulnerable groups like adolescent migrants; it includes studies on the social-economic and cultural determinants, knowledge-attitude-practice studies; and on measures to improve reproductive health.

3. *Health Systems Research*

HSR is a major area of research at the DMR's and the HSR Research Division of DMR (LM) takes the lead in quantity and quality. However many Research Divisions of all three DMR's also carry out HSR which account for a large volume of the total output. A content analysis of HSR done at DMR (LM) during the last decade has been carried out with respect to what, where and how utilized. A similar study of HSR at DMR (UM) and DMR(CM) has also been carried out.

4. *Traditional Medicine Research*

Research on traditional medicine has been carried out at BMRI/DMR since its early years. A research program for the standardization, pharmacological and toxicological evaluation of traditional drugs and herbal medicines was started then at the Pharmacology Research Division and continues. Clinical trials are now being done at the Clinical Research Unit (Traditional Medicine) established by DMR (LM). DMR (UM) conducts research on traditional medicine along similar lines. Like DMR (LM) it also selects traditional medicinal drugs that may be used in the treatment of problem diseases in the country such as hypertension, diabetes mellitus, malaria, etc. as priority areas. It performs clinical trials on drug formulations used in the Department of Traditional Medicine and some which are already widely accepted by the community including reputed drug formulations for lowering blood glucose, blood pressure, and for anti-parasitic and anti-bacterial activity in malaria, diarrhea and dysentery. Standardization studies on traditional drug formulations are now being carried out also at the Department of Traditional Medicine.

CONCLUSION

Back to the Future

As I have written in another context, Research is the main task of DMR and DMR's achievements in research are considerable, especially when taken in relation to the diversity of health problems it has been obliged to study. The majority of research programs and projects undertaken by DMR are directly concerned with high priority health problems specifically identified in successive People's / National Health Plans or related to strategies and approaches being employed by NHP.

DMR, over a period of a half century, has generated knowledge, produced methods, tools and products for use in the promotion, prevention, diagnoses and treatment of disease and health problems and for improvement of health in Myanmar.

DMR has successfully conducted research notably in diarrhea, viral hepatitis, dengue haemorrhagic fever, ascaris infection, malaria, anaemia, goiter and snake-bite. DMR's researches in these areas have had direct impact on some of the important ways these diseases are understood, diagnosed, prevented, or treated in Myanmar. Some of the researches have not been done before anywhere; they are of high scientific quality and contribute significantly to medical science; some of the research findings are first in their respective field.

In the remaining research areas DMR's performance has been modest but satisfactory. Some of the researches in these remaining areas as well as some in the high performance areas are important and of potential value to Myanmar, but they are still in progress and their full impact will be evident only later, such as the studies on genetic diversity and molecular epidemiology of the dengue viruses and molecular biology of the hepatitis viruses in Myanmar.

DMR serves as the cutting edge for advances in medical science in Myanmar in those areas in which it is active. Equally important and note worthy are the intangibles that DMR stands for:-

The very fact that DMR was created, exists and continues to exist is testimony to the far-sighted vision and recognition by the highest authorities that research is essential for progress.

DMR's constant endeavour to maintain scientific rigour, intellectual discipline and professionalism in its work has served to stimulate others in the medical profession to make similar efforts.

DMR's aim to create a research culture and to foster a spirit of scientific enquiry, may serve to remind others of the importance of doing the same in the medical profession, especially in research and academic institutions.

Looking back and to the future DMR may find satisfaction for its many outstanding achievements and learn lessons from some of its lapses and spectacular failures. The future is full of opportunities and expectations as well as some threats to its role as the premier research organization in Myanmar.

I place great hopes in the knowledge and skills of the current and future scientists and technicians of DMR and in their adaptability and resilience to the changes that will come.

I place great hopes in the leadership qualities, management skills and foresight of the upper echelons in research management at DMR today and in future.

DMR needs vision and wisdom to find its changing role in future medical research in Myanmar.

Aung Than Batu
April, 2013. Yangon.

VIGNETTE OF B.M.R.I IN EARLY DAYS

Dr. U Ko Ko*

As the 50th Anniversary of the founding of B.M.R.I which will fall in June 2013 approaches fast, I begin recalling events leading to that day and my personal involvement in that auspicious occasion. Recognising the importance of correctness and precision of small facts and events on mentioning contemporary statements and write ups in historical records, I feel obliged to put down on paper, vignette of B.M.R.I (Burma Medical Research Institute) with personnel's activities, events and episodes in the backdrop. To convey a clear meaningful background to the establishment of B.M.R.I and my role in it, I would begin with my earlier contacts and initial exposures to medical research in general terms effective year 1953.

In 1953, from March to September I worked as a student Demonstrator in Physiology Department of faculty of Medicine with Prof. U E. Though not highly academic nor scientific, this experience in teaching practicals to medical students, stimulates me to think in terms of Science and Research. This experience led me to undertake field studies in Public Health, when in 1954 I worked as a junior health officer at Aung San Demonstration Health Center, Aung San Myo under Directorate of Health Services.

Later, when I went in September 1955 to Edinburgh to study Public Health, I was more exposed to Public Health Studies and Social Research. I took the good opportunity of working during holidays, in Statistics Laboratory, in analyzing a Social Study, being conducted by Prof. FAE Crewe, who was examining the social determinants in health of the community.

Using these experiences and training, I organized many Public Health studies with research elements, anthropometry, epidemiology, nutrition, sanitation, MCH and public health, when I worked in Aung San Demonstration Health Centre, from 1957 to 1961. I worked closely in coordination with Dr. Kywe Thein and Dr. A.M.Mobsby of DHS Office as well as Prof. Mya Tu, Department of Physiology, Faculty of Medicine.

I had in my team in field work, Dr. Ba Tun and Dr. P.C. Banerjse. Many Reports and Articles on these studies were presented in technical meetings and later published in Burma Medical Journal and International Journal of Public Health and Tropical Medicine.

In 1957, The Burma Medical Research Society (BMRS) was established at Faculty of Medicine Yangon, with Col. Min Sein as Chairman and Prof. Mya Tu as Secretary. The Society came into being by the active initiation of Prof. Mya Tu and Prof. W. Law, supported by the Dean and Senior Professors of the Faculty, Director of Health Services, and Director of Burma Army Medical Corps. The Society has 36 members, including Foreign Visiting Professors and 6 Young doctors including myself (Dr. U Ko Ko), Dr. Khin Kyi Kyi and Dr. Pe Than Maung. The Society held Annual Meetings as well as Scientific Meetings. One of the major activities undertaken by the Society is the Tarong Valley Expedition. The Expedition was planned on specific request of Kachin State Government and Yein Nway Par Flag March (Col. Saw Myint) in the northern most part of the country. The Expedition was

* Dr. U Ko Ko, M.B.B.S(Rgn), D.P.H(Edin), DTM& H(Eng), F.R.C.P(Edin)
Emeritus Regional Director, WHO/SEARO; President (Rtd.)
Myanmar Academy of Medical Science; Emeritus Medical Researcher

led by Prof. Mya Tu as leader and Dr. Ko Ko as Deputy Leader cum Secretary, with 4 other professionals and 4 Technicians/ Assistants, total 10 members. After series of meetings, preparations of Expedition members, and collecting scientific equipments and supportive items and other supplies, the Expedition was undertaken from 21 March to 25 April 1962, including 25 days on the mountains and valleys (9 days walking to Tarong Valley, 8 days at Aroondum, the camp Site, and 8 days for return trekking). While the Report of the Expedition was being prepared, BMRI was established; The BMRS authorized BMRI to publish the Report as BMRI Special Report Series No. 1.

At this stage, we might look into the background events and situation, which led to the establishment of BMRI.

The medical profession had been seized with the need for organised Medical Research for decades. The felt need was intensified since independence in 1948. The Burma Medical Association and Burma Medical Research Society had been expressing this need more intensely and loudly later. The Government changed in March 1962; the new Government, the Revolutionary Government of Burma, has a new political philosophy with many innovative ideas.

In the new Revolutionary Government, Col. Hla Han, Director of Medical Services of Armed Forces, became the Minister of Health. Col. Hla Han is a very progressive medical doctor, an active member of Burma Medical Association and Burma Medical Research Society and had been instrumental in organization of Tarong Valley Expedition of BMRS.

The Burma Medical Research Council (BMRC) was formed in October 1962, by an Act of the Revolutionary Government of Burma. The Council, in the very first council meeting on 23 March 1963 expressed the intention of establishing BMRI using the premises of the Harcourt Butler Institute of Public Health (H.B.I). The plan for its establishment had been drawn by Prof. Mya Tu and Major Ko Gyi. The HBI was handed over by DHS to the BMRC on 10 June 1963. Dr. U Ko Ko, Assistant Director (Epidemiology) DHS, in the capacity of Acting Director of H.B.I, officially handed over HBI to Prof. U Mya Tu, on behalf of BMRC.

I was very busy as Assistant Director (Epidemiology) in 1963, trying to control and stop El tor Cholera outbreak, which was imported into the country at Maw La Myaing, from outside presumably from Indonesia. Myself and colleagues were conducting pilot trials in Yangon and selected districts for Small Pox Eradication Programme (SPEP) scheduled to be launched country wide in 1964. The Ministry of Health is also planning a major Reorganisation of DHS office, down to the Township Level, in which process I was closely involved. In addition I was appointed as Acting Director of HBI, whose Head, Dr. Tin Tin Myint was in Canada, on fellowship to do Doctorate in Bacteriology. My daily routine begins early morning at the DHS office, clearing office papers, signing cables and letters, attending meetings and move in the afternoon to HBI as Acting Director. When I am too busy in the Directorate, the Head clerk of HBI came with urgent important papers to me in the Directorate of Health Services.

H.B.I was established in 1927 as the premium Public Health Institute in the country. After the Second World War and with the independence of Burma in 1948, many new Institutes, Schools and Projects were added under MOH, when the role of H.B.I was somewhat reduced. There had been plenty empty spaces in the H.B.I building and premises. In 1963, when I was Acting Director of H.B.I, the Institute had 3 main functions:-

- 1) Public Health Laboratory for water and sanitation,
- 2) Teach Public Health workers – Public Health Inspectors, Vaccinators, and practical training of Public Health to medical students,
- 3) Smallpox vaccine production.

Public Health Laboratory was under one Medical Officer, Dr. Daw Khin Nwe who also acted as Deputy to the Director. Attached to the office of Director were one or two Field Teams under Senior PHIs. The Field Teams worked in collaboration with Rangoon Municipal on mosquito surveys; they work in cooperation with Port Health Department on Rat and Flea Surveys for Plague Surveillance.

In 1963, PHI Training was suspended since Government is reviewing the role of PHIs vis-à-vis newly created Health Assistants. Vaccinator Training was taken over by H.A Training School. Final Part I medical students visit the HBI in batches, to study in the Public Health Museum. Small Pox Vaccine production was now undertaken by Burma Pharmaceutical Institute, in anticipation of the forthcoming reorganisation of Ministry of Health.

Physically, the Upper Storey of Eastern Wing of the main building was the Public Health Laboratory; adjacent to it between the lab and the Stairs is the Nutrition Section under Assistant Director (PH) of D.H.S. Nutrition Section also occupied the temporary building built in the depression, to the north of the main building.

Since 1962, WHO had negotiated with the M.O.H and had established WHO Filarial Research Unit, which is directly administered by Vector Biology Division of WHO-HQ, Geneva. The W.H.O - F.R.U was allowed to use the H.B.I premises; the end part of the west wing on Ground Floor, adjacent to Public Health Museum housed F R U main Office. They had also built Temporary sheds for Field Staff and Laboratories, on the open ground to the west of the building, between the main building and the road leading to the Gate at Zafar Shah Road.

When I heard about the handing over of H.B.I to B.M.R.C. I began making preparations to wind up H.B.I of Public Health.

The Public Health Laboratory with all equipments, instruments, chemicals and regents were to move to the Pasteure Institute which will become the National Health Laboratory when MOH Reorganisation take place. Daw Khin Nwe, Medical Officer in charge with all Lab Staff will also go along to the Pasteure Institute.

For teaching functions, Vaccinator training had been already taken over by H.A.T.S. Negotiations were made with Professor of P.S.M for accepting the teaching models and exhibits in the Public Health Museum by the P.S.M. Department, Faculty of Medicine. Small Pox vaccine production was no more with the HBI.

Regarding temporary accommodation offered to Nutrition Section under DHS and WHO – FRU, I discussed with concerned people- ADHS (PH) and WHO as well as Prof. U Mya Tu who is taking over H.B.I premises.

Finally it was agreed that B.M.R.I will allow a certain period, say 2 or 3 years to DHS Nutrition Section with Dr. U Kywe Thein as MO in charge, while DHS will explore premises to move the Nutrition Section.

As to WHO/FRU, the MOH has committed to accommodate the unit for 5 years and also WHO has invested funds in building temporary sheds. After discussions it was agreed that FRU will remain in the premises for 5 years as earlier agreed, though their additional needs are to be found elsewhere by DHS. Accordingly, their new activities were undertaken

from bases and premises elsewhere – at Malaria Centre (Ady Road) and ASDHC (Aung San Myo) and Hlawga RHC.

The Director of HBI has no personal vehicle but the load carrying vehicle of HBI will go to B.M.R.C. Lab Equipment will go to Pasteur Institute. But office furniture and library furniture with Almirahs and shelves and collection of Books and Periodicals are to be used by BMRI. Temporary Staff appointed under Contingency Fund will stay on to be taken over by B.M.R.I.

So, one fine morning, Prof. U Mya Tu took over the H.B.I. premises as Director of B.M.R.I., Official date of handing over was recorded as 10 June 1963, though in practice, it is a gradual phasing in process. Dr. U Mya Tu had been visiting H.B.I earlier all along and I continue to be present at B.M.R.I after 10 June. Dr. U Mya Tu came with minimum staff as he could commandeer, having submitted the proposed budget for B.M.R.I along with organization plan; he had also submitted sanctions for posts. He took over H.B.I contingency staff as much as possible.

Dr. U Kywe Thein, Chief of Nutrition of DHS, continued working in his office in Upstairs of B.M.R.I and became the most frequent visitor in Dr. U Mya Tu's office. Before the end of 1963 he agreed to join B.M.R.I as Chief of Nutrition Division in due course. Informally he was prepared to help Dr. Mya Tu as necessary while he was still DHS Chief of Nutrition Section. He officially assumed charged of BMRI post in 1965, when Dr. Daw Khin Nwe Aung took over as Chief of Nutrition, DHS. Later Dr. U Kywe Thein was asked by B.M.R.I to take care of Administration Office as well as an interim arrangement.

Dr. U Mya Tu opened the physiology Department laboratory in B.M.R.I assuming charge as its chief personally. There were other acting Chiefs in few other sections of B.M.R.I. Dr. Margaret Tu works as visiting Chief of Parasitological Section occupying eastern wing of upper storey of the main building. Dr. U Ko Ko took care of Epidemiology and Statistics Section as visiting Chief with offices in the Western Wing of Upper Storey. Dr. U Hla Myint functions as Visiting Chief of Clinical Section, specializing in liver Diseases. It is not clear where his office was.

In the mean while Dr. U Mya Tu pursued the Budget requests and sanctions for the posts – professionals, technicians, administrators and others. He had to pursue the submissions for supplies, equipments, reagents, chemicals etc. In this way the organisation plan for B.M.R.I progressed gradually but steadily.

In the Department of Epidemiology and Statistics, the first staff to join the Department is U Khin Maung Lwin, Medical Statistician from WHO Vital Statistics Project with DHS Office. He is officially appointed as Senior Research Officer in Medical Statistics Section in B.M.R.I in 1964. A few years later, he was joined by Daw Htay Htay Aye in the same Section. Dr. Thein Maung Myint, after obtaining DPTM, was appointed in 1968 as Sr Research Officer, Epidemiology Division. In the same Epidemiology Division he was joined by Dr. Min Nyo as another medical officer. Dr. Thein Maung Myint continued serving B.M.R.I, rose to the rank of Deputy Director in Department of Medical Research in due course, till he moved by promotion to the Directorate of Medical Sciences. The Statisticians established the Statistics Laboratory and began work by offering methodology support to research activities undertaken by other Research Departments. Advice was given also on Project Planning, Project Designing and Formulation.

The epidemiologists focused their work on Non Communicable Diseases – Poisoning, Violence, Accidents, especially on traffic accidents, clinical diseases

epidemiology such as Cancer and Diabetes. They are advised not to involve in the initial stages, in the epidemiology of Diseases Control Campaigns such as Malaria, Leprosy, VD, BCG/TB.

Concurrently with the policy support of Government, especially Burma Medical Research Council, the efforts of Dr. U Mya Tu, as Director of B.M.R.I came to fruition. Staff of the Institute – Professionals, Technicians and Administrators with support staff, increased by leaps and bounds. New Departments, Laboratories are established; Furnitures, equipments instruments, chemicals, reagents and drugs poured in. The new Departments, notably Instrumentation Department, Library, Publications Division and Animal house, were improved or newly established. When HBI handed over to B.M.R.I, the library, complete with library furnitures and bounded copies of old official Reports and Records with Books and journals had been included. As B.M.R.I, new books, journals and periodicals were added later on. Getting international recognition, external assistance began to be received, particularly from Japanese Universities, WHO, USA, through T.C.A or P.L 480 funds. Buildings were attended to – rebuilt or repaired to meet the needs and plans were being made for new constructions.

In collaboration with Departments under Ministry of Health, Institute of Medicine, Defense Services Medical Department and with continued support of Burma Medical Research Council, B.M.R.I regularly organize Technical meetings, Research Symposium. Since 1964 Research Grants to support individual Research projects were given. In the year 1965, Research Policy Direction Board with 12 Scientific Divisions was established under the office of Prime Minister. Medical Science Division was secretaried by Dr. Mya Tu in the capacity of Director B.M.R.I. The First National Research Congress was organised in 1965 itself, opened by the Chairman of the Revolutionary Council: Medical Science Section of the Research Congress was organised by B.M.R.I

Once may conclude that, having started auspiciously on 10 June 1963, B.M.R.I is progressing steadfastly and satisfactorily by 1965.

The year 1965 is a very busy year for us at the Directorate of Health Services under the Ministry of Health. The El tor Cholera out-break which began in 1963, though reduced in intensity, was still ravaging the country; Small pox Eradication Programme which started with Pilot Trials in 1963, was launched in 1964 and in 1965 the Programme is in the 2nd year of the First Round of Three year cycle. The General Reorganisation of the Directorate of Health Services was approved in 1964 and took effect in 1965. This is a major Reorganisation of the Directorate, which was decentralized to Township Level and Assistant Directors created in 6 Divisions, including Yangon Division. The D.H.S (there is no DGHS as yet) will now have four Deputies, including the newly created Deputy Director – the Deputy Director (Disease Control), who controls 4 Assistant Directors (Epidemics, Malaria, Leprosy and Tb); Deputy Director (DC) is also operationally in charge of many Disease Control Teams, the most prominent being Central Epidemiology Unit (CEU) and Trachoma Control Project (TCP). In 1964, I was promoted from Assistant Director (Epid) to Deputy Director (PH) and in 1965, when the Reorganisation Plan was being implemented, again laterally transferred from DD (PH) as Deputy Director (DC). Since 1962 I have been involved in the preparations to open a new Medical Institute – IM2 in 1963; I then became Part Time Professor of Preventive and Social Medicine in 1964- 1965. I was also organising short term Training Courses for Township Officers and Civil Surgeon designates by batches. Since

1963 I had been planning along with Dr. U Ba Tun, for the establishment of Phaungyi Institute of Public Services Training and by 1965, the Institute was already in operation.







With these heavy commitments in the Directorate of Health Services, I gradually gave up the administrative role with Epidemiology and Statistics Division of BMRI. However, I maintained close working relationship with the B.M.R.I, professionally active with collaborations and technical activities in the field of Research. I attended as a DHS officer scientific meetings, consultations conferences and submitted research project proposals, read scientific papers, as required, at B.M.R.I.

My close relationship with B.M.R.I was further strengthened on account of my long personal friendship with Dr. U Mya Tu and joint collaboration scientific work. I continued giving professional advice as necessary and explored ways and means of promoting support – organizational, technical and financial, to B.M.R.I. These efforts continued after myself joining WHO/SEARO in December 1969, and was intensified, when I became DHS/DPM and later Regional Director of WHO/SEARO.




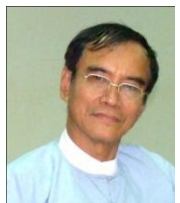

These aspects however are beyond the scope of the present paper. I hope to have other opportunities in the future to elaborate these episodes, events and developments at some appropriate occasion.

Board of Directors through 50 years







Directors General

1.		Name Degree Year Areas of research interest	Professor Mya Tu M.B.,B.S.(Rgn), Ph.D.(Edin) 1963-1974,1974-1977 Cardiac electrophysiology, Indigenous medicinal plants, Population genetics
2.		Name Degree Year Areas of research interest	Professor Aung Than BaTu M.B.,B.S.(Rgn), M.R.C.P(Edin),F.R.C.P.(Edin) 1977-1987 Nutritional anaemia, Iron-absorption and iron metabolism, Haemoglobinopathies, Clinical research methodology, Health Systems Research
3.		Name Degree Year Areas of research interest	Dr. Khin Maung Tin M.B.,B.S.(Rgn), D.T.M. &H.(Lond), F.R.C.P.(Edin) 1987-1989 Hepatology
4.		Name Degree Year Areas of research interest	Professor May May Yi M.B.,B.S.(Rgn), B.Sc. Special (London), M.Sc.(Mdy) 1989-1991 Physiological parameters of national selected athletes
5.		Name Degree Year Areas of research interest	Professor Myint Lwin M.B.,B.S.(Rgn), M.R.C.P., F.R.C.P.(Edin) 1991-1995 Snake bite, Tropical diseases
6.		Name Degree Year Areas of research interest	Dr. Than Swe M.B.,B.S.(Rgn), D.Bact., D.S., F.R.C.P.(Edin) 1995-1999 Health Systems Development, HIV/AIDS, Rabies



Golden Jubilee Commemorative Volume (1963-2013)

7.		Name Degree Year Areas of research interest	Professor Paing Soe M.B.,B.S.(Ygn), M.Med.Sc.(Internal Medicine)(Mdy), M.R.C.P.(U.K.), F.R.C.P.(Edin) 1999-2006 Renal medicine, Renal transplant, Traditional medicine
8.		Name Degree Year Areas of research interest	Dr. Kyaw Min M.B.,B.S.(Ygn), D.A.C.(Ygn) 2006-2007 Computer-information technology, Management
9.		Name Degree Year Areas of research interest	Dr. Khin Pyone Kyi M.B.,B.S.(Ygn), D.Bact.(Ygn), M.Med.Sc.(Microbiology)(Ygn), Ph.D.(Microbiology)(Ygn) 2007-2010 Hepatitis viruses and immunological techniques, Hepatitis B vaccine production
10.		Name Degree Year Areas of research interest	Dr. Myo Khin M.B.,B.S.(Ygn), D.C.H.(Ygn), M.D.(New South Wales); F.R.C.P.(Edin) 2010-2013 Gut function studies, Hepatitis virus infections
11.		Name Degree Year Areas of research interest	Dr. Kyaw Zin Thant H.G.P., M.B.,B.S.(Ygn), D.T.M., Ph.D.(Japan), F.A.C.T.M.(Australia), Dip. in R&D, F.R.C.P.(Edin) March 2013 to date Molecular Virology and Molecular Epidemiology




Deputy Directors General








12.		Name Degree Year Areas of research interest	Professor Pe Than Myint M.B.,B.S.(Rgn), D.T.M. &H.(Lond), M.R.C.P.(Edin), F.R.C.P.(Edin) 1981-1989 Malaria
13.		Name Degree Year Areas of research interest	Dr. Hla Tun M.B.,B.S.(Rgn), D.T.M. &H.(Eng) 1989-1992 Cardiology
14.		Name Degree Year Areas of research interest	Dr. Myo Thein M.B.,B.S.(Rgn), D.N.(Toronto), M.Sc.(Toronto) 1992-1993 Growth and development
15.		Name Degree Year Areas of research interest	Dr. Thein Hlaing M.B.,B.S.(Rgn), D.P.&T.M.(Rgn) 1995-1998 Reproductive health, Ascariasis, Cancer
16.		Name Degree Year Areas of research interest	Dr. Myint Lwin M.B.,B.S.(Rgn), M.Sc. (Medical Parasitology)(Lond), M.Sc.(Applied Immunology)(Lond), Ph.D.(Lond), F.R.C.P.(Edin) 1997-1999 Malaria immunochemotherapy, Parasitic diseases
17.		Name Degree Year Areas of research interest	Dr. Soe Thein M.B.,B.S.(Ygn), D.Bact.(Ygn), M.Med.Sc.(Microbiology)(Ygn), Ph.D.(Australia), F.R.C.P.(Edin) 1999-2007 Virology (Arboviruses)

Golden Jubilee Commemorative Volume (1963-2013)

18.		Name Degree Year Areas of research interest	Dr. Ye Htut M.B.,B.S.(Ygn), M.Sc.(Medical Parasitology)(Lond), D.L.S.T.M.H., F.R.C.P.(Edin) 2009-2013 Malaria, Parasitic diseases
19.		Name Degree Year Areas of research interest	Dr. Ye Tint Lwin M.B.,B.S.(Ygn), .Med.Sc.(Physiology)(Ygn) 2013 to date Exercise and sports physiology, Growth and development, Energy metabolism

Directors

20.		Name Degree Year Areas of research interest	Dr. Kywe Thein M.B.,B.S.(Rgn), D.N.(Cal), M.R.C.P.(Edin) 1981-1988 Growth and development, Nutrition
21.		Name Degree Year Areas of research interest	U Hla Pe B.Sc.(Rgn), M.Sc.(Botany) 1990-1995 Biochemistry
22.		Name Degree Year Areas of research interest	Dr. Thein Toe M.B.,B.S.(Rgn), D.N.(Lond), Ph.D.(Lond) 1982 -1989 Haematology, Nutrition






23.		Name Degree Year Areas of research interest	Dr. Mi Mi Khin M.B.,B.S.(Rgn), D.Bact.(Manchester) 1981-1988 Viral diseases (mainly arboviruses)
24		Name Degree Year Areas of research interest	Dr. Tin Aye M.B.,B.S.(Rgn), D.Bact.(Manchester) 1995 Diarrhoeal diseases, Molecular genetics
25		Name Degree Year Areas of research interest	Dr. Saw Johnson Tha M.B.,B.S.(Rgn), M.Sc.(Manchester), Ph.D.(Manchester) 1989-1990 Traditional research (medicinal plants)
26.		Name Degree Year Areas of research interest	Dr. Thein Maung Myint M.B.,B.S.(Mdy), D.P.&T.M.(Rgn), M.Comm.H.(Liverpool) 1981-1989 Evaluation of health impact of tubewell water supply in dry zone rural communities
27.		Name Degree Year Areas of research interest	U Hla Myint B.A 1992-1998 General administration
28.		Name Degree Year Areas of research interest	Dr. Tun Pe M.B.,B.S.(Rgn), D.C.P.(Lond), Ph.D.(Lond), F.R.C.P.(Edin) 1996- 2004 Snake bite and immunology
29.		Name Degree Year Areas of research interest	Dr. Aye Kyaw B.Sc.(Hon.)(Ygn), M.Sc.(Guelph), Ph.D.(Pacific Western) 1997-2004 Mass scale hepatitis B vaccine production

Golden Jubilee Commemorative Volume (1963-2013)

30.		Name Degree Year Areas of research interest	Dr. Tin Nu Swe M.B.,B.S.(Ygn), M.Med.Sc.(Internal Medicine)(Mdy), M.D.(Sydney) 1998-2003 Snake bite, Viral hepatitis
31.		Name Degree Year Areas of research interest	Professor Myint Oo B.Sc.(Ygn), Dip.Stats.(Ygn), M.Sc.(Ygn), Ph.D.(Australia) 1998-2000 Malaria, Trichomoniasis, Indigenous medicine, Biomedical engineering
32.		Name Degree Year Areas of research interest	Dr. Khin Myat Tun M.B.,B.S.(Ygn), D.C.H.(Ygn.), Ph.D.(Australia) 2004-2009 Diarrhoeal diseases, Acute respiratory infections, Gastroenterology
33.		Name Degree Year Areas of research interest	Dr. Willoughby Tun Lin M.B.,B.S., D.P.&T.M.(Ygn), M.Sc.(Medical Parasitology)(Lond), Ph.D.(Australia) 2004-2007 Vector-borne diseases prevention and control, Dengue haemorrhagic fever, Malaria
34.		Name Degree Year Areas of research interest	Dr. Than Tun Sein M.B.,B.S.(Ygn), D.P.&T.M.(Ygn), M.P.H.(Amsterdam) Dip.Epidem.(Songkhla Univ.), Certificate in Management(Manchester), F.A.C.T.M.(Australia), Ph.D.(U.S.A.) 2004-2009 Health Systems Research
35.		Name Degree Year Areas of research interest	Dr. Kyaw Moe M.B., B.S.(Ygn), D.Path.(Ygn), M.Sc.(Medical Microbiology)(Birmingham) 2004-2009 Rotaviruses, Bioethics

36.		Name Degree Year Areas of research interest	Dr. Thaw Zin M.B.,B.S.(Ygn), M.Med.Sc.(Pharmacology)(Ygn), Ph.D.(New South Wales), F.A.C.T.M.(Australia) 2007-2011 Clinical pharmacology, Health Systems Research, Traditional medicine
37.		Name Degree Year Areas of research interest	Dr. Khin Nwe Oo M.B.,B.S.(Ygn), D.Bact.(Ygn), M.Med.Sc.(Microbiology)(Ygn), Ph.D.(Microbiology)(Ygn) 2007-2011 Environmental microbiology, Leprosy
38.		Name Degree Year Areas of research interest	Dr. San Shwe M.B.,B.S.(Ygn), M.Med.Sc.(Public Health) 2009-2012 Elderly research, women's development, Social studies in leprosy
39.		Name Degree Year Areas of research interest	Dr. Khin May Oo M.B.,B.S.(Ygn), D.Bact.(Ygn), M.Med.Sc.(Microbiology)(Ygn), Ph.D.(Microbiology)(Ygn) 2009-2012 Hepatitis viruses, Quality control of hepatitis B vaccine
40.		Name Degree Year Areas of research interest	Dr. Win Aung M.B.,B.S.(Ygn), M.Med.Sc.(Biochemistry)(Ygn), F.A.C.T.M.(Australia) 2010 to date Snake venom, Anti-venom, Venoid research, Vaccine research and development
41.		Name Degree Year Areas of research interest	Dr. Hlaing Myat Thu M.B.,B.S.(Ygn), M.Med.Sc.(Microbiology)(Ygn), M.A.C.T.M.(Australia), Ph.D.(Molecular Virology)(Australia) 2010 to date Genetic diversity of arboviruses (mainly dengue) and rotaviruses

Golden Jubilee Commemorative Volume (1963-2013)

42.		Name Degree Year Areas of research interest	Dr. Myat Phone Kyaw M.B.,B.S.(Mdy), M.Med.Sc.(Biochemistry)(Mdy), Ph.D.(Malariology)(Siri Lanka), F.A.C.T.M. (Australia) 2010 to date Severe and complicated malaria, Clinical and biochemistry of malaria
43.		Name Degree Year Areas of research interest	Dr. Khin Saw Aye M.B.,B.S.(Ygn), M.Med.Sc.(Pathology)(Ygn), Ph.D.(Pathology)(Ygn) 2012 to date Immunology and molecular studies on malaria, leprosy, tuberculosis, dengue and cancers
44.		Name Degree Year Areas of research interest	Dr. Khin Thet Wai M.B.,B.S.(Ygn), M.Med.Sc.(Public Health) 2012 to date Public health and social dimensions of dengue, diarrhoea, ARI and malaria
45.		Name Degree Year Areas of research interest	Dr. Theingi Thwin M.B.,B.S.(Ygn), D.F.T.(Ygn),M.Med.Sc.(Biochemistry)(Ygn), Ph.D.(Biochemistry)(Ygn) January 2013 to date Maternal and child nutrition, Food chemistry
46.		Name Degree Year Areas of research interest	Dr. Zaw Myint M.B.,B.S.(Ygn), Ph.D.(Japan) 2013 to date Gene cloning and regulation of gene expression

Board of Directors



Left to Right :

Dr. Zaw Myint, Dr. Win Aung, Dr. Ye Tint Lwin, Dr. Kyaw Zin Thant (Director General),
Dr. Hlaing Myat Thu, Dr. Khin Saw Aye, Dr. Khin Thet Wai, Dr. Theingi Thwin,
Dr. Myat Phone Kyaw

**The Academic Committee
Department of Medical Research (Lower Myanmar)**

With the objective to achieve a healthier nation through implementing activities in medical research, the Academic Committee was formed in 1993. The committee was formed with the following personnel-

1. Director (Research)	...	...	Chairman
2. Director (Research)	...	...	Member
3. Heads of Research Divisions	...	...	Members
4. Head of Division (Library)	...	...	Member
5. Head of Division (Computer Division)	...	...	Member
6. Research Scientist-	...	...	Secretary

From 2012 to date-

1. Deputy Director General	...	...	Chairman
2. Director (Research)	...	...	Co- chairman
3. Board of Directors	...	...	Members
4. Deputy Director (Research)	...	...	Secretary
5. Research Scientist	...	...	Joint- Secretary

The Functions of the Committee are –

1. To promote knowledge regarding health research amongst scientists and health professionals.
2. To strengthen research capacity of scientists and health professionals for success in producing high quality research and collaboration.
3. To support the activities of the Scientific Working Groups and convey the innovative ideas of the Scientific Working Groups to the Director General as the need arises.

SCIENTIFIC GROUPS

1. Scientific Group on Malaria Research
2. Scientific Group on Traditional Medicine Research
3. Scientific Group on Snakebite Research
4. Scientific Group on HIV/AIDS and Sexually Transmitted Diseases Research
5. Scientific Group on Liver and Gastroenterology Research
6. Scientific Group on Growth and Nutrition Research
7. Scientific Group on Arboviral Diseases Research
8. Scientific Group on Nuclear Medicine Research
9. Scientific Group on Health and Social Medical Research
10. Scientific Group on Tuberculosis and Respiratory Diseases Research
11. Scientific Group on Poison Research
12. Scientific Group on Blood Research
13. Scientific Group on Information Technology

The Functions of the Scientific Working Groups are –

1. To enhance the knowledge of researchers in various fields of expertise.
2. To develop ideas and research projects which are thought to be of maximum benefit to the various fields of expertise and the chairman of the academic committee to advise the Director General on these research projects.
3. To call regular scientific working group meetings at least 3 times a year.
4. To submit the reports from the Scientific Working Groups through the chairman of the Academic Committee to the Director General at least once a year or whenever necessary.

Other academic activities in our department include-

- (1) Holding Scientific Talks with international scientists visiting our department as speakers.
- (2) Holding Scientific Group Meetings and Scientific Workshops with local and international speakers.
- (3) Holding Scientific talks when personnel from the department have returned from international training from overseas to share their experiences with other scientists in the department.
- (4) Holding Research Methodology Workshops and inviting participants from inside as well as outside of the department from other Research Departments, Department of Health, Universities of Medicine, Defense Services Military Academy and staff from various Hospitals.

**Achievements of Ethical Review Committee (ERC)
Department of Medical Research (Lower Myanmar) DMR (LM)**

The Institutional Ethical Review Committee for Biomedical Research involving human subjects was established and picked up its high momentum starting from the 1980s. At first, the Department of Medical Research (Lower Myanmar) Ethical Review Committee (DMR ERC) was the only ERC under the Ministry of Health and the reviews by the committee were done on an ad-hoc basis and were limited only to the protocols from departments under the Ministry of Health. Since 1992, the ERC has extended its reviews not only on research proposals submitted by the local, but as well as international NGOs. In 2003, in order to enable the ERC to make efficient decisions, the ethical guidelines and standardized formats were laid down for submission of proposals in accordance with those of Council for International Organizations of Medical Sciences (CIOMS). DMR scientists also serve as ERC members in medical universities for postgraduate research and conduct seminars and talks on research ethics as an effort for capacity building in this field. DMR (ERC) has reviewed 182 proposals in 2010-2012 and they include proposals submitted by scientists from DMR as well as researchers from Department of Health, UN agencies and NGOs.

Reform of ERC composition took place in 2012 with an independent chairman leading the committee with the Director General, Deputy Director General, one technical Director, external members and community representatives or lay persons as members. The ERC of DMR (LM) has become internationally recognized on attaining the Federal Wide Assurance (FWA 00018816) registration in 2012. This Assurance applies whenever the Institution becomes engaged in research on human subjects conducted or supported by any U.S. federal department or agency that has adopted the U.S. Federal Policy for the Protection of Human Subjects. The Director General of the Department of Medical Research (Lower Myanmar) acts as the secretary of the National Ethical Committee on Clinical Research (formed on 21st April, 1994) in assessing research issues which need wider and deeper scope of scientific and policy reviews. On 2nd Nov 2004, a Nation level ERC was reformed as “National Ethics Committee on Medical Research” (အမျိုးသားဆေးသုတေသန စမ်းသပ်မှုဆိုင်ရာ ကျင့်ဝတ်ကော်မတီ). It was chaired by the Deputy Minister for Health and members were Directors General from departments under MOH, Director from Attorney General office, Director from National Archives Department, one representative from Myanmar Women’s Federation, Ethical, Director (research) from Veteran department, director from FDA, one woman outsider, 6 professors from various clinical disciplines, one representative from military research and Director (Research) from DMR (LM) acted as the secretary. With advancing science and increasing complexity of nature of research, more in-depth scrutiny is being made in areas like, safe guarding of not only the subjects but also of the community by judging risk-benefit ratio, importance of consent and accent forms and also the impact and applicability of research on health care policy.



Left to Right :

First Row Dr. Myo Khin(Co-chairman), Dr. Khin Aye Win, Dr. Myint Htwe(Chairman),
Dr. Tun Pe, Dr. Ye Htut

Second Row Dr. Yin Thet Nu Oo(Secretary), Dr. Hlaing Myat Thu, Dr. San Shwe, U Aung
Myo Min, Dr. Hla Hla Than, Daw Khin Lei Win

Clinical Research Units **Department of Medical Research (Lower Myanmar)**

At present, the Department of Medical Research (Lower Myanmar) is comprised of 25 Research Divisions, 10 Supporting Divisions and 12 Clinical Research Units which are affiliated to the medical universities and hospitals. The major functions of DMR (Lower Myanmar) are (i) development of research proposals and implementation of research activities, (ii) conduct of research activities on traditional medicine with emphasis on herbal drugs (iii) implementation of research activities based on modern advanced technology for the diagnosis, management, prevention and control of health problems in Myanmar (iv) implementation of research activities on toxic agents (chemical, biological, pharmacological, radiation) for control of health hazards, (vi) conduct of research activities on health problems which need further elucidation and (vii) strengthening of research capability.

Clinical Research Units were established with the aim of motivating health personnel and medical professionals under various health departments under the Ministry of Health, such as the Department of Medical Science, Department of Health and Department of Traditional Medicine, to participate in research activities and for promoting collaborative research activities within various health departments in finding out the solutions for major health problems. In view of enhancing efficiency and effectiveness of international, local health research activities, the DMR (Lower Myanmar) has initiated for the implementation of Clinical Research Units since 1983.

Clinical Research Units for Snake bite, Cerebral and complicated malaria and Traditional Medicine were established in early 1984. By late 1984, two Clinical Research Units for malaria which were affiliated to the Defense Services General Hospital and the No.2 Military Hospital and a Clinical Research Unit for HIV/ AIDS were launched. From 2001 to date, five additional Clinical Research Units were established. The Clinical Research Unit affiliated to the Institute of Medicine 2, Mingaladon, was established in 2001, followed by the Clinical Research Units for Oncology in 2002, for Toxicology in 2004, for Haematology in 2005 and for Oral Cancer in 2010 respectively, making the total number of Clinical Research Units to eleven. In February 2013, a new unit for Intellectual Property Rights has been established at the Department of Medical Research (Lower Myanmar).

Medical Research Conferences in Myanmar: Historical Perspectives and Way Forward

In Myanmar, before the Second World War and during the pre-independence era, most of the medical practitioners had shown limited interest in the field of medical research. In 1957, Teaching Faculty at the Medical Academy from Yangon University formed the organization, namely 'Burma Medical Research Society' to lead the research activities. Due to limited funding, research grants were insufficient. In 1962, just after the era of Revolutionary Council Governance, 'Burma Medical Council Act' was promulgated and Burma Medical Research Institute (BMRI) was established in June, 1963 at the building previously known as Sir Harcourt Burtler Institute. By then, full blown medical research activities commenced.

First Myanmar Medical Research Conference

Two years after the dedicated efforts of research activities, Research Conference was initiated in 21 February, 1965, that included paper reading sessions of research findings. Twelve research papers were read in that particular conference. After 1965, research papers were read annually. From 23 to 26 October, 1968, Second Medical Research Conference was held at BMRI during which 6 reports and 5 syndicate reports were presented and discussed. At 1966, the Revolutionary Council formed the 'Research Policy Guidance Committee'. Members were (1) U Thi Han (2) Brigadier General Thaung Tin (3) Brigadier General Sein Win (4) Colonel Thaung Kyi (5) Colonel Maung Shwe (6) Colonel Than Sein and (7) Colonel Hla Han. Under the guidance of this central committee, 'Research Project Development and Coordination Committee' with 35 members was organized. There were 11 scientific research groups under the leadership of that particular committee.

1. Agricultural science research group
2. Forestry science research group
3. Medical sciences research group
4. Engineering sciences research group
5. Technology research group
6. Mathematics and Physics research group
7. Chemistry research group
8. Geological sciences research group
9. Biological sciences research group
10. Social science research group
11. Linguistic and cultural research group

In Medical Sciences Research Group, there were (15) members and was chaired by Dr. U Pe Kyin, Director of Department of Health. Dr. Mya Tu, Director of BMRI acted as a secretary. In 21 March, 1966, 51 papers were presented at the Medical Research Paper reading session being held at the Arts Hall (Judson Hall), Yangon University. From 1966 to 1974, Medical Conferences were held according to the following table:

Date	Venue	Research papers read
21-3-66 to 26-3-66	Arts Hall, Yangon University	51
19-3-67 to 23-3-67	Arts Hall, Yangon University	31
18-3-68 to 22-3-68	Arts Hall, Yangon University	46
17-3-69 to 22-3-69	Arts Hall, Yangon University	42
7-4-70 to 11-4-70	Arts Hall, Yangon University	40
6-4-71 to 10-4-71	Arts Hall, Yangon University	43
27-12-72 to 31-12-72	Arts Hall, Yangon University	54
27-12-73 to 31-12-73	Arts Hall, Yangon University	43
27-12-74 to 31-12-74	Arts Hall, Yangon University	47

Till 1974, research paper reading sessions were continuously held but terminated due to many reasons. Later, separate research conferences were arranged by the corresponding ministries. BMRI reconvened research paper reading sessions for Medical Sciences in December, 1979 under the aegis of Research Policy Guidance Committee. The duration of the conference covered 3 days, starting from 27 December to 29 December and altogether 40 papers were presented. After that, there were no research conferences due to various reasons and then commenced again on 1982, being arranged by the Research Policy Guidance Committee. The venue was at the Department of Medical Research. Altogether 44 papers were presented at the conference (2 September to 23 September). After two years gap, the conference was reconvened again from 1985-1987 at Department of Medical Research under the aegis of Research Policy Guidance Committee.

Date	Venue	Research papers read
31-12-85 to 3-1-86	Department of Medical Research	56
30-12-86 to 2-1-87	Department of Medical Research	55
28-12-87 to 31-12-87	Department of Medical Research	53

Even though the year 1988 coincided with the silver jubilee of Department of Medical Research, there were no commemorative activities. However, paper reading session was held in a condensed form under the aegis of Ministry of Health at the Department of Medical Research.

Date	Venue	Research papers	Research posters
28-12-88 to 30-12-88	DMR	31	-
19-12-89 to 22-12-89	DMR	63	-
18-12-90 to 21-12-90	DMR	62	-
17-12-91 to 20-12-91	DMR	63	-
14-12-92 to 18-12-92	DMR	76	-
20-12-93 to 24-12-93	DMR	77	-
12-12-94 to 19-12-94	DMR	79	14
-12-95 to - 12 - 95	DMR	80	16
19-12-96 to 23-12-96	DMR	81	16
22-12-97 to 26-12-97	DMR	78	18
19-12-98 to 23-12-98	DMR	83	17
9-1-2000 to 13-1-2000	DMR-LM	77	17
8-12-01 to 12-12-01	DMR-LM	71	16
7-11-02 to 11-11-02	DMR-LM	62	12
27-1-03 to 31-1-03	DMR-LM	71	16
3-2-04 to 7-2-04	DMR-LM	80	17
14-1-05 to 18-1-05	DMR-LM	70	13
9-1-06 to 13-1-06	DMR-LM	70	12
8-1-07 to 12-1-07	DMR-LM	85	15
7-1-08 to 11-1-08	DMR-LM	79	15
5-1-09 to 9-1-09	DMR-LM	79	16
25-1-10 to 29-1-10	DMR-LM	92	20
10-1-11 to 14-1-11	DMR-LM	94	20
9-1-12 to 13-1-12	DMR-LM	73	24
7-1-13 to 11-1-13	DMR-LM	88	26

Starting from 1988, annual research conferences were held consecutively. From then on and to date, Ministry of Health annually organizes the Myanmar Health Research Congress (MHRC). A total of 2,425 research papers and 320 research posters were presented between 1988 and 2013. It has to be acknowledged as an important mile stone for competent researchers all over the country reflecting the technical capacity of participating institutes. The MHRC provides the remarkable opportunity for diversity of health and health-related disciplines. This is either in the form of trans-disciplinary collaborative research or of an in-depth exploration for evidence-based findings in a single discipline. The scientists could freely exchange their comprehensive views, opinions, experiences and challenges in conducting research through the platform of the MHRC in scientific paper reading sessions and the academic symposia which has been added since the year 2005. The congress held in early 2013 has been designated as 41st MHRC.

Poster presentations at MHRC also shed light on the avenues of basic, applied and health systems research and reflect the capacity of participating institutes. Best papers and best posters on basic, applied, and health systems research have been selected and awarded annually since 1994. Starting from the year 2011, the MHRC has introduced awards in basic, applied and health systems research specifically for young researchers. Researchers' efforts and perseverance in presenting their works of high scientific integrity that follow sound ethical principles are to be proud of and acknowledged especially when translation of knowledge into action is achieved successfully. The MHRC elucidates recent advances in technology, new knowledge and skills, new research questions, and new funding opportunities with way forward to formulation of new policy guidelines or modification of the existing ones required to cover the spectrum of prevention, diagnosis, management and rehabilitation.

Publications of DMR

Publications of Department of Medical Research (Lower Myanmar)

The Department of Medical Research (Lower Myanmar) was established as the Burma Medical Research institute (BMRI), previously occupied by the Harcourt Butler Institute of Public Health at No.5 Zafar Shah Road (now called Ziwaka Road) Yangon in June 1963. Over the 50 years, there have been several series of DMR (LM) publications, namely Annual Report, Special Report Series, Union of Burma Journal of Life sciences, Myanmar Health Sciences Research Journal, DMR (LM) Bulletin, Technical handbook, Pictorial handbook, DMR Newsletter, Lecture Guide on Research Methodology, DMR (LM) Electronic Newsletter, Golden Jubilee Publications and other Special Publications.

Annual Report

The first Report of the Burma Medical Research Council which covered the period of June 1963-December 1964 was published at the end of 1964. Starting from it, a total of 9 issues were published up to 1972. This series stopped until 1988 and since 1989, the current type of Annual Report has been published until now.

Also, "Department of Medical Research Report, 1982-1992" which covered the activities of DMR for 10 years was also published.

Special Report Series

In order to disseminate health information on research endeavor reflected the impact of development and activities in Medical and health research elsewhere in Myanmar, Special Report Series were published starting in 1966. They were as follows:

1. The Tarons in Burma (1966)
2. အာဟာရ (၁၉၆၇)
3. Handbook of Biological Data on Burma. (1967)
4. Burmese Indigenous Medicinal Plants. (1967)
5. Physical Fitness of the Burmese. (1968)
6. Intestinal Helminthic Infections in Burma (1968)
7. Burma Medical Research Council, 1962-1970. (1972)
8. Burmese Indigenous Medicinal Plants (1977)
9. Who's Who in Medicine in Burma (1973)
10. *Ascaris lumbricoides* infection in Burma (1986)
11. Physical Fitness and physical Working Capacity of Myanmar (1993)
12. Research findings applicable to health (1984)
13. Research findings applicable to health (1985-1992)
14. Research findings applicable to health (1992-1995)

Union of Burma Journal of Life sciences

The Union of Burma Journal of Life Sciences (from Vol. 1, No.1 to Vol. 6, No. 1) was published from January 1968 to 1973. It was a collection of research papers presented at Biomedical Research Conferences which were held at the Yangon University. In Myanmar version, ပြည်ထောင်စုမြန်မာနိုင်ငံသက်ရှိသိပ္ပံဂျာနယ် was also published as Vol. 1, No. 1 in March 1968, but it stopped after publishing Vol. 2, No. 2 in July 1969. Both journals were divided into 3 parts: Agriculture, Medicine and Forestry.

Myanmar Health Sciences Research Journal

Starting in April 1989, Myanmar (named as Burma in Vol.1, No.1 and 2 only) Health Sciences Research Journal which covers original articles, review articles, short reports and correspondences in the field of biomedical and health sciences has been regularly published every 4 months at the Department of Medical Research (Lower Myanmar). This journal has now reached Vol. 25, No.1 and a total of 653 research manuscripts were published with various research disciplines within 23 years.

DMR (LM) Bulletin

The Bulletin in booklet form was published quarterly a year in 500 copies from 1986 to 2004. Due to the shortage of review articles, the Editorial Committee halted the publications temporarily from November, 2004 to August, 2006. Since September 2006, DMR (LM) Bulletin (monthly) in a new format has been published regularly up to now.

Technical handbook

To become skillful Laboratory technicians and perform competently at laboratories, a wide variety of handbooks have been published in DMR (LM). They are:

1. Laboratory Handbook
2. DMR laboratory Safety Manual
3. DMR Manual for Safe Handling of Radioisotopes, 1986
4. A Guidebook on Research Grant Application and Research Protocol Writing, 1989
5. Guide to Writing of Scientific Paper in English, 1992
6. In-service Course on Basic Research Methodology, 1992
7. DMR-CBL Newsletter
8. Current Awareness

Pictorial handbook

For the taste of brief information about research activities, buildings, facilities of various divisions, pictorial handbooks of DMR (LM) were published. They were Burma Medical Research Council Pictorial 1963-1968, Department of Medical Research Pictorial, 1980 and Department of Medical Research Pictorial, 1982 which was printed by Mr. Hamashima in Japan. As one of the marks of Golden Jubilee Anniversary, the latest issue of its kind is ready to be circulated at the moment.

DMR Newsletter

A total of 23 DMR Newsletter (monthly) was published over a 2-year period (January 1974-November 1975).

Lecture Guide on Research Methodology

“Lecture Guide on Research Methodology” was first published in July 1997 and used at Research Methodology workshops conducted by the Scientific Working Group of the Department of Medical Research (Lower Myanmar). This booklet has been revised to be updated and published repeatedly up to 7th edition in 2010.

DMR (LM) Electronic Newsletter

DMR (LM) Electronic Newsletter is circulated to in-service and retired staff of the DMR (LM) in order to provide academic as well as social activities of DMR (LM) through Online starting from June, 2011 as the first issue, Vol. 1, No.1. The Editorial Committee of the E newsletter organized to email 3 times a year- (February, June & October) according to 3 seasons of Myanmar.

Golden Jubilee Publications

A variety of informative books were published as Golden Jubilee Publications so as to mark the 50th Anniversary of DMR (LM). They are as follows:

1. Profile of Pesticides Registered in Myanmar (2012)
2. Index of Research Papers Presented at Health Research Congresses (1965-2011).
3. Bibliography of Research Findings on Gastrointestinal Diseases in Myanmar
4. Annotated Bibliography of Traditional Medicine Research carried out at DMR (LM) during 1965-2011.
5. Research for Rural Health Development conducted by Department of Medical Research (Lower Myanmar)
6. Dimensions of Malaria Research: A Collection of Abstracts (2001-2011)
7. Annotated Bibliography of Research Findings on Millennium Development Goals 4 and 5
8. Annotated Bibliography of Research Findings on Viral Hepatitis
9. Further Development of Medical Research in Myanmar (1987-2011)

Other Special Publications

- Handbook of Botanical and Physiochemical characterization of Myanmar Traditional Medicine Formulations. (1989)
- Myanmar Traditional Medicine Formulary (1989)
- Catalogue of Crude Drug Museum. (1989)
- Pharmacognosy of plant Ingredients of Myanmar Traditional Medicine Formulations. (1989)
- Pharmacological and Toxicological Evaluation of Myanmar Traditional Medicine Formulation. (1989)
- Standardization Pharmacological and Toxicological Evaluation of Traditional Drugs and Herbal Medicine in Myanmar. (1989) (Book & CD)

- တိုင်းရင်းဆေးနှင့် ပတ်သက်၍ မဟာသိပ္ပံဘွဲ့များအတွက် တင်သွင်းခဲ့သော ကျမ်းကြီးများ၏ စာတမ်းအကျဉ်း(၁၉၇၄-၁၉၉၆)၊ ၁၉၉၇။
- ဆေးသုတေသနဦးစီးဌာနမှ သုတေသနပြုမှတ်တမ်းတင်သော တိုင်းရင်းဆေးဖုံများ၊ ၁၉၉၈။
- ကျန်းမာရေးနှင့် မြန်မာ့ဆေး၊ ၁၉၉၉။
- Translation and Compilation of Health in Myanmar (in CD)
- Handbook of the Biomedical Norms of Myanmar (2003)
- Guidelines on Poison Prevention, Control and Management (2003)
- Malaria Research Findings Reference Book, Myanmar (1990-2000)
- Guideline for Submission of Application to Ethical Review Committee, Department of Medical Research (Lower Myanmar) October, 2006. (in CD)
- Dengue Research Findings Reference Book, Myanmar (1980-2002)
- Annotated Bibliography of Research Findings on HIV/AIDS in Myanmar (2008)
- Annotated Bibliography of Research Findings on Tuberculosis in Myanmar (2008)
- A Guide to Management of Snakebite by Snakebite Research Group, DMR (Lower Myanmar)□□
- Lecture Notes on Participatory Research methods, 3rd edition (2009)
- Evidence for Health Systems Strengthening: a decade-work (2000-2009), 2012
- အားကစားသမားများအတွက် အာဟာရလမ်းညွှန်(၂၀၁၂)
- Compilation of Bibliography of Traditional Medicine Research in Department of Medical Research (Lower Myanmar).(In press 2013)

From the very earlier years up to the Golden Jubilee Anniversary, Department of Medical Research (Lower Myanmar) has published extensively a variety of books on all aspects of social, biomedical knowledge and updated scientific information resulting from a variety of research findings to health personnel with the aims of ensuring better and appropriate healthcare management and enhancing nation-wide health development in Myanmar.

(Ref. အောင်မြင့်(စာစောင်)၊ ဆေးသုတေသနမှ ထုတ်ဝေခဲ့သော စာတမ်းများ၊
၃၅နှစ်မြောက် ဆေးသုတေသနဦးစီးဌာန အထူးထုတ်စာစောင်

Research Divisions and Supporting Divisions of DMR(LM)□

BACTERIOLOGY RESEARCH DIVISION

1. Historical Background

Bacteriology Research Division was established in 1963. The first appointed Head of the Bacteriology Research Division was Dr. Margaret Tu. Former staff structure in 1963 was four staff consisting of; one consultant/Head of Division, one research officer, one technician Grade II and one technician Grade III. Current staff structure in 2013 consists of 13 staff; one Deputy Director/Head of Division, one research scientist, four research officers, two research assistants II, two research assistants III, two research assistants IV and one laboratory attendant.

The Bacteriology Research Division is currently engaged in the research activities on tuberculosis, diarrhoea, dysentery, cholera, acute respiratory infections, reproductive tract infections, enteric infections and environmental bacteriology. Main research activities are focused on monitoring of the aetiological agents, detection of drug resistant organisms, establishment and evaluation of new diagnostic tools such as Enzyme Linked Immunosorbent Assay (ELISA) and polymerase chain reaction (PCR). Research on genotyping of *Helicobacter pylori* and *Mycobacterium tuberculosis* strains and determining antibacterial activities of medicinal plants are also carried out.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Margaret Tu	M.B.,B.S, MSc (Manchester) D.T.M. & H. (Eng.), D.A.P. & E. (Lond.)	1963- 1977	Retired
2.	Dr. Daw Tin Aye	MBBS, Dip. Bact. (Manchester)	1977-1995	Promoted to Director(Research)
3.	Daw Mar Mar Nyein	BSc, MSc, Ph.D (Zoology)	1995-2007	Retired
4.	Dr. Khin Nwe Oo	MBBS, Dip. Bact, MMedSc, Ph.D (Microbiology)	2007-2008	Promoted to Director (Research)
5.	Dr. U Win Maw Tun	MBBS, MMedSc, Ph.D (Microbiology)	2008-2009	Transferred to Experimental Research Division
6.	Dr. Wah Wah Aung	MBBS, MMedSc, Ph.D (Microbiology)	2009- to date	

3. Current Staff

3.1 Photograph



3.2 List of Staff

Deputy Director & Head	... Dr. Wah Wah Aung MBBS, MMedSc, PhD(Microbiology) UM 1
Research Scientist	... Dr. Mya Mya Aye MBBS, MMedSc (Microbiology), UM 1
Research Officer	... Daw Thuzar Myint BSc(Zoology), YU, DPMS(Yangon) ... Dr. Phyu Win Ei MBBS, MMedSc(Microbiology) UM 2 ... Dr. Nan Aye Thidar Oo, MBBS UM 1 ... Daw Than Mya BSc(Hons),MSc(Zoology) YU
Research Assistant (2)	... Daw Aye Aye Maw BSc(Mathematics) YU ... Daw Mi Mi Htwe BSc(Zoology), MSc(Zoology) YU
Research Assistant (3)	... Daw Aye Yin Shwe BA(Geography) DU ... Daw Hay Mar Win BA(History) DU
Research Assistant (4)	... Daw Su Mon Win BSc(Engineering) Biotechnology, MSc, Mres YU
Laboratory Attendant	... Daw Saw Nan Wai

4. Area of Research Activities

1. Tuberculosis
2. Diarrhoea and dysentery
3. Cholera
4. Enteric Infection
5. Acute respiratory infection
6. Reproductive health
7. Environmental health
8. Zoonotic diseases
9. Traditional medicine

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. Margaret Tu	Colombo Plan Fellowship	1972	United Kingdom
2.	Dr. Daw Tin Aye	Identification of enteric bacteria toxonoic study by chromosomal DNA analysis and related gene experiments, Lab works on routine anaerobic bacteriology, Lab works on cholera vaccine volunteered study (1980-81)	1 year	CDC, Atlanta and University of Maryland, Baltimore USA
3.	Dr. Daw Tin Aye	Diarrhoeal diseases research methodologies in developing countries, use of DNA probe to study <i>Escherichia coli</i> (1981)	1 month	ICDDR, Bangladesh
4.	Dr. Daw Tin Aye	Use of DNA probe in study of <i>E. coli</i> , New approach to serotyping of <i>E. coli</i> (1987)	1 month	CDC, Atlanta, USA
5.	Dr. Daw Tin Aye	Promotion and application of PCR in infectious diseases (1991)	1 month	Pune, India
6.	Daw Mar Mar Nyein	Microbial Research (Antimicrobial testing of Indigenous Drugs), Central Drug Research Institute, Lucknow, India, Banares Hindu University, Banares, India (17-8-74 to 21-12-74)	4 months	India

Sr. No.	Name	Fellowship	Duration	Country
7.	Daw Mar Mar Nyein	Microbial Diseases with special emphasis on leprosy, Research Institute for Microbial Diseases, Osaka, Kyoto University, Japan, Hiroshima University, Japan, National Institute for Leprosy Research, Tokyo (10-6-76 to 27-9-77)	1 year and 3 months	Japan
8.	Dr. Khin Nwe Oo	Practical training in environmental bacteriology Institute of Medicine, Tsukuba University, Japan (Apr 1991-Mar 1992)	1 year	Japan
9.	Dr. Phyu Phyu Win	Recent advance in diagnosis of bacterial agents of acute diarrhea in childhood (1984)	1 year	Japan
10.	Dr. Phyu Phyu Win	Laboratory diagnosis of common diarrhoea disease agents	3 weeks	Bangladesh
11.	Daw Khin San Aung	Techniques in diagnosis of bacterial agents of acute diarrhea in childhood (1982-1983)	1 year	Japan
12.	Dr. Sun Nyunt Wai	Ph.D (Microbiology) (1992-1997)	5 years	Japan
13.	Dr. Wah Wah Aung	Advanced WHO course on immunology, vaccinology and biochemistry applied to infectious diseases, WHO Research and Training Centre, Institute of Biochemistry, University of Lausanne, Switzerland and Centre "Les Pensiera" du Lac, Annecy, France (September-November 1999) and quality control measures	6 weeks	Switzerland and France
14.	Dr. Wah Wah Aung	WHO/TDR Refresher course on immunology, vaccinology and biochemistry applied to infectious diseases, National Institute of Vaccines and Biological Substances (IVAC), Nha Trang, Vietnam (November-December, 2002)	2 weeks	Vietnam

Sr. No.	Name	Fellowship	Duration	Country
15.	Dr. Wah Wah Aung	Training in laboratory techniques for sexually transmitted infections with a focus on polymerase chain reaction and quality control measures, University of Malaya, Kuala Lumpur (December 2004 - May 2005)	6 months	Malaysia
16.	Dr. Mo Mo Win	Diagnostic Bacteriological Technique (2005)	3 months	Thailand
17.	Dr. Mo Mo Win	Advanced WHO course on immunology, vaccinology and biochemistry applied to infectious diseases, WHO Research and Training Centre, Institute of Biochemistry, University of Lausanne, Switzerland (5-9-05 to 25-10-05)	6 weeks	Switzerland
18.	Dr. Thaung Hla	Detection of microalbumin in the urine and formulation of microalbuminuria RIA kit (IAEA) , India (2002)	4 months	India
19.	Daw Thuzar Myint	Diagnostic Bacteriological Technique (1999)	3 months	Thailand and India
20.	Daw Myat Thidar	Immuno-diagnostic techniques for emerging arbovirus (1999)	6 weeks	India
21.	Dr Mya Mya Aye	Training on detection of <i>Helicobacter pylori</i> by molecular technique, Nagasaki University, Japan 27-1-10 to 7-4-10	10 weeks	Japan
22.	Dr. Phyu Win Ei	Training on Molecular biotechnology and microarray nanotechnology, Olipro Biotechnology Sdn. Bhd., Selangor, Malaysia (17.10.11 to 15.11.11)	1 month	Malaysia
23.	Daw Mi Mi Htwe	Training on Molecular biotechnology and microarray nanotechnology, Olipro Biotechnology Sdn. Bhd., Selangor, Malaysia (17.10.11 to 15.11.11)	1 month	Malaysia
24.	Daw Than Mya	Safety handling of biosafety materials (April 2013)	1 week	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

Sr. No.	Title	Year	Universities and UN agencies
1.	Oral rehydration therapy in the home by village mothers in Burma	1977-1980	WHO
2.	The application of microbial genetics to the study of transmission and pathogenesis of infantile diarrhea in Rangoon	1980-1984	USAID
3.	Research on major arboviral diseases, bacterial enteric diseases and the application of its results for the control of these diseases	1980-1985.	JICA
4.	Prevalence of dapsone resistant <i>Mycobacterium leprae</i> in Myingyan area TDR/WHO/Leprosy Control Programme/ Ministry of Health	1980-1986	WHO
5.	Clinical drug trial on Biscozamycin in acute bacterial diarrhea and acute bacillary dysentery	1982-83	Ei-Lilly Drug Co. USA
6.	Research on bacterial enteric diseases and the application of its results for the control of these diseases	1982-84	JICA
7.	Multicentre hospital based control study of the aetiological agents of diarrhea in children indifferent geographic regions	1982-1984	WHO
8.	Etiology of acute diarrhea among children in developing countries	1981-1984	WHO
9.	Study of bacterial agents of acute respiratory infection in children	1985-87	WHO
10.	Research on treatment of infectious diseases of the alimentary system: Development of technology for study of enteric bacteria	1986-1991	JICA
11.	Raising anti-sera for enteropathogenic <i>E. coli</i> (EPEC)	1989-1990	JICA
12.	Non-ulcerative STDs among married women in selected urban and semi-urban area	1998-2003	WHO
13.	Study of bacteriological and social contributors of tuberculosis patients with emphasis on those seeking treatment at private sector before reaching public health services	2003-2005	WHO/TDR/RCS
14.	Prevalence of reproductive tract infections at the Family Planning Clinic at Central Women's Hospital, Yangon	2005-2006	WHO
15.	Virulence gene detection of <i>Escherichia coli</i> isolates by polymerase chain reaction	2006-2007	Okayama University, Japan

Sr. No.	Title	Year	Universities and UN agencies
16.	Case – control study of ectopic pregnancies in Myanmar: Infectious etiological agents	2007-2008	WHO/HRP
17.	Sexually transmitted infections among male highway drivers in Myanmar	2008-2009	WHO/HRP
18.	Clinical Validation of rapid TB diagnostic tools baesd on molecular and microarray biotechnology	2009-2011	University Malaya and Olipro Biotechnology Sdn. Bhd., Malaysia
19.	Molecular characterization of <i>Vibrio cholerae</i> in Myanmar	2010-2013	Osaka University, Japan
20.	Prevalence and genotypic pattern of <i>Helicobacter pylori</i> infection in Myanmar patients with chronic dyspepsia	2010-2012	Okayama University, Japan
21.	Establishment of molecular strain typing methods for <i>Mycobacterium tuberculosis</i> in Myanmar	2012-2014	Pusan National University, Korea/ KOICA

7. Achievements

7.1. Awards (Research paper awards and other scientific awards)

1. Director General's Research Paper Award 1993
(ညွှန်ကြားရေးမှူးချုပ်၏သုတေသနစာတမ်းဆု - ၁၉၉၃)
2. Director General's Research Paper Award 1995-
(ညွှန်ကြားရေးမှူးချုပ်၏သုတေသနစာတမ်းဆု - ၁၉၉၅)

7.2 Best Poster and Paper Awards

First Prize

1. Best Poster Award in Myanmar Health Research Congress 1993 on the title of "Effectiveness of potash alum in decontaminating household water".
2. Best Poster Award in Myanmar Health Research Congress 2003 on the title of "The application of serological test in early diagnosis of leprosy".
3. Best Poster Award in Myanmar Health Research Congress 2009 on the title of "Detection of Verotoxic Escherichia coli in street vended grilled meat".
4. Best Applied Research Paper Award in Myanmar Health Research Congress 2006 on the title of "Serological response to chemoprophylaxis in Extended Contacts of leprosy-a Randomized Controlled Trial".
5. Best Basic Research Paper Award in Myanmar Health Research Congress 2006 on the title of "Bacteriological evaluation of multi-drug resistant cases among Category II treatment failure pulmonary tuberculosis patients".

6. Best Applied Research Paper Award in Myanmar Health Research Congress 2010 on the title of "Prevalence and associated factors of curable sexually transmitted infections and antibiotic susceptibility pattern of *Neisseria gonorrhoeae* in highway coach drivers, Myanmar.

Second prize

1. Second prize for best poster award in Myanmar Health Research Congress 2005 on the title of "Usefulness of Bronze Containers for Decontamination of Gram Negative and Gram Positive Bacteria from water"
2. Second prize for best poster award in Myanmar Health Research Congress 2009 on the title of "Detection of Verotoxic *Escherichia coli* in street vended grilled meat"
3. Second prize for best basic research paper in Myanmar Health research 2009 on the title of "Reproductive tract infection screening, liquid-based cervical cytology and human papillomavirus (HPV) genotyping among married women in sub-urban communities in Bago Division"
4. Second prize for best basic research paper in Myanmar Health research 2010 on the title of "Bacteriological profile, drug sensitivity and virulence gene patterns of diarrheagenic *Escherichia coli* from diarrhea cases in Magway Township"
5. Second prize for best basic research paper in Myanmar Health research 2011 on the title of "In-vitro antimicrobial resistance among predominant bacterial pathogens isolated from septic abortion cases in North Okkalapa General Hospital"

Third prize

1. Third prize for best basic research paper in Myanmar Health research 2009 on the title of "Patterns of anti-tuberculosis drug resistance among HIV patients with pulmonary tuberculosis attending the Specialist Hospital, Waibargi, Yangon"
2. Third prize for best basic research paper in Myanmar Health research 2012 on the title of "Aetiological agents, modifiable risk factors and immunological status of children with acute respiratory infections attending general practitioner's clinics"

Young Researcher Award

1. Young research award in Myanmar Health Research Congress 2010 on the title of "Bacteriological profile of surgical site infections in gynecological ward of North Okkalapa General Hospital"

8. Research Grants

Sr. No.	Title	Year	Funding agencies
1.	Oral rehydration therapy in the home by village mothers in Burma	1976-1980	WHO
2.	The application of microbial genetics to the study of transmission and pathogenesis of infantile diarrhea in Rangoon	1980-1984	USAID

Sr. No.	Title	Year	Funding agencies
3.	Research on major arboviral diseases, bacterial enteric diseases and the application of its results for the control of these diseases	1980-1985	JICA
4.	Prevalence of dapsone resistant <i>Mycobacterium leprae</i> in Myingyan area TDR/WHO/Leprosy Control Programme/ Ministry of Health	1980-1986	WHO
5.	Etiology of acute diarrhea among children in developing countries	1981-1984	WHO
6.	Clinical drug trial on Biscozamycin in acute bacterial diarrhea and acute bacillary dysentery	1982-83	Ei-Lilly Drug Co. USA
7.	Research on bacterial enteric diseases and the application of its results for the control of these diseases	1982-84	JICA
8.	Multicentre hospital based control study of the aetiological agents of diarrhea in children indifferent geographic regions	1982-1984	WHO
9.	Study of bacterial agents of acute respiratory infection in children	1985-87	WHO
10.	Research on treatment of infectious diseases of the alimentary system: Development of technology for study of enteric bacteria	1986-1991	JICA
11.	Raising anti-sera for enteropathogenic <i>E. coli</i> (EPEC)	1989-1990	JICA
12.	Non-ulcerative STDs among married women in selected urban and semi-urban area	1998-2003	WHO
13.	Study of bacteriological and social contributors of tuberculosis patients with emphasis on those seeking treatment at private sector before reaching public health services	2003-2005	WHO/TDR/RCS
14.	Prevalence of reproductive tract infections at the Family Planning Clinic at Central Women's Hospital, Yangon	2005-2006	WHO
15.	Case – control study of ectopic pregnancies in Myanmar: Infectious etiological agents	2007-2008	WHO/HRP
16.	Sexually transmitted infections among male highway drivers in Myanmar	2008-2009	WHO/HRP
17.	Establishment of molecular strain typing methods for <i>Mycobacterium tuberculosis</i> in Myanmar	2012-2014	Pusan National University, Korea/ KOICA

9. Publications

Number of international publications	= 37
Number of local publications	= 120
Total number of publications	= 157

BIOCHEMISTRY RESEARCH DIVISION

1. Historical Background

Biochemistry Research Division was established in 1967. First appointed Head of the Biochemistry Research Division was U Hla Win (Senior Research Officer). Former staff structure in 1967 was five staff consisting of; one senior research officer, one research officer, one technician Grade I, one technician Grade II and one laboratory attendance. Current staff structure in 2013 consists of 13 staff; one Deputy Director/Head of Division, one research scientist, four research officers, one research assistant I, two research assistants II, one research assistants III, two research assistants IV and one laboratory attendant.

The Biochemistry Research Division is currently engaged in the research activities on tuberculosis, Malaria, Obesity, Diabetes mellitus, Russell viper venom and traditional medicine. Main research areas are Glucose 6 phosphate dehydrogenase enzyme deficiency in treatment of malaria, childhood obesity and risk of cardiovascular diseases and biochemical analysis of Russell viper venom and detection of activities of each enzymes of the venom.

2. Former Heads

Sr. No.	Name	Degree	Year (From – To)	Remark
1.	U Hla Win	M.Sc	1967-1970	Senior Research Officer
2.	U Hla Pe	B.Sc (Rgn), M.Sc (Bombay)	1970-1990	Retired in 1990
3.	Dr. Aye Kyaw	B.Sc (Chemistry) M.Sc (Biochemistry) Ph.D (Biochemistry)	1990-1997	Promoted to Director of Hepatitis B vaccine project
4.	Dr. Khin Mg Mg	M.B., B.S M.Med.Sc (Biochemistry) Ph.D (Biochemistry)	1998-2004	Transferred to Radiation Toxicology Research Division
5.	Dr. Theingi Thwin	M.B., B.S M.Med.Sc (Biochemistry) Ph.D (Biochemistry)	2004-2007	Transferred to Nutrition Research Division.
6.	Dr. Zaw Myint	M.B., B.S Ph.D (Biochemistry)	2007-2009	Transferred to Administration Division
7.	Dr. Nwe Nwe Oo	M.B., B.S M.Med.Sc (Biochemistry)	2009 to date	

3. Current Staff

3.1. Photograph (Group Photo)



3.2. List of Staff

Deputy Director & Head	... Dr. Nwe Nwe Oo MBBS IM1 MMedSc(Biochemistry) IMM
Research Scientist	... Dr. Moe Thida Kyaw MBBS IM1 MMedSc(Biochemistry) UM2
Research Officers	... Daw Mie Mie Nwe BSc (Botany) DFT (YU)
	... Dr. Khin Than Yee MBBS MMedSc (Biochemistry) UM1
Laboratory Incharge	... U Aung Myat Kyaw BA (Economics) DFT PDCSc (YU)
Research Assistant (2)	... U Tin Ko Ko Oo BA (Economics) WC
	... Daw Lwin Zar Maw BSc (Chemistry) UDE DFT (YU)
Research Assistant (3)	... Daw May Thu Kyaw BA (Economics) UDE
Research Assistant (4)	... Daw Nwe Ni Aung BSc (Biotechnology) DU
Laboratory Attendant	... Daw Yi Yi Sein

4. Areas of research activities

- Snakebite: snake venom, snake anti-venom
- Malaria
- Liver diseases
- Obesity
- Traditional medicine

5. International Training (>4 weeks)

Sr. No.	Name	Fellowship	Duration	Country
1.	U Hla Pe	M Sc	1958	Bombay , India
2.	U Hla Pe	Radioisotope assay technique in biology and medicine and microbiological technique of vitamins	1962-63	Hebrew University, Hadassah Medical School, Jerusalem
3.	Dr.Aye Kyaw	M.Sc (Biochemistry)	1969-1971	University of Guelph, Ontario, Canada
4.	U Hla Pe	Histochemistry and cytochemistry	1972-1973	Nihon University School of Medicine, Tokyo
5	Dr.Aye Kyaw	Hepatitis B vaccine Technology.	1991 6 months	Center for Disease control, Atlanta Georgia, USA (WHO)
6.	Dr.Win Aung	Production and standardization of anti snake venom.	1991 3 months	The Red Cross Society Bangkok, Thailand, WHO
7.	Daw Khin Aye Thar	DNA sequencing	1991 6 months	Singapore
8.	Daw Khin Pa Pa Kyaw	Advanced techniques in Biochemistry	1995 3 months	Thailand
9.	Dr. Zaw Myint	Ph.D (Biochemistry),	1999 5 years	Fukui University, Japan
10.	U San Kun	Hepatitis C screening Techniques	3 months	Monbusho Myanmar-Japan Collaboration
11.	Dr. Zaw Myint	Hands-on practice for vaccine manufacturing personnel	2005 6 weeks	KFDA and CJ Corporation Republic of Korea

Sr. No.	Name	Fellowship	Duration	Country
12.	Dr. Nwe Nwe Oo	Radiation Safety in Medical Practice	2 months	Singapore. IAEA
13	Dr.Khin Than Yee	Purification, identification characterization and analysis of proteins and enzymes from Russell's viper venom	2 months	Bangkok, Thailand (WHO)

6. Coordination and Collaboration with Universities, UN and other Agencies

Sr. No.	Title	Year	Universities and other agencies
1.	Hepatitis B vaccine production in Myanmar	1990-95	WHO/UNDP
2.	Development of recombinant DNA hepatitis B vaccine Plant in Myanmar,	1997-2002	Economic Development Cooperation Fund (EDCF) of Republic of Korea.

7. Achievements

7.1 Awards (Research paper awards and other scientific awards)

- Director General's research paper award 1994
ညွှန်ကြားရေးမှူးချုပ်၏သုတေသနစာတမ်းဆု - ၁၉၉၄
- Best paper first prize for Basic Research (1994)
Urinary NAG as an early indicator of renal damage in Russell's viper bite envenomation.
- Others
 - 1998 Sarpay Beikmhan prize (U Aye Kyaw)
 - 2002 Man of the year 2002, Time Line Magazine m American Biographical Association.USA(U Hla Pe)
 - 2005 National Literary Prize (U Aye Kyaw)
 - 2008 Sarpay Beikmhan prize (U Aye Kyaw)

7.2 Research grants (\geq US\$ 10,000) (Multi-country collaborative research grants)

Sr. No.	Title	Year	Funding agency
1.	Radio-iodination and uptake of diarrhoeal toxins by intestinal cells	1989	Third World Academy of Sciences (TWAS), Italy
2.	Development of plasma derived hepatitis B vaccine in Myanmar	1990	United Nations Development Programme (UNDP)
3.	Clinical trial of intramuscular anti-snake venom administration as a first aid measure in Russell's viper bite victims	1990	WHO
4.	Application of Nuclear Techniques in Medicine: Introduction of bulk reagent methodology for thyroid hormones,	1995	International Atomic Energy Agency (IAEA)

8. Publications

Number of international publications = 45

Number of local publications = 52

Total number of publications = 97

BIOLOGICAL TOXICOLOGY RESEARCH DIVISION

1. Historical Background

Biological Toxicology Research Division was established in 2003. First appointed Head of the Biological Toxicology Research Division was Dr. Thaung Hla. Former staff structure in 2003 was four staff consisting of; one consultant/Head of Division, one research officer, one technician Grade II and one technician Grade III. Current staff structure in 2013 consists of 11 staff; one Deputy Director/Head of Division, one research scientist, two research officers, three research assistants II, three research assistants III, one research assistants IV.

The Biological Toxicology Research Division is currently engaged in the research activities on *Amanita* , Aflatoxin , Meloidosis , *Clostridium perfringens*, *Clostridium botulinum* , *Bacillus cereus*, *Escherichia coli*, *Staphylococcus aureus*, Histamine, Mycotoxin, Djenkolic acid.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Thaung Hla	M.B.,B.S, M.Med.Sc (Pathology) (IM1)	2003 - up to date	

3. Current Staff

3.1 Photograph



3.2 List of Staff

Deputy Director & Head	...	Dr. Thaung Hla MBBS, MMedSc (Pathology)(IM1)
Research Scientist	...	Dr Thet Thet Mar BSc(Hons), MSc, PhD(Chemistry) (YU)
Research Officer	...	Dr. Lai Lai San MBBS, MMedSc (Microbiology) (UM 2)
	...	Daw Thin Thin Wah BSc(Hons), MSc (Zoology) (YU)
Research Assistant (2)	...	Daw Tin Tin Htwe BSc, (Zoology) (YU)
	...	Daw May Than Htay BSc, MSc (Zoology) (YU)
	...	Daw Zin Mi Thein BSc (Mathematics) (YU)
Research Assistant (3)	...	Daw Nilar BSc(Zoology)
	...	Daw Wai Lwin Oo
	...	Daw Myo Myo Kyaw BSc (Chemistry) (Dagon University)
Research Assistant (4)	...	U Kyaw Kyaw San BSc (Zoology)(East Yangon University)

4. Area of Research Activities

1. *Amanita*
2. *Aflatoxin*
3. *Meloidosis*
4. *Clostridium perfringens*
5. *Clostridium botulinum*
6. *Bacillus cereus*
7. *Escherichia coli*
8. *Staphylococcus aureus*
9. Histamine
10. Mycotoxin
11. Djenkolic acid

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. Thaung Hla	“Emergency preparedness for biological disasters”	8 weeks	Asian Disaster Preparedness Centre, Asian Institute of Technology, Bangkok, Thailand.
2.	Dr. Mo Mo Win	“Health Emergency Management and Disaster”		Manila, Philippines

6. Coordination and Collaboration with Universities, UN and other Agencies

Sr. No.	Title	Year	Universities and UN agencies
1	Detection of <i>Clostridium botulinum</i> from salted dry fish	2012-2013	Okayama University, Japan

7. Achievements**7.1 Best Poster and Paper Awards**

Second Prize, Myanmar Health Research Congress 2009, (Detection of aflatoxin in chili powder samples by High Performance Liquid Chromatography) (PI- Dr. Theingi Win Myat)

7.2 Research Grants

Sr. No.	Title	Year	Funding agencies
1.	Detection of aflatoxin in food stuffs.	2004-2005	WHO
2.	Biological toxin information system.	2008-2009	WHO
3.	Preparedness for Biological Emergencies.	2010-2011	WHO
4.	Food safety.	2010-2011	WHO
5.	Mushroom poisoning diagnostic laboratory.	2012-2013	WHO

8. Publications

Total number of publications = 2

BLOOD PROGRAMMING DIVISION

1. Historical Background

The National Blood Research Centre (NBRC) was established in 2002 which includes Blood Programming and Blood Research Divisions. According to the set up of centre, yearly filled up the staff members and at first start with acting head of the division. The first appointed head of the division is Dr. U Win Aung and he promoted to Director (Blood) in 2010 and still he headed the division also.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Win Pa Pa Naing	MBBS; MMedSc(Patho)	2002	Acting Heads
2.	Daw San San Oo	BSC; MSc, Ph.D(Zoology)	2003-5	Acting Heads
3.	Dr. San San Htwe	MBBS, MMedSc(Patho)	2006	Acting Heads
4.	Dr. Win Aung	MBBS, MMedSc(Biochem), FACTM	2006-2010	Appointed Heads
5.	Dr. Yi Yi Kyaw	MBBS, MMedSc(Micro)	2011-12	Appointed Heads

3. Current Staff

3.1 Photograph



3.2 List of Staff

Acting Deputy Director	...	Dr. Yi Yi Kyaw MBBS, MMedSc(Micro), UM I
Research Officer	...	Dr. Khin Lapyae Tun MBBS, UM I
Research Assistant (2)	...	Daw Nwe Nwe Soe BSc(Chemistry) YU
Research Assistant (3)	...	Daw Phyu Phyu San BA(History), DU
	...	U Zaw Min Latt BSc (Chemistry), YU
	...	Daw Hla Hla Win BA(History), YU
Research Assistant (4)	...	Daw Aye Thandar Oo BSc (Physics), DU

4. Area of Research Activities

Blood Programming Division is primarily involved in research studies on blood safety and blood components. Regarding blood safety, screening of infectious disease in blood donors is the primary concern and promotion of voluntary non-remunerated blood donors is carried out by use of blood mobile services. The centre promotes the use of blood and/or blood component in the management of diseases/disorders. The centre is also concerned with the establishment of common and special techniques for the diagnosis of haematological and organ malignancies. Another area of interest is the development of blood donor registry for promotion of safe blood.

5. International Training

Division staff members have no international training apart from attending workshop and seminar and meeting.

6. Coordination and Collaboration with Universities, UN and other Agencies

Japan Grassroots Assistance (GGA), JICA

7. Achievement

Introduction of Blood mobile service in Myanmar

8. Publication

Total number of publications = 9

BLOOD RESEARCH DIVISION

1. Historical Background

National Blood Research Center (NBRC) has been developed since 23rd May, 2002. The main function of NBRC is to promote the safe blood transfusion, establish the facilities and special techniques for the diagnosis and monitoring of haematological disorders and malignancies. Under National Blood Research Center, there are two divisions, Blood Programming Division and Blood Research Division.

The first appointed Head of Blood Research Division was Dr Myo Khin and he has been promoted as a Director, National Blood Research Center from 19.3.2004 to 27.6.2006. Then he has been worked as a Deputy Director General, Department of Medical Research (Central Myanmar) from 28.6.2006 to 8.7.2010. After that he worked as an acting Director General, Department of Medical Research (Lower Myanmar) until 12.3.2013. Currently, Dr Win Pa Pa Naing is the head of the Blood Research Division (27.4.2007 to date).

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 haematological disease and disorders. The clinical arm is further supported by the Clinical Research Unit on Haematology at Yangon Children Hospital.

2. Former Heads

Sr. No.	Name	Degree	Year (From – To)	Remark
1.	Dr Myo Khin	MBBS MD (New South Wales), DCH FRCP (Edin)	2002 to 19.3.2004	
2.	Dr Win Pa Pa Naing	MBBS M Med Sc (Pathology)	2005 to 31.7.2006	Acting Head
3.	Dr Khin May Oo	MBBS M Med Sc PhD (Microbiology)	1.8.2006 to 23.4.2007	

3. Current Staff

3.1. Photograph



3.2. List of Staffs

Deputy Director & Head	...	Dr. Win Pa Pa Naing MBBS IM1 MMedSc(Pathology) IM2, PhD (Pathology) UM2
Research Scientist	...	Dr San San Htwe MBBS, M Med Sc (Pathology) UM1
	...	Dr Zin Zin Thu MBBS, M Med Sc(Pathology), PhD (Pathology) UM1
Research Officer	...	Dr Thweni Nyan Tun MBBS UM2
	...	Daw Aye Mya Khine BSc(Maths) UDE
Research Assistant (2)	...	Daw Win Win Mar BSc(Chemistry) YU
	...	Daw Aye Myint Oo B.A (Economic) YU
	...	Daw Ni Ni Win B.A (History) UDE
Research Assistant (3)	...	Daw Aye Thandar Khine BA(Geography) UDE
	...	Daw Aye Thidar Saing BSc(Botany) UM
	...	Daw Moe Thuzar Min BSc(Zoology) UDE

4. Areas of research activities

1. Anaemia
2. Haematological malignancies
3. Human Leucocyte antigen (HLA) typing
4. Coagulation abnormalities in non communicable diseases

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr Win Pa Pa Naing	Improvement in the treatment of childhood ALL by detection of MRD	26.6.2005 to 9.9.2005 (10 weeks)	France
2.	Dr Win Pa Pa Naing	Molecular detection of fusion gene in leukemia	14.1.2008 to 24.3.2008 (10 weeks)	Japan
3.	Dr. San San Htwe	Training for Advanced WHO course on Immunology, Vaccinology and Biotechnology Applied to Infectious Diseases	13.9.2000 to 27.10.2000 (8 weeks)	Switzerland France
4.	Dr. San San Htwe	Training for Advanced WHO/TDR Refresher course on Immunology, Vaccinology and Biotechnology Applied to Infectious Diseases	25.11.2002 to 11.12.2002 (2 weeks)	Viet Nam
5.	Dr. San San Htwe	Molecular analysis of multiple myeloma	14.1.2009 to 27.3.2009 (10 weeks)	Japan
6.	Dr Zin Zin Thu	Diagnosis of haematological disorders	30.10.2006 to 22.12.2006 (10 weeks)	Thailand
7.	Dr Zin Zin Thu	HLA typing	15.7.2009 to 27.9.2009 (10 weeks)	Japan

6. Coordination and Collaboration with Universities, UN and other Agencies

- World Health Organization (WHO)
- International Atomic Energy Agency (IAEA)
- The George Institute for Global Health, Sydney, Australia

7. Achievements

7.1 Awards(Research paper awards and other scientific awards)... -

7.2 Research Grants

Sr. No.	Title	Year	Funding agencies
1.	Improvement in the treatment of childhood ALL by detection of minimal residual disease	2002-2005	International Atomic Energy Agency (IAEA)
2.	The burden of cancer and its economic impact on households in the ASEAN countries	2012-2014	Roche Asia Pacific Regional Office

8. Publications

Number of international publications	= 2
Number of local publications	= 4
Total number of publications	= 6

CHEMICAL TOXICOLOGY RESEARCH DIVISION

1. Historical Background

Chemical Toxicology Research Division was established in 2003. First appointed Head of the Research Division was Dr. U San Aye. Chemical Toxicology Research Division was established in 2003. Staff structure consists of 15 staff; one Deputy Director/Head of Division, one Research Scientist, three Research Officers, three Research Assistants II, three Research Assistants III, three Research Assistants IV and one Laboratory Attendant.

The Chemical Toxicology Research Division is engaged in Poison Information Services and Research concerned with environmental health. Chemical Toxicology laboratory provides the information regarding sample analysis. Currently, research related to environmental pollutants including water pollution, pesticides profile, reduction of arsenic content in drinking water and air pollutants in community of industrialized area are being conducted in collaborating with other organizations and departments.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remark
1	Dr. San Aye	MBBS, MMedSc (Biochemistry)	2003-2010	Retired
2	Dr. Thaung Hla	MBBS, MMedSc (Microbiology)	2010-2011	Transferred

3. Current Staff

3.1 Photograph



3.2 List of Staff

Deputy Director & Head	...	Dr. Kyaw Soe MBBS IM1 PhD (Medical Science) (Nagasaki)
Research Scientist	...	Daw Khine Thin Naing BSc (Chemistry) YU MSc (Analytical Chemistry) YU
Research Officer	...	Dr. Ye Hein Htet MBBS UM2
Research Assistant (2)	...	Daw Tin Nwe Htwe BSc (Chemistry) YU) DFT ,YU Daw Khin Moe Latt BA (Myanmarsar) YU Daw Tin Tin Han BSc (Zoology), YU
Research Assistant (3)	...	Daw Ohnmar Win BA (Eco) YU Daw Tin Tin Htike BA (Eco) YU Daw Theingi Khin BA (Eco) YU
Research Assistant (4)	...	Daw Aye Thidar Tun BSc (Chemistry) YU Daw Thet Htet Aung AGTI (EP), GTU(Thanlyin)
Laboratory Attendant	...	Daw Thandar Wint Wint Aung

4. Areas of research activities

- Environmental health

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Daw Khine Thin Naing	Training course on “Air Pollution Management”	16-1-2007 to 9-3-2007	Mahidol University, Salaya Campus, Thailand
2.	Dr.Ye Hein Htet	Training course on “Arsenic reduction using schwertmannite”	5-7-2012 to 3-9-2012	The Department of Legal Medicine, Graduate School of Medicine, Dentistry and Pharmaceutical Science, Okayama University, Japan
3.	Daw Than Than Swe	Training course on “Detection of environmental pollutants, testing and screening of toxicity”	23-1-2006 to 10-2-2006	Chulabhorn Research Institute, Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

1. Determination of organochlorine pesticide residues and contamination in fish and water from Inlay lake (WHO) 2006 -2007
2. Detection of bisphenol A leached from plastic containers (WHO) 2006-2007
3. Determination Particulate-bound Cyanide in Air of Selected Workplace (WHO) 2007-2008
4. Acetylcholine esterase activity in organophosphate poisoning cases (WHO) 2008-2009
5. Determination of environmental pollutants affecting human health and ecosystem (WHO) 2010-2012
6. Determination of organochlorine pesticide contamination in water from industrial zone (WHO) 2011-2012
7. Determination of artificial dyes in commonly consumed local brand of non-alcoholic beverages (WHO) 2011-2012
8. Determination of mercury content in skin cosmetics widely used in Myanmar (WHO) 2011-2012
9. Effectiveness of different decontamination methods to reduce pesticide residues in selected fruits and vegetables (WHO) 2011-2012
10. Assessment of ground water arsenic content clearance by application of schwertmannite (Okayama University, Japan) 2011-2012
11. Utilization pattern of drinking water in rural households of arsenic contaminated areas and their awareness on arsenic contamination (WHO) 2012-2013
12. Determination of volatile organic compounds in river water (WHO) 2012-2013

7. Achievements

1. Best poster award (First prize) at Myanmar Health Research Congress (2008): Chemical contaminants in domestic fruits: Analysis using simple techniques and possible reduction of residues. Ohnmar May Tin Hlaing, Than Than Swe, Tin Nwe Htwe, Aung Myat Kyaw, Tin Tin Htike, Myo Myo Aye And San Aye.
2. Best poster award (Third prize) at Myanmar Health Research Congress (2011): Effectiveness of co-precipitation and filtration method on reduction of arsenic content in water contaminated with arsenic. Ye Hein Htet, Khin Taryar Myint, Khine Thin Naing, Tin Nwe Htwe, Tin Tin Htike, Aye Thida Tun, Ohnmar Win, Kyaw Soe And Myat Phone Kyaw.

8. Publications

Number of international publications	= 1
Number of local publications	= 1
Total number of publications	= 2

CLINICAL RESEARCH DIVISION

1. Historical Background

It was established in 1963 as Haematology Research Division. First appointed head of the division was Professor Dr. Aung Than Batu. The division was later known as Haematology and Clinical Research Division, and renamed as Clinical Research Division in 1982. First appointed head of the Clinical Research Division was Dr. Khin Maung U.

Currently, Clinical Research Division is comprised of 19 staff; one Deputy Director/Head, 2 Research Scientists, 3 Research Officers, one Laboratory In-charge, 4 Research Assistant-II, 6 Research Assistant-III, and 2 Laboratory Attendants. It is primarily involved in research activities on communicable diseases such as acute respiratory infections and dengue hemorrhagic fever, and non-communicable diseases with emphasis on diabetes mellitus, cancer and snake bite.

2. Former Heads

Sr. No.	Name	Degree	Year (from-to)	Remark
1.	Professor Dr. Aung Than Batu	MBBS(Rgn), MRCP(Edin), FRCP(Edin)	1963-66 (full time) 1966-73 (part time)	Promoted to Director General
2.	Dr. Thane Toe	MBBS(Rgn), Dip.Nutr(Lond), PhD(Lond)	1974-1982	Promoted to Director
3.	Dr. Khin Maung U	MBBS, MMedSc(Int Med), MD (Australia), FACP	1982-1989	
4.	Dr. Tin Nu Swe	MBBS(Ygn), MMedSc(Int Med), MD(Australia)	1989-98	Promoted to Director (Research)
5.	Dr. Khin Myat Tun	MBBS(Ygn), DCH, PhD(Australia)	1998-2003	Promoted to Director (Research)
6.	Dr. Daw Htay Kyaw	MBBS, MMedSc(Int Med)	2004-2005	

3. Current Staff

3.1 Photograph



3.2. List of Staff

Deputy Director & Head	... Dr. Han Win MBBS (UM1) MMedSc(Int Med) UM 2
Research Scientist	... Dr. Than Than Aye MBBS MMedSc (Med Onco) UM1
	... Dr. Ni Thet Oo BVS IAHVS
Research Officer	... Dr. Win Lai May MBBS MMedSc (Paediatrics) UM 1
	... Daw Than Than Lwin BSc (Zoology) (YU)
	... Daw Sandar Kyi BSc (Chemistry) (YU) Dip in Japanese (UFL)
Laboratory In-charge	... U Aye Thar BSc (Mathematics) (UDE)
Research Assistant (2)	... Dr. Aung Aung Maw BSc (Hons) MSc MRes (Dagon University) PhD (Zoology) (YU) Dip in English (YU)
	... Daw Kyu Kyu San BA (Geography) (Dagon University)
	... Daw Ni Ni Aye BSc (Botany) (East Yangon University)
	... U Win Lwin BA(Economics) (Dagon University)
Research Assistant (3)	... Daw Tin Htar Lwin BSc (Chemistry) (Dagon University)
	... Daw Aye Hnin Phyu BSc (Botany) (Dagon University)
	... Daw Khin Thet Mon BA (Geography) (Dagon University)
	... Daw Dam Lian Pau BA(Psychology) (West Yangon University) Diploma in Social Work
	... Daw Kaung Ba Hlwar BSc (Botany) (Mawlamyine University)
	... Daw Phyu Hnin Wai BA (Economics) (Dagon University)
Laboratory Attendant	... Daw Zin Mar
	... Daw San Thwin Oo

4. Areas of research activities

- Anaemia
- Nutrition
- Gastroenterology
- Diarrhoeal diseases
- Snakebite
- Viral hepatitis
- Acute Respiratory Infections
- Tuberculosis
- Malaria
- Cancer
- Diabetes Mellitus
- Hypertension
- Dengue Hemorrhagic Fever

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. U Aung Than Batu	FRCP (Edinburgh)	1970	UK
2.	Dr. Thane Toe	Diploma in Nutrition	1966	UK
3.	Dr. Thane Toe	Applied Nutrition course, University of Lagos Accra	1967	Ghana
4.	Dr. Thane Toe	Ph.D. London School of Hygiene and Tropical Medicine	1968-70	UK
5.	Dr. Daw Khin Kyi Nyunt	Dip in Nutrition. London School of Hygiene and Tropical Medicine	1968-69	UK
6.	U Thein Than	M.Sc.(Clinical Chemistry) University of Newcastle.	1969	UK
7.	U Thein Than	Ph.D. (Clinical Chemistry) University of Newcastle.	1970-72	UK
8.	Dr. U Khin Maung U	MD	1987	Australia
9.	Dr. U Myo Khin	Programme for the Control of Diarrhoeal Diseases Research	9 months (1989)	USA and Peru
10.	Dr. U Myo Khin	Nutritional management of diarrhoeal diseases.	(2 mths 1989)	Peru
11.	Dr. U Myo Khin	Post-doctoral fellow in Geographic Medicine, Department of International Health	(7 mths 1989-1990)	USA

Sr. No.	Name	Fellowship	Duration	Country
12.	Dr. U Myo Khin	Research Fellow in Nuclear medicine and Honorary Medical officer, Gastrointestinal Unit, The Prince of Wales University	(6 months, 1993-1994)	Australia
13.	Dr. U Myo Khin	Research Fellow in Gastroenterology Gastrointestinal Unit, The Prince of Wales University	(2 months, 1997-1998)	Australia
14.	Dr. Daw Tin Nu Swe	Complement Technology, Renal Laboratory Henry Hospital	6 months (1991-1992)	Australia
15.	Dr. Daw Tin Nu Swe	Nephrotoxic Effects of Russell's Viper Venom	4 months (1993)	Australia
16.	Dr. Daw Tin Nu Swe	MD	1993	Australia
17.	Dr. Daw Khin Myat Tun	Research Methodology and advanced techniques in clinical research, Sydney	1992	Australia
18.	Dr. Daw Khin Myat Tun	Training in Gastroenterology Sydney	6 weeks (2000)	Australia
19.	Dr. Daw Khin Myat Tun	Ph.D	2001	Australia
20.	Dr. Aung Kyaw Zaw	Training in Health Economics Brisbane	1 year (2000-2001)	Australia
21.	Daw Than Than Lwin	Training on Technique in Anaemia Research	6 months (1992)	Singapore
22.	U Htain Win	Training on Nuclear Medicine	4 months (1996)	Malaysia
23.	Dr. Mie Mie Aung	MMed (Public Health Medicine)	12 months (2002)	Singapore
24.	Dr. Han Win	Training on Pulmonary Function Test and Research on ART	8 weeks (2007)	Thailand
25.	Daw Sandar Kyi	Training on analysis of biomarkers in passive smokers	6 weeks (2009)	Thailand
26.	Dr. Than Than Aye	Training Programme on Thalassemia Genotyping	7 weeks (2011)	Japan

6. Coordination and Collaboration with Universities, UN and other Agencies

- WHO
- UNICEF
- University of New South Wales (Australia)
- Hahnemann University (USA)
- USAID

7. Achievements**7.1 Awards**

Sr. No.	Name	Award	Year
1.	Dr. Daw Khin Myat Tun	Arsenic contamination of ground water: An emerging health concern (Best Paper Award for Health System Research)	2002
2.	Dr. Win Lai May	Applicability of clinical and routine laboratory parameters in diagnosis of Tuberculous Meningitis (Young Researcher Award for Applied Research)	2010

7.2 Research grants

Sr. No.	Title	Year	Funding agencies
1.	Clinical trial of rice powder ORS in young children	1989	CDD/WHO
2.	Risk factors for the development prolonged diarrhea and malnutrition in Burmese children	1989	USAID
3.	Neonatal Pneumonia	1990	WHO/SEARO
4.	Clinical trial of ARI to obtain information useful for management and control of ARI through primary health care	1991	WHO/SEARO
5.	Complement and prostaglandin studies in Russell's viper bite patients	1992	WHO/SEARO
6.	Clinical trial of Amylyte ORS and WHO ORS in Acute Diarrhoea in childhood (Phase 2)	1993	Hahnemann University, USA
7.	Clinical trial of Amylyte Rice Powder ORS (new formulation) and WHO ORS in Acute Diarrhoea in childhood	1993	Hahnemann University, USA
8.	Operational and management issue relating to the use of Artemisinin and its derivatives in Myanmar	1994	WHO/TDR
9.	An intervention study to improve misuse of artemisinin and derivatives at a township in Myanmar	1995	WHO/TDR

Sr. No.	Title	Year	Funding agencies
10.	Application of fibrinogen degradation product (FDP) test kit for the diagnosis of DIC in Russell's viper bite victims	1997	WHO/SEARO
11.	Assessment of arsenic contamination of ground water in Thabaung and Kyonpyaw townships	2002	UNICEF
12.	Exploratory study on prevalence of visceral leishmaniasis in Myanmar	2004	WHO
13.	Active case detection of arsenicosis cases in selected townships	2005	UNICEF
14.	Awareness of tuberculosis and treatment seeking behaviour for chest symptoms among factory workers in Yangon Division	2006	WHO/TDR (small grant)
15.	Clinical and bacteriological factors relating to the treatment outcome in MDR-TB patients attending the private sector	2008	WHO/TDR (small grant)
16.	Study on compliance and quality of life of type-2 diabetes patients attending Diabetic Clinic at NOGH	2010-11	WHO/APW

8. Publications

Number of international publications	= 127
Number of local publications	= 108
Total number of publications	= 235

EPIDEMIOLOGY RESEARCH DIVISION

1. Historical Background

Epidemiology Research Division (ERD) was established on 6 March, 1968 and headed by Dr. Ko Ko. Then, Dr. Thein Maung Myint (1976 to 1981), Dr. Ohn Kyi (1982), Dr. Thein Hlaing (1983 to 1988), Dr. Myint Myint Soe (1989-1995), Dr. San Shwe (1996 to 2009) and Dr. Khin Thet Wai (2010-2012) served as the heads of ERD.

In the early years, the areas of research work of ERD included road traffic accidents, health systems research on the People's Health Programmes, utilization and performance of voluntary health workers in rural areas, diarrhea and dysentery, Non-A, Non-B Hepatitis and snakebite. Epidemiological studies on intestinal helminthiasis, cancer and reproductive health were conducted in 1980s. In 1993, The WHO Special Program in Human Reproductive Health (WHO/HRP) supported the Institutional Development Grant for four years and several research projects on reproductive health. From 1990 to date, the focused research areas included not only the reproductive health research but also three major diseases (tuberculosis, malaria, HIV/AIDS) and dengue fever.

The design of the research studies was gradually shifted from the simple descriptive to the complex intervention studies having a higher level of scientific evidence.

Several articles have been published in local journals as well as in international journals. The findings were usually disseminated to programme managers and policy makers. In addition, the staff members in ERD served as resource persons in workshops on research methodology, training of health workers, planning, implementation and evaluation of primary health care facilities, preparation of People's Health Plan (National Health Plan) and provided technical assistance to post-graduate students in writing dissertations.

2. Former Heads

Sr. No.	Name	Degree	Year (from – to)	Remarks
1.	Dr. U Ko Ko	M.B.,B.S; DPH (Edin.) D.TM & H (Eng) Consultant (Honourary)	1968 - 1970	Transfer
2.	Dr. U Thein Maung Myint	M.B.,B.S; D.P.&T.M; M.COMM.H.	1976 - 1981	Promoted to Director (Research)
3.	Dr. Daw Ohn Kyi	M.B.,B.S; DPH; D.E.C.D.(Prague); Cert. in Indigenous Medicine	1982	Transfer
4.	Dr. U Thein Hlaing	M.B.,B.S; D.P.&T.M; FACE; FRCP	1983 - 1988	Promoted to Director (Research)
5.	Dr. Daw Myint Myint Soe	M.B.,B.S; D.P.&T.M; M.P.H (Israel)	1989 - 1995	Transfer

Sr. No.	Name	Degree	Year (from – to)	Remarks
6.	Dr. Daw San Shwe	M.B.,B.S; M.Med.Sc (Public Health)	1996 - 2009	Promoted to Director (Research)
7.	Dr. Daw Khin Thet Wai	M.B.,B.S; M.Med.Sc (Public Health)	2010- 2012	Promoted to Director (Research)

3. Current Staff

3.1. Photograph



3.2 List of Staff

Deputy Director & Head	... Dr. Ohnmar MBBS (UM1) MSc (Epidemiology), PhD (Epidemiology), (Prince of Songkla University, Thailand)
Research Scientist	... Dr. Myo Myo Mon MBBS (UM1), MMedSc (Public Health) (UM1), MSc (Epidemiology)(Prince of Songkla University, Thailand)
Research Officer	... Daw Moe Thida BSc (Zoology) (Arts & Science University, Yangon) ... Dr. Thae Maung Maung MBBS (UM1) ... Dr. Su Latt Tun Myint MBBS (UM1), MPH (UOPH) ... Dr. Pe Thet Zaw MBBS (UM2)
Research Assistant (2)	... Daw Khin Thet Thet BSc(Physics)(Yangon University) ... Daw Kyi Kyi Mar BSc(Mathematics) (Yangon University) ... Daw Wai Wai Myint BA(Eco)(Workers' College Yangon University) Post Graduate Diploma in Social Work (Yangon University) ... Daw Tin Tin Wai BSc(Mathematics)(Yangon University)
Research Assistant (3)	... U Aung Soe Min ... Daw Zin Mar Aye BSc (Botany)(YUDE) ... Daw Lwin Lwin Ni BSc(Mathematics)(Dagon University)
Research Assistant (4)	... Daw Phyu Thi BSc(Botany)(Dagon University) (Diploma in Computer Science) ... Daw Lwin Ni Ni Thaung BA(L.L.B)(YUDE) ... Daw Ni Ni Htay Aung BA(Geography)(YUDE)
Laboratory Attendant	... U Kaung Set

4. Areas of research activities

Period	Areas of research
1967 - 1971	Road traffic accidents Deaths due to poisoning and violence Cancer
1971 - 1982	Utilization of health services Role of voluntary health workers (CMWs and AMWs) Performance evaluation of various categories of basic health services staff, etc.
1982 - 1993	Ascariasis : epidemiology, transmission dynamics, effect on nutrition, chemotherapy Malaria : malaria transmission, population mobility, mosquito net utilization, KAP studies, improved cases management on cerebral malaria, employment of specific voluntary health workers

Period	Areas of research
	<p>Diarrhoea : aetiological agents, diarrhea patterns, food contamination, hand washing, measles related diarrhea, rota-virus vaccine field trial</p> <p>Hepatitis : non-A non-B hepatitis (family transmission and situation)</p> <p>HIV/AIDS : KAP surveys among various study populations (health personnels, high school children, teachers, IVDUs), sterilization of syringes and needles in medical practice</p> <p>Elderly : epidemiological study of the health status of the elderly, morbidity and mortality pattern</p> <p>Cancer : post-radiotherapy cancer</p> <p>Reproductive health : incidence and risk factors for ectopic pregnancy</p>
1993 - 2000	<p>Reproductive health</p> <ul style="list-style-type: none"> - contraceptives (acceptability, practices after induced abortion, providers' perspectives, safety and efficacy) - birth spacing (KAP, fertility regulation practice among married couples) - antenatal care - perceptions on reproductive tract infections - adolescent mothers (socioeconomic characteristics and behaviours) <p>Diarrhoea</p> <ul style="list-style-type: none"> - oral rehydration therapy in clinical practice <p>HIV/AIDS</p> <ul style="list-style-type: none"> - non-ulcerative STDs among married women, syndromic management <p>Elderly</p> <ul style="list-style-type: none"> - epidemiology, demography, determinants of healthy ageing <p>Hepatitis B</p> <ul style="list-style-type: none"> - KAP among vaccine clinic attendees - counseling needs among patients with HBV infection - effectiveness of information booklet for HBV carriers - Transfusion transmitted infections among donors <p>Acute respiratory tract infections</p> <ul style="list-style-type: none"> - indoor air pollution and ARI among under five children - indoor air pollution – women's views <p>Child health</p> <ul style="list-style-type: none"> - Low birth weight babies (risk factors) <p>Others</p> <ul style="list-style-type: none"> - Epidemiological studies on hospitalized patients, deafness, health service providers' practice on prescribing injections, fang proof protective boots for snakebites, injuries among athletes, Japanese encephalitis, communication channel using electronic media for dissemination of research findings
2000 - 2006	<p>Reproductive health</p> <ul style="list-style-type: none"> - caesarean sections – patterns and predictors - menstrual regulations - birth spacing and breast feeding - emergency contraception (situation analysis)

Period	Areas of research
	<ul style="list-style-type: none"> - treatment seeking behavior for vaginal discharge - contraceptive needs among newly married young couples - maternal factors and fetal outcome - pre-malignant cervical lesions - mass media on reproductive health education - youth (sexual and reproductive risk behavior) - abortion
	STD/HIV/AIDS
	<ul style="list-style-type: none"> - non-ulcerative STDs - KAP among adolescent clinic attendees - adherence of algorithms for STD management - STD information for prevention and control - STD management among drug sellers
	Tuberculosis
	<ul style="list-style-type: none"> - NGOs involvement in DOTS implementation of TB programme
	Leprosy
	<ul style="list-style-type: none"> - social needs - monitoring and supervision activities of leprosy control - compliance with home-based care practices
	Hepatitis C
	<ul style="list-style-type: none"> - IEC package development, seroprevalence, risk of infection, awareness - prevalence
	Research policy
	<ul style="list-style-type: none"> - establishment of national research monitoring system, - utilization of research findings - existing mechanisms to promote utilization of research findings
	Others
	<ul style="list-style-type: none"> - self-medication practice for minor ailments - prevalence studies - smoking, tobacco use, alcohol drinking, betel chewing, hypertension
2006 - 2013	HIV/AIDS
	<ul style="list-style-type: none"> - orphans (children) - reproductive health needs of HIV positive women
	Tuberculosis
	<ul style="list-style-type: none"> - NGOs involvement in DOTS implementation of TB programme (intervention study) - assessment of DOTS programme - anti-tuberculosis drugs in drug shops
	Malaria
	<ul style="list-style-type: none"> - adherence to home management for child malaria - health promotions (options for social movements) - strengthening malaria prevention and control - treatment seeking practice - diagnosis (rapid diagnosis by village volunteers- intervention study) - human behavior to prevent malaria

Period	Areas of research
	<ul style="list-style-type: none"> - Myanmar artemisinin resistance containment project (household survey and drug outlet survey) - migrants (behavior, migrant mapping to support malaria prevention strategies)
Dengue	<ul style="list-style-type: none"> - multidisciplinary approach (social and behaviour, intervention on prevention of mosquito breeding and vector control) - midwives (knowledge and practices in diagnosis and vector control) - advocacy as a risk communication tool
Diarrhoea and dysentery	<ul style="list-style-type: none"> - under five children
Maternal and child health	<ul style="list-style-type: none"> - newborn and child care (essential newborn care, family and community practices, availability, accessibility, acceptability, male participation) - newborn (birth asphyxia, at risk newborns and their survival) - skilled birth attendants (antenatal and intrapartum care)
Acute respiratory tract infections	<ul style="list-style-type: none"> - at general practitioners' clinics
Water and sanitation	<ul style="list-style-type: none"> - water infra-structure, household water treatment, safe storage and water quality
Environmental health	<ul style="list-style-type: none"> - climate change and diarrhea diseases
Reproductive health	<ul style="list-style-type: none"> - reproductive tract infections (family planning clinic attendees) - printed media on reproductive health education - youth (gender differences in perception, adolescent migrants, intervention study on peer education, training parents on reproductive health communication between parents and young people) - knowledge promotion through modern communication technology (hotline, email and website) - emergency obstetric care (basic health staff training need, non-users' perspectives) - maternity waiting homes (sexual and reproductive health care)
STD	<ul style="list-style-type: none"> - STIs among male highway drivers
Elderly	<ul style="list-style-type: none"> - social needs and resources
Leprosy	<ul style="list-style-type: none"> - social needs, stigma, case finding activities, monitoring and supervision
Others	<ul style="list-style-type: none"> - basic health staff (public health information system), needle removal practices, psychosocial needs in visual impairment,

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. Thein Maung Myint	Master's Degree in Community Health, Liverpool School of Tropical Medicine	1 year	UK
2.	Dr. Thein Hlaing	Epidemiology & Medical Statistics at London School of Hygiene & Tropical Medicine, Cancer Epidemiology at IARC, and Cancer Registration in Singapore	1 year	London Singapore
3.	Dr. Thein Hlaing	Advanced Epidemiological Methods at Harvard School of Public Health and New England Epidemiology Institute in U.S.A.	6 months	USA
4.	Dr. Aung Myo Han	M.Med.Sc. (Epidemiology)	1 year	England
5.	Dr Myint Myint Soe	Epidemiology, Johns Hopkins University	1 year	USA
6.	Dr San Shwe	Epidemiology and Social Behavioural Science, Harvard University	1 year	USA
7.	Daw Le Le Win	Health Systems Research and Operations Research	1 year	USA
8.	Dr. Thein Hlaing	Reproductive Health (Study tour)	3 weeks	USA
9.	Dr Khin Thet Wai	Training on Social Science Research in Reproductive Health	1 year	Singapore Thailand
10.	Daw Win Win Khine	Regional Training Programmes on Planning, Designing and Analysis Data from Health Surveys	3 weeks	Sri Lanka
11.	Daw Moe Thida	Research Training on Data Mangement	2 months	Indonesia
12.	Dr. Maung Maung Toe	STD Epidemiology	6 months	Malaysia
13.	Daw Tin Tin Than	Training on Survey Techniques	3 months	Thailand
14.	Daw Sao Mya Kyi	Training on Survey Techniques	3 months	Thailand
15.	Dr. Ohnmar	M.Sc (Epidemiology), Prince of Songkla University, Hatyai	2 years	Thailand
16.	Dr. Ko Ko Zaw	M.P.H (STD Epidemiology), Boston University	12 months	USA
17.	Dr. Kyu Kyu Than	MA (Social Science course), Mahidol University, Bangkok	12 months	Thailand

Sr. No.	Name	Fellowship	Duration	Country
18.	Dr. Maung Maung Toe	Investigators' meeting: Analysis workshop on Social Science Research in Asia and Africa	5 days	Thailand
19.	Dr. Ko Ko Zaw	Research capability development for community health workers in Cambodia, Lao PDR, Myanmar and Vietnam	14 days	Thailand
20.	Dr. Ohnmar	Research capability development for community health workers in Cambodia, Lao PDR, Myanmar and Vietnam	14 days	Thailand
21.	Dr. Aung Thu	Research Capability Development for community Health Workers in Cambodia, Lao PDR, Myanmar and Vietnam	14 days	Thailand
22.	Dr. Kyaw Oo	Research Training on Reproductive Health Epidemiology, Prince of Songkla University, Hatyai	2 years	Thailand
23.	Dr. Aung Thu	Master of Clinical Tropical Medicine, Faculty of Tropical Medicine, Mahidol University	1 year	Thailand
24.	Dr. Ohnmar	Project management of tropical diseases research projects, WHO South East Asia Regional Office	2 years	India
25.	Dr. Myo Myo Mon	M.Sc (Epidemiology), Prince of Songkla University, Hatyai	2 years	Thailand
26.	Dr. Ohnmar	PhD Epidemiology, Prince of Songkla University, Hatyai	1 year	Thailand
27.	Dr. Thae Maung Maung	M.Sc, International Health, Charite Universities Medizin, Berlin	14 months	Thailand
28.	Daw Wai Wai Myint	Data Management	1 month	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

- World Health Organization
- WHO-HRP
- Special Programme for Research and Training in Tropical Diseases (WHO/TDR)
- Liverpool School of Tropical Medicine, UK
- Prince of Songkla University, Hat Yai, Thailand
- UNFPA

- UNICEF
- University of Public Health
- Burnet Institute
- Defence Services Medical Academy
- Myanmar Medical Association

7. Achievements

7.1. Awards (Research paper awards and other scientific awards)

- Director General's Research Poster Award 1993
(ညွှန်ကြားရေးမှူးချုပ်၏ သုတေသနပိုစတာဆု - ၁၉၉၃)
- Director General's Research Poster Award 1995
(ညွှန်ကြားရေးမှူးချုပ်၏ သုတေသနပိုစတာဆု - ၁၉၉၅)

Best Poster and Paper Awards

First Prize

1. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 1996 on the title of "Birth spacing: its consequences on child health"
2. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 1998 on the title of "Perceptions of reproductive tract infections among the community and service providers in Pyay and Kalaw Townships: A qualitative study"
3. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 1998 on the title of "Acceptability study of the fang proof protective boots among farmers of Taungdwingyi Township"
4. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 1999 on the title of " Socio-economic background and behaviour of adolescent pregnancy"
5. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 2000 on the title of "Self-medication practice for common minor ailments in urban and rural community of Hlegu Township"
6. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 2004 on the title of "Marriage practices among selected ethnic groups in rural area of Pa-an Township"
7. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 2005 on the title of "Family and community practices of newborn care in Pyay District"
8. Best Paper for Applied Research Award in Myanmar Health Research Congress 2006 on the title of "Serological response to chemoprophylaxis in extended contacts of leprosy a randomized controlled trial"
9. Best Paper for Basic Research Award in Myanmar Health Research Congress 2006 on the title of "Bacteriological evaluation of multi-drug resistant cases among category II treatment failure pulmonary tuberculosis patients".

10. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 2006 on the title of "Effect of community involvement in DOTS implementation of TB program in Bago Division (An intervention study)".
11. Best Poster Research Award in Myanmar Health Research Congress 2006 on the title of "Study on factors influencing the treatment outcome of tuberculosis treated by 4-FDC"
12. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 2007 on the title of "Understanding referral of tuberculosis suspect patients from general practitioners' clinics to Public Tuberculosis Centre in Myanmar"
13. Best Paper for Applied Research Award in Myanmar Health Research Congress 2010 on the title of "Prevalence and associated factors of curable sexually transmitted infections and antibiotic susceptibility pattern of Neisseria gonorrhoeae in highway coach drivers, Myanmar"
14. Best Paper for Health Systems Research Award in Myanmar Health Research Congress 2010 on the title of "Sustainability oriented Action-Cum Research: Youth to youth peer education programme in Okkan Sub-Township, Yangon Division"
15. Best Paper for Basic Research Award in Myanmar Health Research Congress 2010 on the title of "Bacteriological profile of surgical site infections in Gynecological ward of North Okkalapa General Hospital"
16. Best Poster Award in Myanmar Health Research Congress 2011 on the title of "Awareness and attitude towards medical ethics among medical registration license training attendees in 2011"

Young Researcher Award

1. Young Research award for Health Systems Research in Myanmar Health Research Congress 2010 on the title of "Basic health staff needs in emergency obstetric care training in selected townships of Yangon Division"
2. Young Research award for Health Systems Research in Myanmar Health Research Congress 2011 on the title of "Identifying requirement for targeted risk communication in prevention of dengue transmission in Mawlamyaing, Mon State, Myanmar"
3. Young Research award for Health Systems Research in 41th Myanmar Health Research Congress 2012 on the title of "The burden of common childhood illnesses in peri-urban households: The multiple effects of multiple exposures to environmental conditions"

Dissertation Award

The Distinguished Dissertation Award of Prince of Songkla University, Hat Yai, Thailand, 2011 on the title of "Cluster randomized trial on the use of community volunteers to improve early diagnosis and treatment of malaria in Bago Division, Myanmar (2011)"

7.2. Research Grants

A. Human Reproductive Health

Sr. No.	Title	Year	Funding agencies
1.	Women's Health and development, country profile in Myanmar		WHO/SEARO
2.	Clinical profile and incidence of ectopic pregnancy	1987-1988	
3.	Fertility regulation in Kungyangone: pattern and determinants	1987-1988	
4.	Access to family planning service through GPS	1990	DMR
5.	Study of knowledge, attitude and practices on family planning among currently married women in the Central Institute of Public Services (CIPS) Phaunggyi	1992	
6.	Study of incidence and risk factors of ectopic pregnancy	1990-1992	
7.	Occurrence of double primary cancer in Yangon	1991-1992	DMR/YGH
8.	Abortion in North Okkalapa, Myanmar	1993-1994	WHO/HRP (LID Grant)
9.	Contraception in rural Taikkyi, Myanmar	1993-1994	WHO/HRP (LID Grant)
10.	The survivorship of low birth weight babies in selected township of Yangon	1993-1996	WHO/HRP (ID 92087)
11.	Maternal mortality in Mandalay Division	1993	WHO/HRP
12.	Correlates of breast feeding practices in selected peri-urban area of Yangon	1993-1997	WHO/HRP (ID 93027)
13.	Contraceptive prescribing practices of health care providers (general practitioners and basic health staff) in Taikkyi township	1993-1994	WHO/HRP
14.	Birth spacing in a township of Yangon Division, Myanmar, its consequences on child health	1995-1997	WHO/HRP (ID-93086)
15.	Contraceptive practices after induced abortion	1995-1997	WHO/HRP (LID Grant) (ID-94016)
16.	Study on contraceptive acceptability and reproductive health practices		UNFPA (ID-MYA/94/PO1)
17.	A qualitative study on Contraceptive Use Dynamics (CUD): Providers' perspectives	1996-1997	WHO/HRP (ID-93085)
18.	Reproductive needs assessment of post-partum and post-abortion women	1996-1997	UNFPA

Sr. No.	Title	Year	Funding agencies
19.	Influence of social networks on fertility regulation among Kayin women	1996-1998	ION
20.	Acceptability of condoms among family planning clinic attendees in Waybargi	1996	Govt.
21.	Utilization, acceptance and attitudes towards barrier methods among married couples in Yangon	1996-1997	WHO/HRP
22.	Socio-economic characteristics and behaviour of adolescent mothers	1996-1998	WHO/HRP (ID-95043)
23.	Acceptability of modern contraceptive methods in Hlaing-Tharyar township	1997-1998	Population council
24.	Perceptions of reproductive tract infections among the community and service providers in Pyay and Kalaw Townships: A qualitative study	1997-1998	WHO/HRP (ID-97013)
25.	Assessment of contraceptive method mix-stage 1	1997	WHO/HRP (ID-96016)
26.	Factors determining induced abortion	1997-1998	WHO/HRP (ID-94001)
27.	Role of husbands and wives in fertility regulation	1999	DMR Grant
28.	Validation of abortion procedures and fertility regulation	2000-2001	UNFPA
29.	Collaborative reproductive epidemiology research: patterns and predictors of caesarean section in Asia	2002-2003	WHO/HRP
30.	An exploratory study on menstrual regulation in selected area of Myanmar using participatory research methods	2002-2003	Population council
31.	Emergency contraception in Yangon: a situation analysis	2002-2003	Population council
32.	Care seeking behaviour among women with vaginal discharge	2002-2003	Population council
33.	Contraceptive needs among newly married young couples	2002-2003	Population council
34.	Effectiveness of mass media on reproductive health education for behaviour change communication (BCC) among youth males in an rural area	2003-2005	WHO/APW
35.	Family and community practices of newborn and child care in Pyay District: Qualitative assessment	2005-2007	WCHD/ WHO
36.	Effectiveness of adolescent reproductive health training on reproductive health communication between parents and adolescents	2006-2007	WHO(APW)

Sr. No.	Title	Year	Funding agencies
37.	Operations research on promotion of reproductive health knowledge among youth (15-24 years) through peer education in sub-township of Myanmar	2007-2009	WHO/HRP (ID A 55129)
38.	Gender differences in perceptions towards reproductive health among selected rural youth	2007-2008	WHO(APW)
39.	Promotion of reproductive health knowledge by questions and answers through modern communication technology	2008	WHO
40.	Promotion of reproductive health of adolescent migrants in Mandalay City	2006-2009	WHO/HRP (A65243)
41.	Training need assessment of emergency obstetric care among basic health staff in selected townships of Yangon Division	2009	DOH/DMR/UN FPA
42.	Research project on promotion of reproductive health knowledge by questions and answers through modern communication technology	2008	(WRM/H9/27/1)
43.	Evaluation of effectiveness of Maternity Waiting Homes on care of at-risk pregnant women in cyclone affected townships of Ayeyarwaddy Region	2010	
44.	Contraceptive acceptability and reproductive health practices		UNFPA

B. Communicable Diseases (Malaria, Tuberculosis, HIV/AIDS, STD, Hepatitis, Diarrhoea, Dengue, Leprosy, Acute Respiratory Tract Infections, Ascariasis, Other communicable diseases)

Sr. No.	Title	Year	Funding agencies
Malaria			
1.	Behavioural and Socio-economic factors influencing malaria incidence in different geographical regions and sero-epidemiology of malaria	1982-83	WHO
2.	Epidemiology and transmission dynamics of malaria	1983-86	WHO
3.	Dynamic of malaria transmission in a representative foothill and adjacent plains area of Myanmar	1984-1989	WHO/TDR
4.	Effect of the longitudinal study of malaria transmission dynamics on the malaria related KAP of the community (A KAP study on malaria in forest-fringe and plains areas in Pegu Division)	1985-1986	WHO
5.	Socio-economic research and knowledge-attitude-practice study	1988	WHO

Sr. No.	Title	Year	Funding agencies
6.	Relationship between deep forest and forest- fringe malaria	1988-89	WHO/ TDR
7.	Development of socio-bahavioural indicators for prediction of malaria prevalence and intensity in an endemic area		
8.	Socio-economic aspects of mosquito net utilization in forest-fringe malaria related endemic areas	1988-89	DMR
9.	Knowledge, perception and behaviour studies on malaria in Tanintharyi Division	1989	DMR
10.	Operations research on the management and control of malaria through active community participation: Employment of specific voluntary malaria workers	1990-94	WHO/ TDR
11.	Programme-based research on malaria	1990-91	DMR/DOH
	Impact of improved case management on the incidence of cerebral malaria and malaria mortality in a township	1993-95	WHO/ TDR (ID 920379)
12.	Community KAP and treatment-seeking pattern for malaria illness in Mudon township	1993	DMR
13.	Role of voluntary health workers in malaria control in Mudon Township	1993	DMR
14.	Malaria diagnosis, treatment and referral patterns of basic health staff at the peripheral health services in Mudon Township, Mon State	1993	DMR
15.	Malaria treatment and referral practices of general practitioners in selected townships of Mon State	1993-94	WHO/ TDR
16.	Malaria mortality in community	1997-98	DMR
17.	Use of modern drugs and traditional medicine for malaria among household members	2006	WHO(APW)
18.	Intensifying health promotion in malaria options for social movements in endemic areas of Myanmar	2006-07	WHO/HPSR
19.	Adherence to national guidelines in home management of child malaria in high risk villages	2007	WHO(APW)
20.	Community voluntary as agents for improving early diagnosis and appropriate treatment of malaria among forest workers in Bago Division	2007-2011	WHO/SEARO
21.	Malaria in Mon State, Myanmar and its epidemiological significance	2011	
22.	Scaling up mechanisms for early diagnosis and prompt treatment of malaria in rural areas prior to Myanmar Artemisinin Resistance Containment	2011	

Sr. No.	Title	Year	Funding agencies
Tuberculosis			
1.	Operational research on community (Non Governmental Organizations) involvement in DOTS implementation of TB programme	2003-06	WHO/ TDR/ RCS (ID A 10917)
2.	Assessment of DOTS programme in township level	2006-07	WHO/APW
3.	Dispensing anti-tuberculosis drugs among drug shops in selected township, Myanmar	2010	
HIV/AIDS, STD			
1.	KAP study on AIDS/HIV infection in intravenous drug users at Yangon drug Dependency Treatment Centre	1987-1988	WHO/APW
2.	Study of KAP on HIV infection/AIDS among health personnel in Yangon	1991-92	DMR/DOH
3.	Demography, knowledge, attitude and behaviour and HIV infection among intravenous drug users in Yangon	1991-92	WHO/SEARO
4.	Sterilization of syringes and needles in medical practice	1991-92	DMR/DOH
5.	Sexual networks of male STD clinic attenders at central STD clinic, Yangon: Potential HIV pathways	1993	DMR
6.	KAP study on HIV infection/AIDS among mothers of hospitalized children in Yangon Children Hospital	1993	DMR
7.	Non-ulcerative STDs among married women in urban and peri-urban Yangon	1997-2003	WHO/HRP(LID Grant)(ID-96367)
8.	Social and behavioural dimensions of STIs among adolescent clinic attendees	2000-2003	WHO/HRP (ID- 98227)
9.	Operations research on HIV/ AIDS and STD information for prevention and control	2002-2005	WHO(APW)
10.	STI management among medicine sellers in Yangon: Knowledge, perception and performance	2004-2005	DMR
11.	Prevalence of reproductive tract infection at the Family Planning Clinic at Central Women's Hospital, Yangon	2005-2006	WHO/HRP
12.	Reproductive health needs of HIV positive women	2006-2007	WHO(APW)
13.	Effect of clinic-based education and peer education on HIV related knowledge, attitude and behaviour among young people: a quasi-experimental study in Shwe-Pyi-Thar Township	2006-2007	WHO(APW)
14.	Linking STI/RTI services to RH services at primary health care level	2009	WHO/HRP

Sr. No.	Title	Year	Funding agencies
15.	Sexual transmitted infections among male highway drivers in Myanmar	2009	WHO/HRP (Project ID A 65225)
16.	Situation analysis of orphans and vulnerable children due to HIV/AIDS in selected townships	2010-2011	UNICEF
Hepatitis			
1.	A clinico-epidemiological study of Non-A, Non-B hepatitis in Rangoon	1982-83	JICA
2.	Hospital-based epidemiological study of viral hepatitis with special reference to non-A, non-B hepatitis in Burma	1985-86	
3.	Identification of non-A non-B hepatitis form overt and pericteric cases of viral hepatitis in Rangoon	1986-1987	JICA
4.	Epidemiological and laboratory study of sporadic acute viral hepatitis in Rangoon	1987-88	
5.	Secondary infections of non-A, non-B hepatitis in household contacts in Rangoon	1989-1990	WHO/SEARO
6.	Study on assessing the different aspects of ET-HNANB especially mode and source of infection	1991-1992	WHO
7.	Knowledge and perceptions of clinic attendees on DMR hepatitis B vaccination	1998-1999	DMR
8.	Exploratory study on counseling needs of Hepatitis B surface antigen (HBs Ag) positive persons	1999	DMR
9.	Assessment of information and awareness on Hepatitis C infection and prevention in community and health care providers	2001	DMR
10.	Seroprevalence and risk of hepatitis C infection in Central National Blood Bank (CNBB)	2000	DMR
11.	Knowledge, perception and behaviour of Civil Service Officers towards viral hepatitis B infection	2000	DMR
12.	Serological markers of transfusion transmitted infection among blood donors in Central National Blood Bank (CNBB), Yangon	2000	JICA
Diarrhea			
1.	Epidemiological study of acute diarrhea in a rural community and study of social and cultural practices related to diarrhoea	1982-83	WHO
2.	The sero-epidemiological study of rotavirus infection among under five children in Rangoon Division, Burma	1983-84	WHO

Sr. No.	Title	Year	Funding agencies
3.	Field research on acute diarrhoeal diseases	1983-84	DMR/JICA
4.	Food and water contamination as possible risk factors of acute diarrhea during the rainy season in Rangoon, Burma	1983-86	WHO
5.	The impact of hand washing with soap and water in the reduction of acute diarrhea and dysentery in some urban communities in Rangoon, Burma	1983-86	WHO
6.	Measles associated diarrhea in the infectious diseases hospital in Rangoon (minor project)	1984-86	
7.	The community-based prospective study of rotavirus diarrhea in children under two years of age in Rangoon (major project)	1986-1988	WHO/CDD
8.	Methods of cleaning the anus after defecation and the degree of hand contamination according to different methods used (minor project)		
9.	Preliminary trial of rhesus Rhesus rotavirus vaccine (MMU 18006) in Burmese infants	1987	WHO/CDD
10.	Case control study to identify risk factors for rotavirus diarrhea	1987-88	
11.	The association between the use of paper for cleaning the anus after defaecation among mothers and the low incidence of diarrhea and dysentery in their under-five children (Minor)	1987-88	
12.	Poultry disease outbreak investigation (ad hoc)	1986-87	
13.	The physical, chemical and bacterial quality of drinking water in a peri-urban community during the cool-dry season in Rangoon (Ad hoc)		
14.	Efficacy trial of Rhesus rotavirus and Rhesus-human reassortant rotavirus trial in Myanmar Neonates	1990-1991	WHO/CDD
15.	Feeding practices as determining factors of child diarrhoeal deaths	1987-88	WHO/CDD
16.	Water and toilet paper use after defecation and hand contamination	1989	JICA
17.	Efficacy trial of rhesus rota-virus and rhesus- human-resistant rota-virus vaccine trial in Myanmar neonates	1990-1991	WHO/CDD
18.	The institutional strengthening grant for diarrhoea	1990-1991	WHO/CDD
Dengue			
1	Eco- bio-social research on dengue in Asia (Multicountry study)	2007, 2008	WHO/TDR

Sr. No.	Title	Year	Funding agencies
2.	Measuring gaps in targeted risk communication for prevention of dengue infection among mothers/caretakers at Yangon Children Hospital	2010	
3.	Assessment of knowledge and practice of midwives in diagnosis and vector control measures for dengue in rural areas of Yangon Region, Myanmar	2010-2011	(WHO/TDR, Project ID SN 1195)
4.	Measuring gaps in targeted risk communication for prevention of dengue infection among mothers/caretakers (Mon State)	2011	
5.	Assessment of knowledge and practice of midwives in diagnosis and vector control measures for dengue in rural areas of Yangon Region, Myanmar	2011	WHO-SEARO and TDR Project ID SN 1195

Leprosy

1.	Assessment of self image and social needs among grande I and II leprosy cases in Aung Lan Township	2003-2006	IMCJ
2.	Assessment of routine case finding activities of leprosy in Kawa and Daik-U Townships from January to December 2004	2005	American Leprosy Mission (ALM)/ Leprosy Control Programme (DOH)
3.	Assessment of monitoring and supervision activities of leprosy control by field supervisors in selected townships of Mandalay Division	2005	American Leprosy Mission (ALM)/ Leprosy Control Programme (DOH)
4.	Factors influencing compliance with home based self-care practices among people affected by leprosy with disability in Shwedaung and Thegone townships	2005	American Leprosy Mission (ALM)/ Leprosy Control Programme DOH
5.	Case studies on social challenges of Person Affected by Leprosy (PAL)	2006-2007	IMCJ
6.	Accept or Reject: Views on leprosy related stigma in selected communities	2008	IMCJ

Acute Respiratory Tract Infections

1. Aetiology, modifiable risk factors, clinical features and immunological status of children with acute respiratory infections attending general practitioner's clinic in periurban setting, Yangon

Sr. No.	Title	Year	Funding agencies
2.	Study of acute respiratory infection in Laydaungkan, Thingangyun (minor project)	1985-86	
3.	Study of ARI in Laydaungkan, Thingankyum township	1986-1987	
4.	KAP study on ARI in rural areas	1987-88	WHO
Ascariasis			
1.	Epidemiology and population dynamics of <i>As. lumbricoides</i> in Okpo village	1982-83	
2.	Epidemiology and transmission dynamics of Ascaris infection in Okpo village	1983-84	
3.	The relationship between the control of Ascaris infection and child nutritional status	1984-87	USAID
4.	A profile of ascariasis in the Rangoon Children's Hospital (minor project)	1985-87	
5.	Control of ascariasis through targeted chemotherapy	1986-88	WHO
6.	WHO/PDP co-ordinated studies on morbidity and mortality in ascariasis (ad hoc)	1986-1987	WHO/PDP
7.	Risk factors as determinants in Ascaris induced intestinal obstruction	1987-88	WHO/PDP
Other communicable diseases			
1.	Rapid assessment of serological response to three doses of oral polio vaccine	1990-1991	WHO/SEARO
2.	The study of disease pattern of in-patients at Shwepyitha Township Hospital	1997	
3.	A randomized cohort trial of use of needle removal devices during measles mass immunization campaigns	2005-2006	WHO

C. Non-communicable Diseases (Elderly, Environmental Health and Others)

Sr. No.	Title	Year	Funding agencies
Elderly			
1.	Health problems of the elderly population in selected urban and rural communities of Myanmar	1987-1988	
2.	Morbidity pattern of hospitalized elderly patients in Yangon (1985-1987)	1987-1988	
3.	An epidemiological study of the health status of the elderly population in Myanmar	1989-1992	WHO/SEARO
4.	Incidence of morbidity and disability in the elderly: A prospective study	1992-1994	DMR
5.	Assessment of functional disability in the elderly: Agreement between interview schedule and physical performance examination	1995	DMR Grant
6.	Determinants of social needs and resources for frail elderly people in Myanmar	1997	DMR
7.	Assessment of social needs and resources for frail elderly people in Myanmar	2007-2011	WHO/APW
Environmental Health			
1.	Socio- economic study of the rural water supply and sanitation facilities	1989	USAID
2.	Study of pesticide poisoning among Inlay Residents	1996	DMR
3.	Indoor air pollution and the prevalence of acute respiratory infection (ARI) among under five children in Shwepyithar Township	1999-2000	DMR
4.	Women's view of indoor air pollution in relation to respiratory illness: a qualitative approach	1999	DMR
Others			
1.	Study of sports injury in Myanmar athletes	1990	DMR
2.	Clinico-epidemiological study of thalassaemia in Yangon Children's Hospital	1990	DMR
3.	Field Trial of Russel Viper Toxoid in Myanmar	1991-1992	WHO
4.	A study on road traffic accidents in Yangon city	1994-1995	DMR
5.	Clinico-epidemiological study of deafness on Myaing Township, Upper Myanmar	1998	DMR
6.	Prevalence of hypertension and possible risk factors in Pa-An Township, Myanmar	2001-2002	DMR Grant
7.	Prevalence of smoking in a peri-urban area of Yangon	2000	DMR

Sr. No.	Title	Year	Funding agencies
8.	Prevalence of smoking, alcohol drinking and betel chewing in a selected township in Yangon Division	2000	MWAF
9.	Prevalence of hypertension and its associated factors in adult population in Yangon Division	2006	DMR
10.	Use of established tetanus models for estimating incidence as well as for planning and evaluation of immunization programmes of tetanus in Burma	1982-83	
11.	Use of established models on diphtheria and whooping cough for planning and evaluation of immunization programme	1983-85/86	
12.	A field trip to Pa an for the investigation of suspected epidemic related to eating diseased fish among people in Pa an township, Karen state	1984	WHO
13.	Dysentery (Shigellosis) outbreak study in Thingungyun township, Rangoon Division	1985	
14.	Optimization of surgical care of cataract patients in EENT hospital in Rangoon	1985-86	
15.	A survey on the use of B12 injection in Burma	1985-86	
16.	Demography and drug-use behavioural characteristics among drug users attending the Drug Dependency Treatment Centre in Yangon, 1986-1990	1987-1988	

D. Research Policy and Cooperation and Health Systems Research

Sr. No.	Title	Year	Funding Agency
1.	Establishment of a community financing system in a rural area	1989-1990	WHO/SEARO
2.	A study on drug utilization by General Practitioners in a township/district	1992-1993	WHO
3.	Improving rural community access to primary health care: study of township health system of a selected township in Myanmar	1998-1999	UNDP HDI Project
4.	Self medication practice for common minor ailments in rural and urban community of a township	2000	DMR
5.	Implementation status of recommendation made by WHO consultants who visited Myanmar with WHO regular budget in 1998-1999	2000	MMR RPS 001
6.	Feasibility study on the " Establishment of National Research Monitoring System"	2001	WHO (APW)

Sr. No.	Title	Year	Funding Agency
7.	Extent of utilization of research findings emanated out of the research projects	2001	WHO (APW)
8.	Effectiveness of the existing mechanism to promote utilization of research findings	2001	WHO (APW)
9.	Retrospective analysis of surgical interventions of thyroid cases in Ear, Nose, Throat Hospital (ENT) Yangon from 2008-2010	2011	

E. Research on Child survival

Sr. No.	Title	Year	Funding agencies
Child survival			
1.	Control of ascariasis through targeted chemotherapy	1988-89	USAID
2.	Clinico-epidemiology study of Thalassaemia in Yangon Children's Hospital		
3.	Rapid assessment of serological response to three doses of oral polio vaccine	1990-1991	WHO: ICP/EPI/001
4.	Operations research on school-based chemotherapeutic control of ascariasis in Thaketa and Mingaladon township	1993-1995	DMR
5.	Study of infant, early childhood and maternal mortality and morbidity in Myanmar	1991-1992	UNICEF
6.	Family and community practices of newborn and childcare in Pyay District: Qualitative assessment	2005-2006	WCHD/WHO
7.	Perception on availability, accessibility and acceptability of maternal and newborn health services among mothers in the selected community.	2005	WHO

Maternal and Child Health

1.	Baseline assessment of essential newborn care in Ayeyarwaddy and Magway Division	2006-2007	WHO/DOH
2.	Non-users' Perspective on Emergency Obstetric Care services in selected rural areas 2011	2011	
3.	Situation analysis of communication channels for improving antenatal and delivery services at the community level	2011	
4.	Endline assessment of essential newborn care in Ayeyarwaddy and Magway Regions	2011	
5.	Male participation in maternal and newborn health	2012	Aus AIDS/BI

8. Publications

Number of international publications	= 81
Number of local publications	= 122
Total number of publications	= 203

EXPERIMENTAL MEDICINE RESEARCH DIVISION

1. Historical Background

Experimental Medicine Research Division was established in 1963. First appointed Head of the Experimental Medicine Research Division was Dr. Khin Maung Tin. Former staff structure in 1963 was ten staffs consisting of one consultant/Head of Division, two senior research officers, one research officer, one technician Grade I and three technician Grade II and one technician Grade III. Current staff structure in 2013 consists of 19 staffs; one Deputy Director/Head of Division, two research scientists, six research officers, two research assistants II, three research assistants III, three research assistants IV and one laboratory attendant.

The Experimental Medicine Research Division is currently engaged in the research activities on viral hepatitis including hepatitis A, B, C, D and E and gastro-intestinal infectious diseases. Currently 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.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Khin Maung Tin	M. B, B.S, D.PM&H, F.R.C.P.(Edin)	Part Time Head 1964-71	Promoted to Director
2.	Dr. Khin Maung Tin	M. B, B.S, D.PM&H, F.R.C.P.(Edin)	Head 1972-81	Promoted to Director
3.	Dr. U Hla Myint	M.B., B.S; D.T.M. & H. (Liverpool)	Head 1981-88	Transferred to DOH
4.	Dr. Khin Maung Win	MBBS, MMedSc (Int Medicine) MRCP, FRCP	Head 1990-95	Transferred to Liver Unit, Yangon General Hospital
5.	Dr. Khin Pyone Kyi	MBBS, DBact, MMedSc(Micro), Ph.D (Microbiology)	Research Scientist and Acting Head -1995	Transferred to Vaccine production & Distribution Division
6.	Dr. Myo Khin	M.B B.S; D.C.H; M.D. (New South Wales); F.R.C.P. (Edin.)	1998-2003	Promoted to Director (Research)
7.	Dr. Myo Aye	MBBS, DCH	Acting Head 2004	Retired

Sr. No.	Name	Degree	Year (From-To)	Remarks
8.	Dr. Myat Phone Kyaw	MBBS; MMedSc (Biochemistry), Ph.D(Comlanbo)	2005	Transferred to Parasitology RD
9.	Dr. Khin May Oo	MBBS, DBact, MMedSc(Micro), Ph.D (Microbiology)	2007-09	Promoted to Director(Research)
10.	Dr. Win Maw Tun	MBBS,MMedSc (Microbiology), Ph.D (Microbiology)	2010-12	Transferred to Technology Development Division

3. Current Staff

3.1. Photograph



3.2. List of Staff

Deputy Director/ Head	... Dr. Yi Yi Kyaw MBBS MMedSc (Microbiology) (UM-1)
Research Scientist	... Dr. Aye Aye Lwin MBBS PhD (Okayama University, Japan) ... Dr. Aye Aye Win MBBS MmedSc (Pathology) (UM-1)
Research Officer	... Dr. Myat Tin Htwe Kyaw MBBS (UM-1) ... Daw Ohmar Lwin B.Sc (Zoology) (YU) Dip in Korean (UFL) ... Daw Haymar Hpoo BSc (Chemistry) (YU) ... Dr. Hnin Ohnmar Soe MBBS (UM-1)
Research Assistant (2)	... Daw Baby Hla BSc (Chemistry) (YU) ... Daw Zin Mar Soe BSc (Chemistry) (YU)
Research Assistant (3)	... Daw Wai Myat Thwe BSc (Botany) (UDE) ... Daw Pyae Pyae Phyo BA (Archaeology) (YU)
Nurse	... Daw San Nwe (S/N)
Research Assistant (4)	... U Hla Win Aung BSc (Biotechnology) (DU)
Laboratory Attendant	... Daw Win Win Khine

4. Area of Research Activities

4.1 Hepatology

- Prevalence of Hepatitis B in various population group and different region
- Prevalence of Hepatitis C in various population group and different region
- Immunogenicity trial of hepatitis B and other childhood vaccine
- Development of diagnostic kits for detection of hepatitis infection
- Clinical trial of alternative therapy to hepatitis B and C infection
- Diagnostic and monitoring of screening of liver cancer

4.2 Gastroenterology

- Experimental studies on effect of malnutrition on pancreatic function
- Infections of the upper gastrointestinal tract and their relationships with nutrient absorption and growth

5. International Training Courses and Fellowships

Sr. No.	Name	Fellowship	Duration	Country
1.	U Pe Win,	To study Chemistry specialising in Research and Development of petroleum production in the U.S.S.R.		1966, Moscow, USSR
2.	Dr. Khin Maung Tin	To study techniques in liver research	6 months	Boston and New York, England

Sr. No.	Name	Fellowship	Duration	Country
3.	Dr. Khin Maung Tin	To study immunology technique for liver	3 Months (WHO)	Immunology Research and Training Centre, Singapore, March 19, 1972
4.	U Than Aung	Immunology	4 Months	U.S.A, 1989
5.	Dr. Khin Maung Win	Research methodology and advanced laboratory technique in viral hepatitis	12 months	France, 1990
6.	Daw San San Oo	Hepatitis	12 months	Japan, 1990
7.	Dr. Hla Pe	Study of advance technique and process in producing hepatitis B vaccine	4 Months	U.S.A, 1991
8.	Dr. Khin Pyone Kyi	Study of safety testing and quality control of hepatitis B vaccine	6 Months	U.S.A, 1991
9.	Dr. Yee Yee Htwe	Diagnosis of viral hepatitis infection by radio-immunoassay	16 days	China, 1991
10.	Dr. Yee Yee Htwe	Diploma in Medical Microbiology	6 months	Malaysia, 1994
11.	U Than Aung	Regional training course on advanced method for local reagent for product of RIA	16 days	Thailand, 1995
12.	Dr. Myo Aye	Management of chronic liver diseases	6 weeks	Thailand, 1998
13.	Dr. Myo Khin	Method for assessment of intestinal function-WHO/TRG	2 months	Department of Medicine, University of New South Wales, Sydney, Australia 1997-98
14.	Dr. Myo Khin	Okayama University and Okayama Red Control of Hepatitis C Infection	(4 weeks 2002)	Cross Blood Center, Okayama, Japan
15.	Dr. Myo Khin	Scientific visit to acquire new skills in management of projects related to blood program-ming, Haematology research mostly in Leukemia and Lymphoma	(2 weeks 2005)	Guy's and St. Thomas' Hospital, and The Rayne Institute, King's College Hospital, London, United Kingdom

Sr. No.	Name	Fellowship	Duration	Country
16.	Daw San San Oo	Control of hepatitis C in Myanmar	1 month	Japan, 1999
17.	Dr. Myo Khin	Scientific visit Singapore and China-IAEA	1 Week	Singapore, China, 1999
18.	Dr. Kyaw Soe	HCV RNA detection procedure	6 Months	Japan, 2000
19.	U Khine Win	Laboratory tests for diagnosis of HCV infection	2 weeks	Japan, 2000
20.	U Aye Thar	Laboratory tests for diagnosis of HCV infection	2 weeks	Japan, 2000
21.	Dr. Ohnmar Kyaw Kyaw	MSc(Public Health)	12 months	Singapore, 2001
22.	Dr. Yi Yi Kyaw	Molecular characterization of hepatitis C virus	6 Months	Japan, 2001
23.	Daw Baby Hla	Advanced laboratory techniques in viral hepatitis	3 Months	India, 2002
24.	Dr. Kyaw Soe	Hepatocarcinogenic studies in Myanmar thalassaemia	12 months	Japan, 2002
25.	Dr. Myo Khin	Control of hepatitis C in Myanmar	1 months	Japan, 2002
26.	Dr. Khin May Oo	Establishment of Research Laboratory for Communicable Diseases of Myanmar, KOICA, 2012	2 weeks	Republic of Korea
27.	Dr. Khin May Oo	Scientific Visit for application of stable isotopes, IAEA, 2012	2 weeks	India
28.	Dr. Aye Aye Win	Molecular diagnosis of leprosy at National Institute of Infectious Diseases (NIID)	2 Weeks	Japan, 2009
29.	Dr. Aye Aye Win	Diagnostic Medical Cytology	2 Months	Japan, 2010

6. Coordination and Collaboration with Universities, UN and other Agencies

Sr. No.	Title	Year	Universities and UN agencies
1.	Research on treatment of infectious diseases of alimentary tract	1989	JICA
2.	Epidemiology and laboratory study of sporadic acute viral hepatitis in Yangon	1989	WHO
3.	Clinical trial of hepatitis B vaccine in Yangon	1989	Pasteur/Path

Sr. No.	Title	Year	Universities and UN agencies
4.	Preparation of immunological and immuno-diagnostic reagents	1989-90	UNDP/WHO
5.	Risk factor for development of prolong malnutrition and chronic diarrhoea	1990	WHO
6.	Hepatitis E in children	1991	WHO
7.	Development of hepatitis B vaccine in Myanmar (Pilot Scale)	1991	WHO
8.	Development of hepatitis B vaccine in Myanmar-	1993	WHO/ UNDP/ MMR/ EDV/002
9.	Hepatitis E virus infection study in Rhesus Monkey	1993	Nihon University, Japan
10.	Establishment of radio-immuno assay of AFP for early diagnosis and monitoring of HCC. A prospective study group of high risk individual-	1993	IAEA
11.	WHO multi-center collaborative epidemiological study of Hepatitis C infection in SEA region	1993-95	WHO
12.	Open randomized clinical study to assess the immuno-genicity reactogenicity of Smithline Beecham Biological combined tetravalent DTPw-HBV vaccine and <i>Hemophilus influenza</i> type b Hib vaccine (Pentavalent vaccine DPT-Hib clinical study)	1994	Smithkline Beecham Biologicals
13.	Human reactogenicity. Safety and immunogenicity study of hepatitis virus produced at the DMR in adult human volunteer	1996	WHO/UNDP
14.	Feasibility study to establish a central screening system to see HBs Ag in peripheral living blood donor pool	1996	IAEA
15.	Applicable of nuclear technique in diagnosis of communicable diseases(Establishment of PCR linked radioisotope method	1999	IAEA
16.	Control of Hepatitis C infection in Myanmar.	2002	JICA
17.	Clinical trial of locally produced recombinant vaccine	2005-06	EDCF Loan
18.	Healthy Liver Project		KOICA
19.	To establish a computerized data based for recording the data of chronic hepatitis B	2004	KOICA
20.	Early detection of HCC	2005-6	WHO
21.	Clinical trial of Fekalin 80 (Heat treated <i>Enterococcal fecalis</i>) in treatment of hepatitis C patients	2007-09	Okayama University

Sr. No.	Title	Year	Universities and UN agencies
22.	Effectiveness of hepatitis B immunization in 3-5 years old children from Mon state-	2011-12	WHO
23.	Detection of anti HBc and HBV DNA in HBS Ag negative blood donors	2012-13	WHO
24.	Molecular characterization of hepatitis infection in Myanmar	2013-14	Imuunology Department, Luxembourg
25.	Genotyping of hepatitis B in reproductive age group women	2013-14	KOICA

7. Achievements

- | | | |
|----|----------------------------------------------------------------------|------|
| 1. | Chimpanzee testing | 1990 |
| 2. | HEV in monkey transmission | 1990 |
| 3. | Plasma derived hepatitis vaccine development | 1993 |
| 4. | Development of hepatitis A test kit | 1993 |
| 5. | Development of ELISA for alpha-fetoprotein test kit and RIA test kit | 1993 |
| 6. | Milestones of hepatitis C screening in blood donors | 2002 |

Awards

- | | | |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 1. | Awarded certificate for Best Poster at the 1994 Myanmar Health Research Congress for title: "Technology Transfer in developing countries, local development of HB,Ag test kits (ELISA and RPHA); | 1994 |
| 2. | Awarded certificate for Best Paper on Applied Research at the 1996 Myanmar Health Research Congress for title: Human reactogenicity, safety and immunogenicity study of hepatitis B vaccine produced at the Department of Medical Research. | 1996 |
| 3. | Awarded certificate for Best Paper for Applied Research at the 2004 Myanmar Health Research Congress for title: Cost free system for screening of hepatitis C of blood donors in remote areas | 2004 |
| 4. | Khin Maung Tin awarded as member of WHO Expert Committee on Liver Diseases | 1975 |
| 5. | Dr. Khin Pyone Kyi received Si Man Htoo Choon (Medal for Excellent Performance in Administrative Field (Third Class) | 2000 |
| 6. | Dr. Myo Khin Awarded the Department of Medical Research, Director-General's Shield for maximum publication of scientific papers, | 1991,1992, 1994 |
| | Biog Biography in Who's Who in the World, 15th edition, 1998, and 16 th edition, 1999, Marquis Who's Who, NJ, U.S.A | 1998,1999 |

Dictionary of International Biography, 27th edition, 1998, IBC, 1998
Cambridge, England;

Outstanding People of the 20th Century, 1999, IBC, Cambridge, 1999
England

Who's Who in Asia and the Pacific Nations, 4th edition, 1999, IBC, 1999
Cambridge, England

2000 Outstanding Intellectuals of the 20th Century, 2000, IBC, 2000
Cambridge, England

Who's Who in Medicine and Health Care, 3rd edition, 2000, Marquis 2000
Who's Who, NJ. U.S.A.;

8. Publications

Total number of publications = 87

HEALTH SYSTEMS RESEARCH DIVISION

1. Historical Background

Health Systemes Research Division was established in May 1990. At that time, the division was headed by Deputy Director (Dr.Than Tun Sein), 1 Senior Research Officer (Dr.Myat Lay Kyin) and 3 technicians.

During which, Dr. Than Tun Sein received Doctor of Philosophy in Health Care Management in 1999 from Century University, Albuquerque, New Mexico, USA. On 7 October 1999, Dr. ThanTun Sein was promoted as Director for Socio-Medical Research till 6 Februry 2008. Dr. ThanTun Sein was awarded Leon Bernand Foundation Prize by the World Health Organization at the 60th World Health Assembly on 17 May 2007 for his outstanding performance in the field of Social Medicine.

Currently the division has a full strength of staff; 1 Deputy Director, 1 Research Scientist, 2 Research Officers and 7 technicians (1 Research Assistant (4) is attached from Library Division). During 2012 – 2013, the division involves in social science research relating to TB, HIV and Medical ethics.

2. Former Heads

Four Deputy Directors were working since 1990 as follow.

Sr. No.	Name	Degree	Year	Remarks
1.	Dr.Than Tun Sein	MBBS, DPTM, MPH, Dip. Epi., FACTM, PhD	1990-1999	Retired
2.	Dr. Swe Hla	MBBS, MPH (Mahidol University)	1999-2000	Transferred to DOH
3.	Dr. San Hla Mu	MBBS, MMedSc (Public Health)	2000-2008	Retired
4.	Dr. Khin Thet Wai	MBBS, MMedSc (Public Health)	2008-2009	Transferred to Epidemiology Research Division

3. Current Staff

3.1 Photograph



3.2 List of Staff

Deputy Director/ Head	... Dr. Le Le Win BEcon (Statistics), MEcon(Statistics) (IE), PhD (University of Queensland)
Research Scientist	... Dr. Saw Saw MBBS (UM1), PhD (University of Melbourne)
Research Officer	... Dr. Yin Thet Nu Oo MBBS (UM1), MIRB (Monash University, Australia) ... Daw Khin Sandar Oo B.Com (IE)
Research Assistant (2)	... Daw Cho Cho Myint BA (Economics) (WC) (Diploma in Social Work) (YU)
Research Assistant (3)	... Daw Thandar Min BSc (Maths) (University of Mawlamyaing) ... Daw Aye Win Khine BA (History) (YUDE)
Research Assistant (4)	... U Soe Moe Myat BA (History) (YUDE) ... Daw Hla Thida Tun BA (Economics) (YUDE) ... Daw Kyi Kyi Htay LLB (Law) (YUDE)
Laboratory Attendant	... U Saw Ba Than (10 th grade)

4. Areas of Research Activities

1. TB
2. HIV
3. Leprosy
4. DHF
5. Smoking
6. Cervical cancer,
7. Iodine deficiency
8. Reproductive Health
9. AN care
10. Health care utilization, nursing care
11. Health care behavior
12. Health financing system, cost studies
13. Cold chain
14. Drug utilization
15. Effect of Vipassana meditation
16. Hepatitis B Immunization
17. Health Information System
18. Medical Ethics
19. Other

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. Than TunSein	One year Diploms in Epidemiology course at Prince of Songkhala University, Hat-yai, Thailand	1992 – 1993	Thailand
2.	Dr. Than TunSein	Post-graduate certificate course on Senior Managemnet, Institute of Development Policy and Mangement, University of Manchestger, Manchester, UK	Janurary-March 1996	UK
3.	Dr. Le Le Win	Training in Research methodology: Health Systems Research and Operation Research. International Health Department, Davison of Health Systems, Johns Hopkins University, School of Hygiene and Public Health, Baltimore, USA	August 1989 –August 1990	USA
4.	Dr. Le Le Win	PhD, Australian Centre for International and Tropical Health andNutrition, Tropical Health Programme, University of Queensland, Brisbane, Australia	July1998 - July1999 Nov. 2000 - July 2002 Nov. 2004 - Feb. 2005	Australia
5.	Dr.Aung Kyaw Zaw	Training for PhD (Health Economics) at Australian Centre for International and Tropical Health andNutrition, Tropical Health Programme, University of Queensland, Brisbane, Australia	July1998 - July1999	Australia
6.	Dr. Saw Saw	PhD, University of Melbourne, Australia	2003 – 2006	Australia

6. Coordination and Collaboration with Universities, UN and Agencies

Sr. No	Title	Year	Universities and UN agencies
1.	Baseline assessment of knowledge, attitude and practices of community on TB in Myanmar	2008-2010	NTP, WHO

7. Achievements

7.1 Awards

1. Dr.Than Tun Sein. Sasakawa Peace Foundation Fellowship Award for a study tour to study Public Service works in Malaysia. 2-9 March 2003
2. Dr.Than Tun Sein. Leon Bernard Foundation Prize by the World Health Organization at the 60th World Health Assembly on 17 May 2007.
3. Saw Saw. Excellence in Knowledge Transfer in Doctoral Research Award from Melbourne School of Population Health, University of Melbourne (October 2008)

Best Poster and Paper Awards

First Prize

1. Katherine Ba Thike, Win May, Than Tun Sein and Le Le Win. Traditional birth practices of Myanmar women in a rural area. (Best Paper Award for HSR at Myanmar Health Research Congress, 1997)
2. Saw Saw, Win Maung, Myo Myo Mon, Phyo Min Oo, Nyo Aung and San San Aye. Understanding referrals of TB suspect patients from general practitioners' clinics to public TB centre in Myanmar. Myanmar Health Research Congress Programme and Abstracts, January 2008 pp. 45
3. Saw Saw, Tin Aye, Khin Swe Win, Myo Zaw, Thet Naing Maung, Yu Yu Lwin, Kyi Kyi Sein, Thyn Thyn and Sun Tun. Research-cum action: Fostering Referral and Health Education of Public Private Mix DOTS through Operational Research, Myanmar Health Research Congress Programme and Abstracts, January 2009 pp 46
4. Saw Saw, Thida, Thandar Lwin, Tin Mi Mi Khaing, Bo Myint, Khin Sandar Oo, Cho Cho Myint and Thandar Min. Success and challenges of Public-Private Mix DOTS initiatives in Myanmar: A process evaluation. Myanmar Health Research Congress, Programme and abstracts, January 2010 pp 43
5. Saw Saw, Wai Wai Han, Tin Mi Mi Khaing, Nay Htut KoKo, Thandar Lwin and Naing. Empowering TB patients in TB control activities through formation of Self Help Groups: A process evaluation. Myanmar Health Research Congress Programme and Abstracts, January 2012 P51

6. Historical Mile stones of Department of Medical Research (Lower Myanmar) for operational research activities. (Best Poster award at 48th Anniversary of DMR-LM) 2011 (in Myanmar language)
7. Saw Saw, Myo Myo Mon, Khin Ohnmar San, Le Le Win, Yin Thet Nu Oo, Myo Thant, Ko Ko Zaw, Thae Maung Maung and San Shwe. Working together among Non Governmental Organizations and public health sector for community-based activities of HIV control in Myanmar. Myanmar Health Research Congress Programme and Abstracts, January 2013 p.74
8. Thein Thein Myint, San Shwe, Yin Thet Nu Oo, Wai Wai Myint and Pyae Mon Thaw. Awareness and attitude towards medical ethic among medical registration license training attendees in 2011. Myanmar Health Research Congress Programme and Abstracts, January 2011 pp.57

Second Prize

1. Saw Saw, Win Maung, Myo Zaw, Myo Myo Mon, Nyo Aung, Phyto Min Oo, Wai Wai Myint, Kyi Kyi Mar and Khin Sandar Oo. Management of TB by public and private health care providers at the township level: Situation assessment. Myanmar Health Research Congress Programme and Abstracts, January 2008 pp. 53
2. Saw Saw, Moe Zaw, Thandar Lwin, Aung Thu, Win maung, Soe Moe Myat and Thandar Minn. Listening to the voice of community: identifying effective health education methods for TB control in rural and urban areas of Myanmar. Myanmar Health Research Congress Programme and Abstracts, January 2010. p65

Third Prize

1. Moe Zaw, Kyaw Zaw, Myint San, Tin Mi Mi Khaing, Thin Thin Yee, Than Swe, Aye Thein, Hans Kluge, Win Maung and Saw Saw. Reaching the un-reached by Mobile team activity during World TB week in Myanmar. Paper presented at First International Conference of South East Asia Region (The Union) & 63rd National Conference on TB & Chest Diseases (SEAR - NATCON 2008) New Delhi, India. 8-10 September 2008.

7.2. Research grants

Sr. No	Title	Year	Funding agencies
1.	Strengthening township level coordination for Public-Private mix DOTS in selected townships, Myanmar: Utilization focused evaluation.	2009-2011	WHO/TDR

8. Publications

Number of international publications	= 18
Number of local publications	= 56
Total number of publications	= 74

IMMUNOLOGY RESEARCH DIVISION

1. Historical Background

Immunology Research Division was established in 1972. First appointed head of the Immunology Research Division was Dr Aung Khin. Former staff structure in 1972 was seven staff consisting of, one consultant/ Head of Division, one Senior research officer, one research officer, one technician Grade II and one technician Grade III, one staff nurse and one Laboratory attendant, current staff structure in 2013 consists of 15 staff, one Deputy Director / Head of Division, one research scientist, four research officers, three research assistants II, two research assistant, one staff nurse, two research assistants IV and one Laboratory attendant. Immunology Research Division is engaged in tuberculosis, leprosy and snake bite research. During 2013, the division was involved in research on genotyping, DNA sequencing and immunology response of drug resistant tuberculosis, loop Mediated Isothermal Amplification (LAMP) assay for the diagnosis of TB lymphadenitis, cell mediated immunity for diagnosis of leprosy, small scale production of Avian Russell's viper antivenom and neutralizing activity of biological properties of avian Russell's viper antivenom.

2. Former Heads

Sr. No	Name	Degree	Years From-to	Remarks
1.	Dr Aung Khin	MBBS, PhD (Pathology)	-1981	
2.	Dr Tun Pe	MBBS, DCP (Lond), PhD (Lond),FRCP (Edin)	1981-1996	Promoted to Director
3.	Dr Khin Nwe Oo	MBBS,DBact., MMedSc., PhD (Microbiology)	1997-2006	Transferred to Bacteriology Research Division
4.	Dr Khin Saw Aye	MBBS,M.Med.Sc, PhD (Pathology)	2006-2012 May	Promoted to Director
5.	Dr Aye Aye Myint	BSc, MSc, PhD (Zoology)	2012 May to date	Acting Head

3. Current Staff

3.1. Photograph (Group Photo)



3.2. List of Staff

Deputy Director & Head	...	-
Research Scientist	...	Dr. Aye Aye Myint BSc MSc, PhD (Zoology)(YU)
Research Officer	...	Dr. Min Min Win MBBS MMedSc (Pathology)(IM1)
	...	Daw Kyi May Htwe BSc (Chemistry)(YU)
	...	Dr. Min Thein MBBS (IM1)
Research Assistant (2)	...	Daw Khin Than Maw BSc (Chemistry) (UDE)
	...	Daw Thazin Myint BSc (Zoology) (UDE)
	...	Daw Khine Zar Win BA (Myanmar) (UDE)
Research Assistant (3)	...	Daw San Kalaya Htwe BSc (Chemistry) (UDE)
	...	U Myat Min Oo BA (English) (UDE)
	...	Daw Ei Ei Mon BSc (Zoology) (Dagon University)
Research Assistant (4)	...	Daw Kay Khine Soe BSc (Zoology) (Dagon University)
	...	Daw Chu Pwint Phyu BSc (Chemistry) (Dagon University)
Laboratory Attendant	...	Daw Le Le Win

4. Areas of Research Activities

- Snakebite
- Tuberculosis
- Leprosy
- Dengue

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. Tun Pe	Hybridoma Technology	11 months	Japan
2.	Dr. Tun Pe	Venoms and Antivenoms	1 month	England
3.	Dr. Tun Pe	Venoms and Antivenoms	1month	England
4.	Dr.AyeAye Myint	Development of rapid diagnosis technique in snake venom envenoming and taxonomy of snake.	6 months	Japan
5.	Dr.Khin Saw Aye	Training on molecular techniques and immunohisto-pathology of Leprosy Research, Leprosy Research Center, National Institute of Infectious Diseases. (Tokyo,Japan)	8 months	Tokyo,Japan
6.	Dr.Aye Aye Myint	Radiopharmaceutical Technique	10 weeks	Thailand
7.	Dr.Khin Saw Aye	Training on <i>in Situ</i> Hybridization techniques and Electron Microscopy for Immunopathology of Dengue Hemorrhage Fever, Medical Molecular Biology Unit	1 month	Bangkok, Thailand
8.	Dr.Khin Saw Aye	Study tour for dengue pathology, Siriraj Hospital, Mahidol Siriraj Hospital, Mahidol University (Bangkok, Thailand)	1 month	Bangkok, Thailand
9.	Dr.Aye Aye Myint	Purification of Avian Antivenom	6 weeks	Australia
10.	Dr.Aye Aye Myint	Development of Lateral flow assay in Russell's viper Envenomation	10 weeks	Germany
11.	Dr.Khin Saw Aye	Scientific visit for Dengue Pathology Collaborative Research, McMaster University	1 month	Canada

6. Coordination and Collaboration with University, UN and other Agencies

7. Achievements (Annual Report Format)

7.1. Awards (Research Paper awards and other scientific awards)

Best paper awarded on snake bite research

1997

Basic Research

1. Potency assay of antivenom: neutralization of Russell's viper (*Daboia russelii siamensis*) and cobra (*Naja kaouthia*) venoms by Myanmar, Thai Red Cross and India SII antivenoms,
Tun Pe, Aye Aye Myint, Kyi May Htwe and Nu Nu Aung

1998

Basic Research

2. Potency assay of the liquid Russell's viper (*Daboia russelii siamensis*) antivenom stored at different environment
Aye Aye Myint, Tun Pe, Kyi May Htwe and Khin Aye Kyu

Poster

3. Acceptability study of the fang proof protective boots among farmers of Taungdwingyi township
Tun Pe, Aye Aye Myint, Khin Aye Kyu and Maung Maung Toe

1999

Basic research

4. Geographical variation of biological properties of Russell's viper (*Daboia russelii siamensis*) venom
Tun Pe, Aye Aye Myint, Kyi May Htwe Khin Aung Cho and Theingi

Poster

5. Development of rapid dipstick dot blot immunoassay for detection of Russell's viper (*Daboia Russelii Siamensis*) venom russelii siamensis
Aye Aye Myint, Khin Aye Kyu and Maung Maung Toe

2000

Applied Research

6. Evaluation of prehospital antivenom in management and outcome of Russell's viper (*Daboia russelii siamensis*) bites cases admitted to Taungdwingyi Hospital
Tun Pe, Aye Aye Myint, Khin Aye kyu and Sann Mya

2003**Health System Research**

7. Prevalance, case fatality rate and treatment-seeking behavior of snakebite victims from two townships of Myanmar
Tun Pe, Aye Aye Myint, Sunn Htut, Khin Aye Kyu and Maung Maung Toe

2005**Applied Research**

8. Experimental production of goat Russell's viper antivenom
Aye Aye Myint, Tun Pe

2007**Basic Research**

9. Potency assay of avian Russell's viper antivenom
Aye Aye Myint, Tun Pe and San Kalyar Htwe

2008**Basic Research**

10. Neutralizing efficacy of foreibn antivenoms against Myanmar Russell's viper (*Daboia russelii siamensis*) and cobra (*Naja kaouthia*) venoms
Aye Aye Myint, Tun Pe, Kyi May Htwe, Khin Pyone ky, San Kalyar Htwe and Sandar Htun

7.2. Research grants(≥US\$ 10,000) (Multi-country collaborative research grants)

Sr. No.	Title	Year	Funding agencies
1	Scaling up the Production of Antivenom in Yangon Division	2010	(Grassroots Grant Assistance) Japan
2	Small scale production, efficacy and dose finding of avian Russell's viper antivenom Russell's viper bite patients (phase I)	2010	JICA
3	Expantivipart follow up program	2011	(INH, USA)
4	Dengue Populative Genetic Program	2012	PVDI

8. Publications

Number of international publications	= 34
Number of local publications	= 73
Total number of publications	= 107

MEDICAL ENTOMOLOGY RESEARCH DIVISION

1. Historical Background

This division was established in 1970 and headed by Mr Anthony A. Sebastian (1970 -1983). Currently, the post for head of division is vacant and there are eleven staff members in Medical Entomology Research Division. 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 Yangon Region. 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 vector bionomics and insecticide efficacy in malaria endemic areas was initiated in collaboration with Bago (East) Region and Mon state Health Department and Vector Borne Disease Control program. Two research projects were initiated on Dengue Haemorrhagic Fever (DHF) control in Yangon Region. Procurement of PCR machines and other accessories were completed with the ongoing research project in collaboration with Manchester University, UK. Establishment of *Anopheles* mosquito colonies were continued with *An. dirus* mosquitoes from Mudon and Than Phyu Zayat Township, Mon state and now they are in F5 generation. *Ae. aegypti* mosquitoes from Yangon Region have also been colonized in the insectary.

2. Former Heads

Sr. No.	Name	Degree	Years From-to	Remarks
1.	Mr. Anthony A. Sebastian	BSc	1970 - 1983	
2.	Dr .Myo Pyaing	M.B.,B.S(Ygn)MPH	1983 - 1988	Retired
3.	Mr Anthony A. Sebastian	BSc	1988 - 1993	Acting Head
4.	Dr. Willoughby Tun-Lin	M.B.,B.S; D.P & T..M, M.Sc.Med .Para. (Lond), PhD (Med. Ento.) (Australia) FRCP(Edin)	1993 - 2003	Promoted to Director
5.	Dr. Pe Than Htun	BSc (Zoology), DAP&E (Malaysia) M.Sc. (Med.Para.) (Lond) PhD (Zoology)	2004 - 2012	Retired

3. Current Staff

3.1 Photograph (Group Photo)



3.2 List of Staff

Deputy Director/Head	...	Vacant
Research Scientist	...	Dr. Yan Naung Maung Maung MBBS (Ygn) MMedSc (Public Health) IM 1
Research Officer	...	Dr. Maung Maung Mya MSc(Zoology) YU, PhD(BioMed)
	...	U Sein Thaung BSc(Zoology) YU
	...	Dr. Sai Zaw Min Oo MBBS (Ygn) UM2, Dip. in Global English
Research Assistant 2	...	Daw Khin Myo Aye BSc(Botany) YU
	...	Daw Yee Yee Myint BSc(Zoology) YU
	...	Daw Chit Thet Nwe BA(History) YU
Research Assistant 3	...	Daw Thuzar Nyein Mu BA(Eco) YU
	...	Daw Thandar Aung BSc(Maths) YU
Research Assistant 4	...	Daw Zar Zar Aung BDevS YU
Laboratory Attendant	...	U Thi Ha

4. Areas of Research Activities

- 4.1 Malaria
- 4.2 DHF
- 4.3 Filaria

5. International Training

Sr No	Name	Fellowship	Duration	Country
1.	Dr. Willoughby Tun Lin	MSc Course on Medical Parasitology(Medical Parasitology & Entomology)	1 year	UK
2.	Dr. Willoughby Tun Lin	PhD (Med. Entomology)	2 years	Australia
3.	Dr. Pe Than Htun	WHO Certificate course on “Rodent Biology and Control and Rodenticide Resistance”	Two weeks	UK and Denmark
4.	Dr. Pe Than Htun	SEAMEO/TROPED program on “Diploma in Applied Parasitology and Entomology”	6months	Malaysia
5.	Dr. Pe Than Htun	MSc Course on Medical Parasitology(Medical Parasitology & Entomology)	1year	UK
6.	Dr. Pe Than Htun	WHO Certificate course on “Mesocyclops Identification & Application for Dengue Vector Control”	3 weeks	Vietnam
7.	Dr. Thaung Hlaing	Diploma and Master Degree in Clinical Tropical Medicine and Hygiene (With special emphasis on Medical Entomology and Infectious Diseases)	1 year	Thailand
8.	Dr. Thaung Hlaing	Advanced WHO Certificate Course on Immunology, Vaccinology and Biotechnology applied to Infectious Diseases	6 weeks	Switzerland and France
9.	Dr. Thaung Hlaing	Advanced WHO/TDR Certificate Refresher Course on Immunology ,Vaccinology and Biotechnology applied to Infectious Diseases	2 weeks	Vietnam
10.	Dr. Thaung Hlaing	PhD (Molecular Entomology)	4 years	UK

Sr No	Name	Fellowship	Duration	Country
11.	U Sein Min	Medical Entomology with reference to vector identification, incrimination and control	4 months	Thailand
12.	U Sein Min	WHO Certificate Course on “Comprehensive Vector Control”(Advanced techniques for vector control)	6weeks	India
13.	Dr.Yan Naung Maung Maung	Vector Bioinformatics Training Course in Thailand	2weeks	Thailand
14.	Dr.Yan Naung Maung Maung	Targeted dengue vector intervention for efficient and sustainable dengue control	1 month	Thailand
15.	Dr.Yan Naung Maung Maung	Mosquito cytogenetics and genetic linkage mapping	1 month	Thailand
16.	Dr.Yan Naung Maung Maung	PCR and fluorescent in situ hybridization(FISH) of polytene chromosomes	2 months	UK
17.	Dr.Yan Naung Maung Maung	PCR and fluorescent in situ hybridization(FISH) of polytene chromosomes	11 weeks	UK
18.	Dr.Mg Mg Mya	WHO Intercountry Workshop on Identification and confirmation of sibling species of malaria vector (Vector Identification)	2 weeks	India
19.	Dr.Mg Mg Mya	PhD(Bio.Med) ADB program on Entomology and Parasitology	5 years	India
20.	U Sein Thaung	Training for senior technician involved in WHO/TDR Project ID-950653 (Application of GIS in vector biology and control)	2 months	Thailand
21.	U Sein Thaung	Training for use of GIS for vector borne disease research and control	3 weeks	India
22.	Daw Khin Myo Aye	Mosquito cytogenetics and genetic linkage mapping	1 month	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

- University of Queensland, Brisbane, Australia
- London School of Hygiene and Tropical Medicine, University of London.
- University of Manchester (UK)
- Chaing Mai University, Thailand
- WHO Collaboration Center

7. Achievements (Annual Report Format)

7.1 Awards (Research paper awards and other scientific awards)

- Stood **first** in the "Best Paper Selection Competition" for the Myanmar Health Research Congress, 19-23 December 1998. (Title of paper: Evaluation on the impact of two entomological intervention measures in a malaria endemic forested, hilly of Myanmar).
- Stood **first** in the "Best Paper Selection Competition" for the Tenth Myanmar Military Medical Conference, 1-3 March 2000. (Title of paper: Comparison on cost-effectiveness of bed net impregnation and indoor residual spraying in preventing mortality and morbidity from malaria in a forested, hilly area of Myanmar).
- Stood **first** in the "Best Poster Selection Competition" for the Myanmar Health Research Congress, January 2000. (Title of poster: The use of local larvivorous fish: an appropriate simple technology for malaria control in southern part of coastal Myanmar)
- Stood **first** in the "Best Paper for Basic research Selection Competition" for the Myanmar Health Research Congress, January 2002.(Title of paper: Studies on Identification, rearing, colonization and larvivorous potential of mesocyclops for prevention and control of DHF and Malaria in Myanmar)
- Stood **first** in the "Best Paper for Applied research Selection Competition" for the Myanmar Health Research Congress, January 2003.(Title of paper: Evaluation of result on present conventional and alternative vector control activity in prevention and control of dengue /Dengue Haemorrhagic fever (DHF)
- Stood **first** in the "Best Paper for Basic research Selection Competition" for the Myanmar Health Research Congress, January 2003.(Title of paper: Evaluation of an insect regulator (Pyriproxyfen), against *Aedes aegypti* and *Anopheles dirus* in the laboratory
- (Dr W Tun Lin) **Awarded Medal** for "Excellent Performance in Medical Field (Third Grade)" by the Government of the Union of Myanmar, January 2003.
- Stood **first** in the "Best Poster Selection Competition" for the Myanmar Health Research Congress, January 2005. (Title of poster: The efficacy of Alum-potash on *Aedes aegypti* larvae in laboratory and field areas in Yangon Division.
- Stood **first** in the "Best Poster Selection Competition" for the Myanmar Health Research Congress, January 2007. (Title of poster: Laboratory repellency effect of the indigenous plant *Cyrtopogon winterionus* Jowitt.(Zabalin-Hmwe) crude extracts on three important mosquito vectors.

- Stood **first** in the "Best Paper for applied research Selection Competition" for the Myanmar Health Research Congress, January 2009. (Title of paper: A simulated field evaluation of temephos, pyriproxyfen and *Bacillus thuringiensis* (Bti) against dengue vector *Aedes aegypti* in productive water containers.
- Stood **first** in the "Best Poster Selection Competition" for the Myanmar Health Research Congress, January 2010. (Title of poster: Why has Dengue Hemorrhagic Fever (DHF) been transmitted during the dry season in Dala Township, Yangon Region

7.2 Research Grants (>US\$ 10,000)(Multi- country collaborative research grants)

Sr. No.	Title	Year	Funding Agencies
1.	Geographical distribution of <i>An. dirus</i> sibling species complex, their behaviour and relationship to malaria transmission in Myanmar	1992-93	WHO/TDR
2.	The effect of local larvivorous fish on well-breeding <i>An. dirus</i> and on malaria transmission	1993-95	WHO/TDR
3.	Rapid assessment on the impact of impregnated bednets in a malaria hyperendemic forested/hilly area of Myanmar	1995 - 96	WHO/TDR
4.	Comparison of deltamethrin-impregnated bednets with residual lambda-cyhalothrin spraying in a forested-hilly area in Myanmar Collaborative Project with Health and Disease Control Unit (Ministry of Defence) and Vector-borne Diseases Control (Department of Health)	1995/96 - 1997/98	WHO/TDR
5.	Source reduction of well-breeding <i>An. dirus</i> and targeting key wells to control malaria in coastal Myanmar	1996/97- 1997/99	WHO/TDR
6.	Evaluation on the impact of insecticide-treated bed nets on malaria morbidity in a malaria area of Myanmar	2002/2003	WHO
7.	Targeted dengue vector interventions for efficient and sustainable dengue control in Myanmar	2006	UNICEF/UNDP/WORLD BANK/WHO
8.	Eco-Bio-Social dynamics for better-informed dengue prevention in Myanmar	2007- 2009	UNICEF/UNDP/WORLD BANK/WHO

8. Publications

Number of international publications	= 11
Number of local publications	= 34
Total number of publications	= 45

MEDICAL STATISTICS DIVISION

1. Historical Background

Medical Statistics was established in 1963. At that time, the division was a supporting division and was headed by visiting head Dr Ko Ko. Senior research officers headed the division till 1999, and from 2000 onwards, it was headed by a Research Scientist. It carries out research activities on communicable diseases, non-communicable diseases & reproductive health. In addition, it provides statistical guidance to post graduate students in health related fields. Regarding the staff, it has full strength of 1 Research Scientist, 2 Research Officers and 5 technicians.

2. Former Heads

Sr. No.	Name	Degree	Years From-to	Remarks
1.	Dr. Ko Ko	M.B,B.S (Rgn.); DPH (Edin), D.T.M & H. (Eng), F.R.C.P. (Edin); F.I.A.M.S.;	1963,1964	Visiting Head
2.	Dr. Khin Maung Lwin	B.A, Dip.Stat.A.I.S.	1965 to 1972	Acting Head
3.	U Ba Aye	B.A, Dip.Stat. B.A, D.S	1972 to 1985	Head Retired
4.	Dr. San Hla Mu	M.B.B.S, M. Med.Sc. (Pub.Hlth)	1989 to 1999	Head Retired
5.	Dr. Mon Mon	M.B.B.S, M.B.B.S, MCH(UNSW)	2000 to 2004	Head/Research Scientist,Resigned
6.	Dr Kyaw Oo	M.B.B.S, M.Med.Sc (Preventive & Tropical Medicine) M.Sc (Epidemiology & Biostatistics) MSc (Songkla) (PSU, Thailand)	2005 to 2009	Head/Research Scientist, Promotion
7.	Dr Ko Ko Zaw	M.B.B.S,MPH (Epidemiology and Biostatistics) (Boston University, USA)	2010 to 2013	Head/Research Scientist Promotion

3. Current Staff

3.1 Photograph



3.2 List of Staffs

Research Scientist/Head	...	Dr. Ko Ko Zaw MBBS (UM1), MPH (Epidemiology and Biostatistics) (Boston University, USA)
Research Officer	...	Dr. Kyi Maw Than MBBS (UM 1)
	...	Dr. Wai Wai Han MBBS (UM 2)
Research Assistant 2	...	Daw San San Aye B.A (History) (YU)
	...	Daw Yee Yee Win B.A (Myanmar) (DU)
Research Assistant 3	...	Daw Pyone Thuzar Nge BSc (Maths) (YUDE)
Research Assistant 4	...	U Kyaw Myo Htut
Laboratory Attendant	...	Ma Aye Su Maw BBA (MIE)

4. Areas of Research Activities

- 4.1 HIV/AIDS
- 4.2 Cost Analysis
- 4.3 Tuberculosis
- 4.4 Reproductive Health
- 4.5 RTI/STI
- 4.6 ARH
- 4.7 MCH
- 4.8 Leprosy
- 4.9 ARI
- 4.10 Cancer
- 4.11 Dengue
- 4.12 Smoking

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr San Hla Mu	Data management & statistical software application for Rotavirus vaccine trial. Peru.	1 month (1991)	Peru
2.	Dr San Hla Mu	Quality control on multicenter Rota Virus vaccine trial in Geneva and Peru, (WHO, Project)	1992	Geneva and Peru
3.	Dr San Hla Mu	Training in Biostatistics. (Thailand)	3 months (1994)	Thailand
4.	Dr Mon Mon	Master of Community Health Specializing in Bio-statistics and Epidemiology. (Australia)	1996	Australia
5.	Dr Mon Mon	Inter –country Workshop on Data management for Evidence Based Decision –Making, Bangkok, Thailand.	2001	Bangkok, Thailand
6.	Dr Kyaw Oo	Meeting for dissemination of the results of the Cilobal survey on maternal and perinatal health and regional and nutritional studies supported by HRP. Phnom Penh Cambodia.	(21-10-2008 to 23-10-2008)	Phnom Penh Cambodia.
7.	Dr Ko Ko Zaw	Regional Investigators Meeting on “Data Analysis for the Projects on Improving Access to Sexual and Reproductive Health Information for Young Migrants”.	2010	Thailand

Sr. No.	Name	Fellowship	Duration	Country
8.	Dr Ko Ko Zaw	STEPS (Stepwise Approach to Chronic Disease Risk Factor Surveillance) Methodology Workshop at New Delhi, India.	(11-6-2012 to 15-6-2012)	New Delhi , India
9.	Dr Myo Myo Mon	Research Training Grant from WHO/HRP: MSc (Epidemiology) 2years Master Degree Course in Epidemiology at Prince of Songkla University, Hatyai, Thailand.	(2007 June to 2009 May)	Hatyai, Thailand
10.	Dr Yin Thet Nu Oo	Master degree course on Research Bioethics, Melbourne, Australia.	2005	Australia
11.	Dr Yin Thet Nu Oo	Workshop on Ethical Issues in Reproductive Health Research.	2008	Vietnam
12.	Dr Wai Wai Han	Master of Science in International Health from University of Heidelberg, Germany.	(1-8-2012 to 30-9-2013)	Germany
13.	U Nyo Aung	Data management for quantitative data analysis. Thailand.	11 weeks (2004)	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

- WHO
- UNICEF
- UNFPA
- University of Public Health

7. Achievements

7.1 Awards

1. Myo Myo Mon, Mon Mon, Kyu Kyu Than, Khin Sandar Oo, San San Aye, Kyaw Oo and Soe Aung. Women's awareness of common female cancers in selected peri-urban township. A paper presented at Myanmar Health Research Congress 2006, Programme and Abstracts, January 2007 pp.20. (Best paper award for HSR)
2. Saw Saw, Win Maung, Myo Myo Mon, Phyto Min Oo, Nyo Aung and San San Aye. Understanding referral of tuberculosis suspect patients from general practitioner's clinics to Public Tuberculosis Centre in Myanmar. A paper presented at Myanmar Health Research Congress 2007, January-2008 pp.45. (Best paper award for HSR)

3. Saw Saw, Win Maung, Myo Zaw, Myo Myo Mon, Nyo Aung, Phyo Min Oo, Wai Wai Myint, Kyi Kyi Mar and Khin Sandar Oo. Management of TB by public and private health care providers at the township level: Situation assessment. A poster presented at Myanmar Health Research Congress 2007, January-2008 pp.53. (Best paper award for HSR)
4. Kyu Kyu Than, Than Tun Sein, Ko Ko Zaw, Mon Mon, Myo Myo Mon, Thein Aung, Khi Mar Aye and Myint Lwin. Family and community practices of newborn care Pyay District at Myanmar Health Research Congress 2007, January-2005 pp.41. (Best paper award HSR)
5. San Shwe, Thin Thin Yee, Kyaw Oo, Ti Ti, Win Maung, Hlaing Myint, Aye Tun and Nyein Nyein Aye. Effect of Community Involvement in DOTs Implementation of TB Program in Bago Division (An intervention study) at Myanmar Health Research Congress 2007, January-2005 pp.43.
6. Yin Thet Nu Oo, Kyu Kyu Than, Ko Ko Zaw, Kyaw Oo, Pyone Thuzar Nge and Tin Zar Aung. Health information regarding HIV/AIDS in the local health journals in Myanmar language. (Best poster 3rd prize. Myanmar Health Research Congress, 2009 pp. 65).
7. San San Win, Khin Saw Nu and Kyaw Oo. Self-medication practice for common minor ailments in urban and rural community of Hlegu Township at Myanmar Health Research Congress 2010, January-2000 pp. (Best paper award for HSR)
8. Saw Saw, Wai Wai Han, Tin Mi Mi Khaing, Nay Htut Ko Ko, Thandar Lwin and Naing Empowering TB patients in TB control activities through formation of self help groups: A process evaluation at Myanmar Health Research Congress 2013, January-2011 pp.51. (Best paper award for HSR)
9. Kyu Kyu Than, Thae Maung Maung, Poe Poe Aung, Than Tun Sein, Tin Tin Wai, Ko Ko Zaw, Yin Thet Nu Oo and Theingi Myint. Sustainability oriented Action-Cum Research: Youth to youth peer education programme in Okkan Sub-Township, Yangon Division at 41st Myanmar Health Research Congress 2013, January-2010 pp.28. (Best paper award for HSR)

Third Prize

1. Myo Myo Mon, Mon Mon, Kyu Kyu Than, Khin Sandar Oo, San San Aye, Kyaw Oo and Soe Aung. Women's awareness of common female cancers in selected peri-urban township. A paper presented at Myanmar Health Research Congress 2006, Programme and Abstracts, January 2007 pp.20.
2. Yin Thet Nu Oo, Kyu Kyu Than, Ko Ko Zaw, Kyaw Oo, Pyone Thuzar Nge and Tin Zar Aung. Health information regarding HIV/AIDS in the local health journals in Myanmar language. (Best poster 3rd prize. Myanmar Health Research Congress, 2009 pp. 65).

7.2 Research Grants

Sr. No.	Project Title	Universities and UN agencies	Year
1.	Reinforcing Integrated Management of Maternal & Childhood Illness (IMMCI) performances of first level health workers in Taik Kyi Township.	UNICEF	2001-2002

Sr. No.	Project Title	Universities and UN agencies	Year
2	Situation analysis of orphans and vulnerable children due to HIV/AIDS in selected Township.	UNICEF	2010
3	Promotion of Reproductive Health among Adolescent Migrant in Mandalay City, Myanmar. (WHO/HRP) (Project No: A 65243)	WHO/HRP	2010-2012
4	A study of linking RTI/STI services to RH services at primary health care level.(WHO/HRP) (Project No: A 65588)	WHO/HRP	2011-2013

8. Publications

Number of international publications	= 3
Number of local publications	= 27
Total number of publications	= 30

NUCLEAR MEDICINE RESEARCH DIVISION

1. Historical Background

The Nuclear Medicine Research Division was established in (1982). First appointed Head of the Research Division was Dr Thein Than. Dr Myo Khin was promoted to Deputy Director of Experimental Medicine Research Division. Dr Khin May Oo was also promoted to Deputy Director of Hepatitis B Vaccine Production Division. Current Head is Dr Aye Aye Yee, Research Scientist and the total number of staff are 8 consisting of; 1 Research Scientist /Head of Division, 2 research officers, 2 research assistants II, 1 research assistants III, 1 research assistants IV and 1 laboratory attendant.

The Nuclear Medicine Research Division is currently engaged in the research activities on Thyroid research, Non communicable diseases research including Cancer research, Obesity research and obesity related diseases ; hypertension, Diabetes and ischaemic heart diseases. Main research activities are focused on application of established stable isotope technology for body composition measurement, especially for the percentage of body fat by using deuterium oxide and FTIR (Fourier Transformed Infrared Spectrometry). And determination of obesity related hormones; leptin and oestrogen hormones by using Enzyme Linked Immunosorbent Assay (ELISA).

2. Former Heads

Sr. No.	Name	Degree	Year From- To	Remarks
1.	Dr Thein Than	M.B., B.S.M.Med.Sc (Biochemistry) PhD	1982-1990	
2.	U Maung Maung Thwin	B.Sc (Chem) M.Sc(Rad.Bio)	1990-1991	
3.	Dr Myo Khin	M.B.,B.S, MD (New South Wales), DCH, FRCP (Edin)	1991-1999	Promoted and transferred to experimental medicine
4.	Dr Myint Aye Mu	M.B., B.S. M.Med.Sc (Physiology)	1999-2002	
5.	Dr Khin May Oo	M.B.,B.S., D.BactM.Med.Sc (Microbiology)	2002-2004	
6.	Dr Aye Aye Yee	M.B., B.S.Dip.Med.Sc (Nuclear Medicine)	2004 to up to Date	

3. Current Staff

3.1 Photograph



3.2 List of Staff

Research Scientist/Head	...	Dr. Aye Aye Yee MBBS, DipMedSc(Nuclear Medicine) U.M(1)
Research Officer	...	Daw Yin Yin Win BSc (Chemistry)YU, DCSC (University of Computer Science)
	...	Daw Aye Aye Maw BSc (Chemistry)YU
Research Assistant 2	...	Daw Thandar Myint BSc (Chemistry)YU
	...	Daw Khin Thida Wai BA (Psychology)YU
Research Assistant 3	...	Daw Sandar Aung PhD (Zoology)YU
Research Assistant 4	...	Daw Naw Myat Su Mon BSc (Chemistry) Pathein University
Laboratory Attendant	...	Daw Ma Gyi

4. Areas of Research Activities

- Thyroid research
- Cancer research
- Obesity research
- Reproductive health research
- Malaria research
- Snake bite research
- Nutrition research

5. International Training (> 4 weeks)

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. Myo Khin	Method for Assessment of Intestinal Function	1997	Australia
2.	Dr. Myint Aye Mu	Training in Nuclear Medicine	1996	Malaysia
3.	Dr. Myint Aye Mu	Production of Monoclonal Antibody and Reagents for Radioimmunoassay (IAEA TC Project MYA/6/022)	2001	Belgium
4.	Daw Khin Aye Tha	Traning in Radioimmunoassay Techniques	1994	United.Kingdom
5.	Daw Khin Aye Tha	DNA Sequencing	1991	Singapore
6.	Daw Muya Than	Regional Training Courses on Application of Radioisotopes and Molecular Techniques in Biological Sciences Significant for Human Health Problems	1993	Japan
7.	Daw Nilar Sein	Training in Radiolabelling Techniques	1993	Malaysia
8.	Daw Muya Than	Training in Radioimmunoassay Techniques	1987	United.Kingdom
9.	Daw Yin Yin Win	Nuclear Medicine	1994	Sri Lanka
10.	Daw Mar Mar Myint	RIA methodology	1997	Sri Lanka
11.	Daw Aye Aye Maw	Waste Management and Decontamination Technique (IAEA MYA 01002)	2000	Singapore
12.	Daw Yin Yin Win	Production of Monoclonal Antibody and Reagents for Radioimmunoassay (IAEA TC Project MYA/6/022)	2001	United.Kingdom

Sr. No.	Name	Fellowship	Duration	Country
13.	Dr. Aye Aye Yee	Production of Monoclonal Antibody and Reagents for Radioimmunoassay (IAEA TC Project MYA/6/022	2002	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

- International Atomic Energy Agency
- World Health Organization

7. Achievements

7.1 Awards

1. Director General's Research Paper Award 1991-
(ညွှန်ကြားရေးမှူးချုပ်၏ သုတေသနစာတမ်းဆု - ၁၉၉၁)
2. Director General's Research Paper Award 1992-
(ညွှန်ကြားရေးမှူးချုပ်၏ သုတေသနစာတမ်းဆု - ၁၉၉၂)
3. Director General's Research Paper Award 1994-
(ညွှန်ကြားရေးမှူးချုပ်၏ သုတေသနစာတမ်းဆု - ၁၉၉၄)

4. BEST POSTER AWARDS

First Prize

Best Poster Award in Myanmar Health Research Congress 1997 on the title of Development of computerized self- directed interactive multimedia teaching programme: Immunohistochemistry and breast cancer: Myanmar Health Sciences Research Congressl. 1997

7.2 Research Grants (>10,000USD)

Sr. No.	Project Title	Funding Agency	Year
1.	Hormonal studies on pituitary-adrenal disorders in snake bite patients (IAEA Technical Co-operation Programme)	IAEA	1992
2.	Determination of malaria sporozoite rate and load in vector Anopheline species by IRMA.	IAEA	1992
3.	Establishment of solid-phase immunometric assay for quantitation of Ressel's viper (Vipera Resselli) venom in circulation following serotherapy with Ressel's viper antivenom	IAEA	1992
4.	Establishment of In-house radioimmunoassay for markers of Hepatitis B infections.	IAEA	1996

Sr. No.	Project Title	Funding Agency	Year
5.	Application of Nuclear Techniques in Reproductive Health: Introduction of Bulk Reagents Methodology for Sex Hormones (IAEA Technical Co-operation Programme MYA/06/017)	IAEA	1996
6.	Establishment of steroid Receptor Assays (sRAS) for improved management of breast cancer (IAEA Research Contract MYA/8647/RB)	IAEA	1996-1997
7.	Production of In-house Reagents for Immunoassays (IAEA Technical Co: operation Programme MYA/06/020)	IAEA	1997-1999
8.	Neonatal Hypothyroid Screening (IAEA Regional Cooperative Agreement Programme RAS/6/032)	IAEA	1999-2004
9.	Production of monoclonal antibodies and reagents for radioimmunoassay (IAEA Technical Co- operation Project MYA/6/022)	IAEA	2002-2004
10.	Assessing Risk Factors Associated with Obesity in Women, IAEA TC Project MYA/6/026	IAEA	2012

8. Publications

Total number of publications = 28

NUTRITION RESEARCH DIVISION

1. Historical Background

Nutrition Research Division was formally known as Department of Nutrition, Burma Medical Research Institute. The two nutritional problems; anaemia and thiamine deficiency were firstly approved and carried out in the first Five-Year Health Plan by the recommendations of a nutritional survey in 1962. Therefore, it can be recognised that Department of Nutrition or Nutrition Research Division has been established concurrently with Burma Medical Research Institute since 1963. The Division was firstly situated on the top floor of the main building (Harcourt Butler Institute of Public Health) and moved to the first floor of Clinical Research Centre which was completely constructed in 1974. Dr. KyweThein was first appointed head of the Research Division and then he served as Deputy Director (Administration) until his retirement.

The Nutrition Research Division is currently engaged in the research projects on subclinical vitamin A deficiency, urinary iodine excretion in pregnant women, nutrition status and dietary intake of adolescent school children and risk assessment of some food additives. The division had provided academic services such as teaching of undergraduate and post graduate students attending Universities of Medicine, University of Public Health and laboratory services such as nutrients analysis in food.

2. Former Heads

Sr No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Kywe Thein	M.B;B.S, D.N (Calcutta), M.R.C.P (Edinburgh)	1965-1981	
2.	Dr. Cho Nwe Oo	M.B;B.S, D.N (London), M.R.C.P (Edinburgh)	1982-1987	
3.	Daw Tin Tin Oo	BSc, M.S (Nutrition) (Berkeley)	1990-1992	
4.	Dr. Maung Maung Cho*	MBBS MMedSc(Physiology),	1992-1993	
5.	U Khin Maung Naing	BSc (Hons) (Chemistry), MSc (Nutrition)(London)	1993-1996	Retired
6.	Dr. Khin Maung Maung	MBBS, MMedSc(Biochemistry)	1996-1997	Transferred to Biochemistry Research Division
7.	Dr. Phyu Phyu Aung	MBBS,MedSc(Physiology), MPS-FNP (Philippines)	1997-2007	
8.	Dr. Theingi Thwin	M.B.,B.S, MMed.Sc (Biochemistry), PhD (Biochemistry)	2007-2013	Promoted to Director (Research)

*Research Scientist

3. Current Staff

3.1 Photograph (Group Photo)



3.2 List of Staff

Deputy Director & Head	...	Dr. Ko Ko Zaw MBBS(UM1), MPH(Boston University)
Research Scientist	...	U Than Win BSc, Diploma in Applied Physics, YU
	...	Dr. Moh Moh Hlaing MBBS MMedSc(Public Health) (UM2)
Research Officers	...	Dr. Mya Ohnmar MBBS MPH (UOPH)
	...	Daw Sandar Tun BScHons(Zoology) (YU)
	...	Dr. Thuzar Aye MBBS (UM1)
	...	Dr. Yin Lynn Myint MBBS (UM1)
	...	U Maung Maung Myint BSc(Zoology) (YU)
Laboratory In-charge	...	Daw Myat Myat Thu BA(Eco) (YU)
Research Assistant (2)	...	Daw Thidar Khine BSc(Chemistry)
		(Mawlamyine University)
	...	Daw Lei Lei Myint BSc(Chemistry) (DU)
	...	Daw WahWah Win BA (Geography) (YU)
Research Assistant (3)	...	Daw Su Su Hlaing BSc(Chemistry) (YU)
	...	Daw Khin HninWint Phyu BSc(Chemistry) (YU)
	...	Daw Yin Yin Aye BA(Eco) (DU)
	...	Daw Hla Phyo Lin BSc(Chemistry) (DU)
	...	Daw Nyein Nyein Win BA(History) (DU)
Laboratory Attendant	...	Daw Khin Sabai Hlaing

4. Areas of Research Activities

- Protein Energy Malnutrition
- Iron Deficiency Anaemia
- Iodine Deficiency Disorder
- Vitamin A Deficiency
- Vitamin B1 Deficiency
- Non-communicable Diseases (Hypertension, Diabetes Mellitus, Obesity)
- Food safety

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. Kywe Thein	WHO/FAO High Level Nutrition Training Course	1964	Thailand
2.	Daw Tin Tin Oo	Advance in nutrition and biochemistry	1968	German Democratic Republic
3.	Dr. Cho Nwe Oo	Post-graduate diploma	1969	London School of Hygiene and Tropical Medicine
4.	U Khin Maung Naing	MS (Nutrition)	1971	University of London
5.	Dr. Hla Min	MSc (Nutrition)	1993	London School of Tropical Medicine
6.	Dr. Phyu Phyu Aung	MPS-FNP (Philippines)	1996	University of Philippines, Los Bonos, Philippine.
7.	Daw Aye Aye Than	Laboratory techniques for IDD research and monitoring, evaluation of IDD control programme.	1998	All India Institute of Medical Science, New Delhi, India
8.	Daw Thandar Shwe	RIA Methodology	1998	Mexico
9.	Dr. Theingi Thwin	Training on Nutrients and Food Additives Analysis	2000	Institute of Nutrition, Mahidol University, Salaya, Bangkok, Thailand
10.	Daw Thandar Shwe	Training on food additives and contaminants analysis	2001	Institute of Nutrition, Mahidol University, Salaya, Bangkok, Thailand
11.	Dr. Theingi Win Myat	Training on techniques for determining pesticides contamination of foods	2002	Centrao Food Technology Research Institute (CFTRI), Mysore, India

Sr. No.	Name	Fellowship	Duration	Country
12.	Dr. Moh Moh Hlaing	Training on dietary assessment and data analysis	2004	Institute of Nutrition, Mahidol University, Salaya, Bangkok, Thailand
13.	Dr. Moe Thida Kyaw	Training on nutrient analysis and fortification	2007	The centre for research and development in nutrition and food, Ministry of Health, JI Dr. Semeru Bogor, Republic of Indonesia
14.	Dr. Mya Ohnmar	Technological advances on risk assessment in food safety	2010	Bureau of Quality Safety Food, Department of Medical Sciences, Ministry of Public Health, Nonthaburi, Thailand
15.	Dr. Moe Thida Kyaw	Development of rice varieties with improved iron content/ bioavailability through nuclear techniques	2011	FAO/IAEA Laboratories Seibersdorf, Austria

6. Coordination and Collaboration with University, UN and other Agencies

- World Health Organization
- United Nation Children's Fund
- International Atomic Energy Agency

7. Achievements

7.1 Awards

BEST POSTER AND PAPER AWARDS

Second prize

1. Second prize for best paper award in Health System Research, Myanmar Health Research Congress 2005 on the title of "Prevalence of Adult Diabetes Mellitus and its Socio-demographic, Behavioural and Physiological Risk Factors in Yangon Division, Myanmar"

Third Prize

1. Third prize for best paper award in Applied Health Research, Myanmar Health Research Congress 2001 on the title of "Determination of glycemic indices of three

- commonly eaten varieties of Myanmar bananas [Phee-kyan, Rakhine and Thee-hmwe (yellow)] Myanmar”
2. Third prize for best paper award in Applied Health Research, Myanmar Health Research Congress 2006 on the title of “Shall we add milk and milk group product group to our meal plan?”
 3. Third prize for best paper award in Health System Research, Myanmar Health Research Congress 2012 on the title of “Effect of health education on changes in dietary habit and cardiovascular risk factors among sedentary workers”

7.2 Research Grants (>10,000 USD)

Sr. No.	Title	Year	Funding agencies
1.	Establishing blood lead profile of the selected risk groups in Yangon	2001	WHO
2.	Salt iodine variation in the extended community of Myanmar.	2002	WHO
3.	Iron status of the adolescent school-girls of Myanmar	2002	WHO
4.	Prevalence of diabetes and risk factors for major non-communicable diseases in Yangon, Myanmar	2002	WHO
5.	Eating patterns and diets of the adolescents of the two major nationals of Myanmar	2003	WHO
6.	Effect of weekly iron supplementation on the out-of-school adolescents in Myanmar: a preliminary study	2004	WHO

8. Publications

Number of international publications	= 12
Number of local publications	= 25
Total number of publications	= 37

PARASITOLOGY RESEARCH DIVISION

1. Historical Background

In 1963, the Parasitology Research Section was first conceived in the womb of Microbiology Research Division together with Bacteriology, Virology and Entomology Research Sections. It was given birth as an independent research division in 1969, under the supervision of Professor Margaret Tu as the head of division. At that time, it was started with one part-time Head of Division, 3 Research Officers and 4 technicians and one laboratory attendant. In 1973, Dr. Khin Ohn Lwin became Research Scientist cum Acting Head of Division. After completion of the Clinical Research Centre building in 1974, the Parasitology Research Division was moved to that building. When Dr. Myint Lwin started his duties as the head of division in 1978, with the active contribution of Dr. Myint Oo and Daw Than Saw, research on malaria, filariasis and intestinal infestations were launched abreast with the international level. After having training abroad, the scientists of the division were engaged in clinical research as well as *in vitro* and *in vivo* experiments of malaria. The drug resistant malaria had been the priority research issue for which, experimental studies on chemotherapy, immunology and biochemistry of malaria were conducted and had been able to contribute many valuable information for improving the drug policy and control and management programme of the nation as well as of the South-East Asia region. Research on amoebiasis, filariasis, burden and management of intestinal worms and inter-relationship between aforesaid diseases versus immune system, nutrition and anemia had also been carried out and salient findings of which were effectively utilized by the disease control programmes, school health team, rural health personnel and general practitioners. Investigations on targeted anthelmintic chemotherapy and immunological aspects of worms produced applicable results for the community.

With the increasing staff strength and research capacity, the scientists endeavored not only laboratory research but also the clinical and field-based research by collaborating with the clinicians, epidemiologists, entomologists, health care and control programme personnel. Biochemical investigations like enzyme characterization of diseases especially malaria, biological experiments like *in vitro* cultivation of malaria parasites and drug susceptibility tests, malaria transmission studies in the insectary, testing of different antimalarials including reputed traditional medicines and formulations for antimalarial activity by using *in vivo* rodent malaria model, immunological tests for detection of both antibodies and antigens of *Plasmodium falciparum* and *Plasmodium vivax*, community-based field studies like dynamics of malaria transmission, seroepidemiology of different malaria endemic areas, case management studies and clinical trials of different antimalarial drugs were conducted in 1980s.

In 1990s, the division's scientists extended its collaboration more with international agencies and universities and also joined in many scientific networks especially with WHO, UNICEF, and IAEA. The results gained from the Therapeutic efficacy studies of Artemisinin-based combination therapies (ACTs) in sentinel sites of Myanmar were applied in updating the national malaria treatment policy. Since the time the Department of Medical Research was recognized as the WHO Collaborating Centre for Research and Training on Malaria in 2003 for its achievements in different disciplines in malaria research and management, it has been based at the Parasitology Research Division. The PCR-based malaria molecular laboratory was first established in 2005/ 2006 and has now reached to a

state which can run quality controlled molecular tests as well as training course on molecular biology in malaria. Other opportunistic parasitic infections like *Pneumocystis carinii*, cryptosporidiosis, *Isospora belli*, microsporidiosis, etc. were also investigated. The current staff strength is 19 comprising one head, 2 Research Scientists, 5 Research Officers, one nurse, 8 laboratory technicians and one laboratory attendant.

1.1 MALARIA

1.1.1 DRUG RESISTANT MALARIA

1.1.1.1 Monitoring of *in vitro* sensitivity of *P.falciparum* to different antimalarials

1.1.1.2 Detection of drug resistant malaria by molecular techniques in sentinel sites 2012.

1.1.1.3 A multicentre, randomized trial to detect *in vivo* resistance of *Plasmodium falciparum* to artesunate in patients with uncomplicated malaria (TRAC)

1.1.2 FIELD RESEARCH ON MALARIA

1.1.2.1 Efficacy and safety of artemether-lumefantrine vs dihydroartemisinin-piperaquine and Artesunate-mefloquine for the treatment of uncomplicated *Plasmodium falciparum* malaria in sentinel sites of Myanmar.

1.1.2.2 Malaria problem among Human Immunodeficiency Virus (HIV) infected pregnant women registered in Prevention of from Mother to Child HIV Transmission (PMCT) programme of Thaton district, Myanmar

1.1.2.3 Laboratory-based quality control testing of malaria rapid diagnostic test

1.1.2.4 Challenges encountered by local health volunteers in Early Diagnosis and Prompt Treatment of malaria in Myanmar Artemisinin Resistance Containment Zones

1.1.2.5 Detection of Day 3 parasite positivity of artemisinin based combination therapy (ACT) in Myanmar Artemisinin Resistance Containment (MARC) programme areas (Buthidaung, and Ann of Rakhine State and Kalay-Tamu, Sagaing Region)

1.1.2.6 Genetic diversity of the *Plasmodium vivax* Duffy Binding Protein (pvDBP) gene among the samples collected in Sabah, Malaysia

1.2. PARASITIC DISEASES

1.2.1 Comparative study of effectiveness of albendazole and mebendazole in soil-transmitted helminthiasis of school children

1.2.2 Sero-epidemiology of Toxoplasmosis in pregnant women attending to the Ante-natal care clinic at Yangon Central Women Hospital

2. TRADITIONAL MEDICINE

2.1.1 *In vitro* drug testing of *Plumeria obtusa* Linn (အကျော်ပင်) and *Plumeria rubra* Linn (တရုတ်စကား) on *Plasmodium falciparum*

2.1.2 Antimalarial efficacy of *Ocimum sanctum* Linn (ပင်စိမ်းနက်) Leaf

2.1.3 Antiamoebic activity of the two plants extracts of Bulbs of *Allium sativum* Linn (ကြက်သွန်ဖြူ) and seeds of *Carica papaya* Linn (သဘော) on Caecal amoebiasis in mice

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	Prof. Dr .Margaret Tu	M.B.B.S (Rgn) D.T.M &H University of London D.A.P&E University of London M.Sc (Bacteriology) University of Manchester	1963-70	
2.	Dr .Khin Ohn Lwin	M.B.B.S (Rgn) D.P.&T.M(Rgn)	1970-1982	
3.	Dr. Myint Lwin	M.B.B.S (Rgn) M.Sc (Parasitology) LSHTM London School of Hygiene & Tropical Medicine M.Sc (Applied Immunology) Ph.D(Protozoology, Chemotheraphy, Immunology)	1982-1990	
4.	Prof. Myint Oo	B.Sc (Biology) (Ygn), Dip. Stats (Ygn), M.Sc Zoology) (Ygn), Ph.D (Molecular Genetics) Australia	1990 -1993	
5.	Dr. Ye Htut	M.B.,B.S.(Ygn),M.Sc (Medical Parasitology) LSHT, D.L.S.H.T.M (Tropical Medicine), FRCP (Scotland)	1993-98	
6.	Dr. Myat Phone Kyaw	M.B.B.S (Mdy), M.Med.Sc (Biochemistry), Ph.D (SriLanka)	2004-2010	
7.	Dr. Thaung Hlaing	M.B.B.S (Mdy), DTM&H, MCTM (Bangkok), Ph.D (Manchester)	2011-2012	
8.	Dr. Kay Thwe Han	M.B.B.S (Ygn) (Acting Head) M. Med Sc (Microbiology)	2012-Date	

3. Current Staff

3.1 Photograph (Group Photo)



3.2 List of Staff (Annual Report Format)

Research Scientist & Head	...	Dr. Kay Thwe Han MBBS, M.Med.Sc (Microbiology) (UM1)(Ygn)
Research Officer	...	Daw Aye Than BSc (Zoology)(Yangon University)
	...	Daw Kyin Hla Aye BSc (Chemistry)(Yangon University)
	...	Dr. Khin Myo Aye MBBS, M.Med.Sc (Microbiology) (UM1)(Ygn)
	...	Dr. Nan Cho Nwe Mon MBBS (IM1)(Ygn)
	...	Dr. Myat Htut Nyunt MBBS (IM2)(Ygn), M.Med.Sc (Microbiology) (UM1)(Ygn), DAP&E (IMR) (Malaysia)
Research Assistant 2	...	Daw Soe Soe Han BSc (Biotechnology), Diploma in Global English (Yangon University)
	...	Daw Ni Ni Zaw BA (Myanmarsar)(Dagon University)
Research Assistant 3	...	U Phyo Zaw Aung BA (Eco)(Yangon University)
	...	Daw Ne Chi Aung San BA (Geography)(Dagon University)
	...	Daw Thin Thin Aye BSc (Chemistry)(Yangon University)
	...	Daw Cho Cho BSc (Hons) (Zoology)(Yangon University)
Research Assistant 4	...	U Aung Kyaw Kyaw BSc (Zoology)(Dagon University)
Laboratory Attendance	...	Daw Nilar Shwe

4. Areas of Research Activities

- Malaria
- Intestinal parasitic

5. International Training

Dr .Khin Ohn Lwin

1. 1974 (Sept/Oct) WHO Training- Cell-mediated and Humoral Immune Responses in the tropics. (India)
2. 1979 (Aug/Sept) WHO Training-Immunology Techniques (Switzerland)
3. 1981 (Oct/Nov) JICA Training- Development of Hybridoma Technique for production of monoclonal antibodies.(Japan)

Dr. Myint Lwin

1. 1989 (3 months) Training in Molecular Biological Techniques at the Tropical Public Health Division, Harvard University U.S.A
2. -1989(3 months) Training in advanced immunological techniques at the Malaria Research Unit, National Institutes of Health, Bethesda, U.S.A

Dr. Ye Htut

1995- Research training on transmission-blocking immunity of malaria, University of Colombo Srilanka.

Dr. Myat Phone Kyaw

Dr. Kay Thwe Han

1. Training on Molecular techniques for detection of drug resistant malaria. The University of Glasgow, Institute of Biomedical and Life Science, Glasgow, United Kingdom. (5.2.05 – 31.5.05)
2. Training on Rapid assessment tools for burden and determinants of malaria in pregnancy. Regional Malaria Research Center for tribals, Jabalpur, India (WHO SEARO/CDC) (24.4.04- 29.4.04)
3. Fourth Regional Training Course on Bioinformatics Applied to Tropical Diseases in Southeast Asia (Unicef/UNDP/World Bank/WHO (TDR)). Mahidol University, Thailand. (3-14..10.2005)

6. Coordination and Collaboration with Universities, UN and other Agencies

- University of Maryland School of Medicine, USA
- Johns Hopkins Bloomberg School of Public Health, Baltimore, USA
- Manchester University, UK
- Mahidol-Oxford Research Unit, Faculty of Tropical Medicine , Mahidol University, Thailand
- University of Glasgow, UK
- Kangwon University, Republic of Korea
- Oxford University, United Kingdom

Agencies;

WHO, IAEA, JICA, KOICA, Welcome trust

7. Achievements

7.1 Awards (Research paper awards and other scientific awards)

1. Dr. Myat Phone Kyaw - Best paper award for Applied Health Research at the Myanmar Health Research Congress.2001
2. Dr. Myat Phone Kyaw –
3. Dr. Kay Thwe Han - Best paper award for Applied Health Research at the Myanmar Health Research Congress.2001
4. Dr. Kay Thwe Han -Best paper award for Basic Health Research at the Myanmar Health Research Congress, 2009
5. Dr. Khin Myo Aye – Young Researcher Award on Basic Health Research at Myanmar Health Research Congress, 2011
6. Dr. Myat Htut Nyunt – Young Researcher Award on Basic Health Research at Myanmar Health Research Congress, 2011

7.2 Research Grants (\geq US\$ 10,000) (Multi-country collaborative research grants)

Dr. Myint Lwin –

1. Study of pathophysiological aspects and risk factors associated with severe and complicated falciparum malaria in Sri Lanka and Myanmar (WHO/TDR Regional Linkage Grant) (1999-2000)
2. A comparative study of Artemether Mefloquine combination with loading dose Quinine-Tetracycline combination in human cerebral malaria: A multicentre randomized controlled trial (SN: 928) (WHO) (1996-1997)
3. Dynamics of malaria transmission in representative foothill and adjacent plain area of Burm.
4. A comparative study of Artemether Mefloquine combination with loading dose Quinine-Tetracycline combination in human cerebral malaria: A multicentre randomized controlled trial (SN:928) (WHO)
5. Anepherine fauns,malaria endemicity and population movement in foothill and adjacent plain area of Pegu Division, prepared on behalf of the Epidemiology, Parasitology and Entomology Research Division 1984.(WHO/TDR)

Daw Than Saw-

Research on amoebiasis (JICA)(1988-1990)

Dr.Myint Oo

1. Relationship between prevalence and severity of *Plasmodium falciparum* malaria and genetically determined red cell disorders.(WHO/SEARO-SN 844) (1990-1992)
2. Investigation on purine transport and metabolism in *Plasmodium falciparum* infected erythrocytes with genetic abnormalities (ID910433) (WHO/TDR)
3. Standardization of in vitro radiometric assay for the rapid assessment of chloroquine resisford *Plasmodium vivax* in the field. (IAEA) (1996-1997)
4. Evaluation of 14 day semi-extended in vivo drug sensitivity monitoring system for *Plasmodium falciparum* and *Plasmodium vivax* infections (WHO/TDR. Programme Base Grant) (1996-1997)

5. Standardization of In vitro radiometric assay for the rapid assessment of chloroquineresistant *Plasmodium vivax* in the field (IAEA Grant)(1997)
6. Evaluation of 14 day semi-extended in vivo drug sensitivity monitoring system for *P.falciparum* and *P. vivax* infections (WHO/TDR Programme Based Grant)(1997)

Dr. Ye Htut

1. In vivo trials of *P.falciparum* and *P. vivax* infections to different antimalarials (WHO)(2000-2001)
2. In vitro sensitivity of *Plasmodium falciparum* to different antimalarials (WHO/TDR programme Based Grant)
3. A multicentre, randomized trial to detect *in vivo* resistance of *Plasmodium falciparum* to artesunate in patients with uncomplicated malaria (TRAC) (2011-12)
4. Therapeutic efficacy of antimalarials on uncomplicated falciparum malaria in selected areas. (WHO) (2005)
5. Detection of drug resistant malaria by molecular techniques (IAEA) (2004)
6. Therapeutic efficacy of antimalarials on uncomplicated falciparum malaria in selected area. (WHO) (2004)
7. Therapeutic efficacy test of different combinations of drugs and use of molecular techniques for detection of drug resistant falciparum malaria in endemic areas.(WHO/IAEA) (2003)
8. *In vivo* trial of *P. falciparum* and *P. vivax* infection to different antimalarials. (WHO/RBMBased Grant) (2003)
9. Effect of antimalarial drugs on transmission of falciparum malaria to mosquitoes(WHO/APW) (2003)
10. *In vitro* sensitivity of *Plasmodium falciparum* to different antimalarials (WHO/TDR programme Base Grant)
11. A study on antibody-mediated transmission-blocking immunity to *P. falciparum* malaria(WHO/TDR RLG grant) (1997)
12. 2008-2010 WHO/Greater Mekong Subregion Therapeutic Efficacy Survey Network. Efficacy and safety of artemisinin combination therapy (ACT) (artesunate-mefloquine, artemether-lumefantrine, and dihydroartemisinin-piperaquine) for the treatment of uncomplicated *Plasmodium falciparum* malaria and chloroquine for the treatment of *Plasmodium vivax* malaria in 6 sentinel sites of Myanmar.
13. 2011-2012 A multicenter , randomized trial to detect *in vivo* resistance of *Plasmodium falciparum* to artesunate in patients with uncomplicated malaria (TRAC).
14. 2012-2013 Pilot studies of the molecular epidemiology of drug resistant malaria in Myanmar Ro3, N/H Grant.
15. 2011-2012 UK A multicenter , randomized trial to detect *in vivo* resistance of *Plasmodium falciparum* to artesunate in patients with uncomplicated malaria (TRAC). (Department for International Development.)

Dr. Myat Phone Kyaw

1. Efficacy and safety of artemether-lumefantrine vs dihydroartemisinin-piperaquine and Artesunate-mefloquine for the treatment of uncomplicated *Plasmodium falciparum* malaria in 3 sentinel sites(Kachin,Rakhine,Mon-Kay State) of Myanmar. (WHO)(2007)

2. Laboratory-based quality control testing of malaria rapid diagnostic test (WHO) (2007-2009) Therapeutic efficacy of antimalarials on uncomplicated falciparum malaria in selected areas.
3. In vivo field trial of *P. falciparum* and *P. vivax* infections to different antimalarials (WHO/TDR Programme Based Grant)
4. Study of pathophysiological aspects and risk factors associated with severe and complicated falciparum malaria in Sri Lanka and Myanmar (WHO/TDR R; Ionan Linkage Grant)
5. Efficacy and safety of artemether-lumefantrine vs dihydroartemisinin-piperaquine for the treatment of uncomplicated *Plasmodium falciparum* malaria and chloroquine for *Plasmodium vivax* in Thanphyuzayat (Mon State) and Kawthaung (Taninthary Division) (WHO/SE)(2011)
6. Efficacy and safety of artemisinin Combination Therapies (ACTs) (artemether-lumefantrine, artesunate-mefloquine and dihydroartemisinin-piperaquine) for the treatment of uncomplicated *Plasmodium falciparum* malaria and chloroquine followed by primaquine for the treatment of uncomplicated *Plasmodium vivax* malaria in Thanphyuzayat (Mon State) and Kawthaung (Taninthary Division) .(WHO/SE)(2011)
7. Efficacy and safety of artemisinin Combination Therapies (ACTs) (artemether-lumefantrine, artesunate-mefloquine and dihydroartemisinin-piperaquine) for the treatment of uncomplicated *Plasmodium falciparum* malaria and chloroquine followed by primaquine for the treatment of uncomplicated *Plasmodium vivax* malaria in 3 sentinel sites (Rakhine-Chin border, Maw Thaung, Tanintharyi (Myanmar-Thai border) and Myawaddy, Kayin state (Myanmar- Thai border).in Myanmar.(WHO) 2013
8. Malaria Blood Slide Validation and Slide Bank Preparation .(WHO) (2011)
9. Monitoring efficacy of Artesunate Monotherapy in Kawthaung Township, Tanintharyi Division.(WHO) (2010)
10. Efficacy and safety of artemether-lumefantrine vs dihydroartemisinin-piperaquine for the treatment of uncomplicated *Plasmodium falciparum* malaria and chloroquine for *P. vivax* in Ponargyun, Yakhine State (WHO/SE) 2010

Dr. Tin Oo

1. Assessment of the empowerment of women in self-care against malaria in rural Myanmar (WHO/ TDR Grant) (1999)
2. Eco-Bio-Social dynamics for better informed dengue prevention in Myanmar (WHO/TDR- Project ID A 60629)

Dr. Kay Thwe Han

1. Burden and determinants of malaria in pregnancy in Myanmar (WHO/SEARO) 2005.
2. Effect of ITN on diseases burden of Malaria in pregnancy, Thaton, Myanmar (WHO/TDR/Small Grant) 2008.
3. Malaria problem among HIV-infected pregnant women registered in PMCT programme of Thaton District, Myanmar (WHO/TDR/Small Grant) 2010.
4. Detection of Day 3 parasite positivity of artemisinin based combination therapy (ACT) in Myanmar Artemisinin Resistance Containment (MARC) programme areas (Buthidaung, and Ann of Rakhine State and Kalay-Tamu, Sagaing Region) (WHO-3DF) (2011-2012)

Dr. Myat Htut Nyunt

Challenges encountered by local health volunteers in Early Diagnosis and Prompt Treatment of malaria in Myanmar Artemisinin Resistance Containment Zones (WHO-3DF) (2011-2012)

8. Publications

Number of international publications	= 26
Number of local publications	= 42
Total number of publications	= 66

PATHOLOGY RESEARCH DIVISION

1. Historical Background

Pathology Research Division was established on 2nd October 1972 and the Electron Microscope Laboratory was actively engaged for pathology and immunological research in renal diseases, malaria, hepatitis and Russell viper venom from 1972 to 1989. The first appointed Head of the Pathology Research Division was Dr. Aung Khin. This division has actively participated in the immunological, histopathological, epidemiological, molecular studies of malaria research projects from 1990 to 1998 and was also involved in haematological research mainly for thalassaemia disease, G6PD deficiency, haemoglobinopathies and coagulation disorders. All of the cancer research was based on histopathology, immunohistochemistry (IHC), insitu-hybridization, apoptosis (TUNNEL) method, western blot assay and advanced molecular polymerase chain reaction (PCR). This division has also performed protein analysis and detection of chromosome abnormalities by using immunophenotyping and karyotyping method and has determined the histopathological findings of acute and sub-acute toxicity tests in tissues of laboratory animals for traditional medicine research projects. Dr. Ne Win, head of this division was promoted to Director of National Health Laboratory and Professor in University of Public Health, Yangon in 2007. The current head of division is Dr. Moh Moh Htun and number of staff is 10. The Pathology Research Division is currently engaged in haemoglobinopathies, alpha and beta thalassaemia, G6PD enzyme deficiency and coagulation profile research. Carcinogenetic and cytokinetic process of liver, gastric, breast and oral tissues were also determined. This division also performs gender verification (International Myanmar athletes and neonates with ambiguous sex), karyotyping of chromosomal abnormalities of human and animal subjects. During 2012, the division has involved in genotypic identification and genetic mutations of beta thalassaemia carriers by using Single Strand Conformation Polymorphism (SSCP-PCR) and insulin receptor resistance gene mutation in type 2 diabetes mellitus by using Restriction Fragment Link Polymorphism (RFLP- PCR) method.

2. Former Heads

Sr No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Aung Khin	MBBS (Rgn), PhD (Liverpool)	1972-1979	Resigned
2.	Dr. Than Than	MBBS (Mdy), DCP (London), D.Path (UK), PhD (Glasgow)	1979-1989	Resigned
3.	Dr. Maung Maung Oo	MBBS, D.Path (Ygn)	1989-1993	Resigned
4.	Dr. Soe Soe	MBBS, D.Path (Ygn), PhD (Paris)	1993-2001	Resigned
5.	Dr. Ne Win	MBBS, MMedSc (Pathology) PhD	2001-2007	Promotion and transfer
6.	Dr. Moh Moh Htun	MBBS, MMedSc (Pathology) PhD	2007- to date	

3. Current Staff

3.1 Photograph (Group Photo)



3.2 List of Staff

Deputy Director & Head	...	Dr. Moh Moh Htun MBBS, MMedSc, PhD (Pathology) (UM1)
Research Scientist	...	Dr. Yin Min Htun MBBS, MMedSc (Pathology) (UM1)
Research Officer	...	Daw Aye Myint Swe BSc (Chemistry) (MU)
	...	Daw Myat Mon Oo BSc (Chemistry) (YU), DA (MSA)
Medical technologist 1	...	Daw Than Than Swe BSc (Chemistry) (YU)
Research Assistant (2)	...	Daw Khin Myo Set BA (Myanmarsar) (UDE)
	...	Daw Hnin Nu Htwe BA (History) (UDE)
Research Assistant (3)	...	Daw Mya Thandar Win BSc (Botany) (UDE)
		Daw Kay Thwe Win BSc (Zoology) (UDE)
Research Assistant (4)	...	Daw Khin Zar Chi Aung

4. Areas of Research Activities

- Malaria
- Thalassaemia disease
- Snakebite
- Hepatitis
- Diabetes mellitus
- Common Cancers in Myanmar - pathogenesis ,carcinogeneis and cytokinetics
- Coagulation disorders

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr Mg Mg Oo	Ph.D (USA)	One Year	USA
2.	Dr Mg Mg Oo	Malaria training(1984-1985)	One Year	Japan
3.	Dr Soe Soe	Hepatitis training(1986-1987)	One Year	Japan
4.	Dr Soe Soe	Ph.D	Two Years	France
5.	Dr Khin Ei Han	Anaemia(1988-1989)	One Year	UK
6.	U Kyaw Htwe	Snake bite(1986-87)	Six months	Thailand
7.	Daw Win Win Kyaw	Tropical diseases(1986)	Nine months	Japan
8.	Dr Than Than Htwe	M.Med.Sc(Immunology)	One Year	UK
9.	Dr Ne Win	Optimization of PCR(1996)	Four moths	Malaysia
10.	Dr Ne Win	HLA typing in renal transplant(2004)	Two weeks	Thailand
11.	Dr Ne Win	Globin Gene mutation (2000)	Six months	Japan
12.	DawAye Myint Swe	Immunohistochemistry (1997)	Four months	Singapore
13.	Daw Myat Mon Oo	Malaria research (1996)	Six months	France
14.	Dr Aye Aye Lwin	Control of Hepatitis C (2002-2003)	Six month	Japan
15.	Dr Aye Aye Lwin	Ph.D(2003-2004)	One Year	Japan
16.	Dr Aye Aye Lwin	Ph.D(2005-2007)	Eighteen months	Japan
17.	Dr Min Min Myint Thu	Immunohistochemistry (2002-2003)	Six months	Japan
18.	Dr. Sann Sandar Khin	Ph.D	Three Years	Japan
19.	Dr. Moh Moh Htun	Molecular detection of Hepatitis B & C viral genome in liver tissue of primary hepatocellular carcinoma (2007-2009)	Ten Weeks	Japan
20.	Dr. Yin Min Htun	Assessment of AFB 1 on liver tissue of Hepatocellular carcinoma cases (2009)	Ten Weeks	Japan
21.	Daw Than Than Swe	Training on preparation of Histopathological samples from laboratory animals(2013)	One Month	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

Sr. No.	Title	Year	Universities and UN agencies
1.	Study of the pathogenesis of severe and complicated malaria	1990-	WHO/TDR
2.	Determination of parasite threshold in malaria high transmission area	1995-1996	WHO/TDR/ID/940807
3.	Application of the ACIDI(Antibody dependent cellular inhibition) assay to the identification of protective antigens and of the establishment of protective immunity in field conditions	1997-1998	WHO/TDR
4.	Determination of serum fibrinogen degradation products(FDP) in Russell viper bite patients by staphylococcal clumping test at periphery hospitals.	1997-1998	WHO/SEARO
5.	Prevention and control of severe alpha thalassaemia syndrome	2004-2006	WHO/APW
6.	Significance of urinary FDP in the diagnosis of pregnancy associated hypertension.	2004-2006	WHO/APW
7.	Prevalence and genetic epidemiology of thalassaemia /hemoglobinopathies in different indigenous race of Myanmar	2005-2007	Mobusho, Okayama/Kawasaki Universities
8.	- Preparation of FDP test kit for accurate diagnosis of pregnancy associated hypertensive disorders. - Determination of serum and urinary FDP in pregnant mothers associated with hypertension from respective hospitals.	2005-2007	WHO/APW
9.	Detection of alpha thalassaemia 1 or HbH in pregnant mothers and their husbands.	2005-2007	WHO/APW
10.	Pre-operative lymphocyte cross-matching in renal transplant patient.	2005-2007	WHO/APW
11.	Molecular characterization of apoptotic gene, cell cycle controlling genes, tumor suppressor gene in cervical and liver cancer	2005-2007	Mobusho collaboration/Nagasaki University
12.	Bladder carcinogenesis and epigenetics	2006-2009	Mobusho / Kobe University
13.	Association between iron deposition and cell kinetic in liver and cervical cancer	2006-2011	Nagasaki University, Japan
14.	Molecular detection of viral genome of Hepatitis B and Hepatitis C infection in liver tissue of hepatocellular carcinoma	2007-2009	Collaboration between DMR(LM) & Nagasaki University

Sr. No.	Title	Year	Universities and UN agencies
15.	Significance of apoptosis in childhood Leukemia.	2008-2009	WHO/APW
16.	Cytokinetic and carcinogenic effects of Aflatoxin-B1 in rat liver and cultured hepatocytes by histoendonuclease linked DNA methylation method.	2009-2011	Nagasaki University, Japan
17.	Analysis of hemoglobinopathies and hematological parameters in healthy children living in Delta region of Myanmar	2009-2010	Nagasaki University, Japan
18.	Early screening of G ₆ PD deficiency among the healthy children living in malaria area at Bogalay Township, Ayeyarwaddy Division	2009-2010	Nagasaki University, Japan
19.	Expression of Apoptotic regulators in biopsy tissues of cervical cancer cases	2010-2012	Nagasaki University, Japan
20.	Detection of Aflatoxin –B1 (Biomarker) in primary hepatocellular carcinoma from resected liver cases	2011-2012	Nagasaki University, Japan
21.	Detection of Aflatoxin –B1 (Biomarker) in post-mortem liver tissues	2011-2012	Nagasaki University, Japan and University of Medicine (1) Yangon
22.	Molecular typing of Human Papilloma Viruses in patients with oral mucosal lesions	2012-2013	Miyasaki University, Japan
23.	Histological grading and immunological markers in gastric tissue specimen	2012-2013	Nagasaki University, Japan
24.	Screening and molecular typing of beta thalassaemia carriers in students from the University of Nursing	2011-2013	Okayama University, Japan
25.	Detection of insulin resistance gene polymorphism in diabetes mellitus	2011-2012	Physiology Department, University of Medicine (1) Yangon
26.	Screening and molecular typing of beta thalassaemia carriers in students from the University of Nursing	2011-2013	Okayama University, Japan
27.	Establishment of advanced laboratory techniques for screening, diagnosis and monitoring of common malignancies in Myanmar (Significance of some prognostic markers in histological proven breast cancer tissue samples)	2012-2013	WHO (APW)

7. Achievements**7.1. Awards (Research paper awards and other scientific awards)**

- 1 Best paper award in Myanmar Health Research Congress 1993 : Ne Win, Kyaw Htwe, Thi Thi Naing, Ni Win and Hla Pe ; Development of test kit for detection of fibrinogen/fibrin degradation product (FDP)
- 2 Best paper award in 8th Myanmar Military Medical Conference in 1998 : Soe Soe, Khin Saw Aye, Pierre Druilhe & Than swe; Pyrogenic threshold and criteria for the diagnosis of malaria fever among semi-immune population in Myanmar.
- 3 Best paper award for applied health research in Myanmar Health Research Congress, 2007 : Myat Phone Kyaw, Khin Pyone Kyi, Moh Moh Htun, Khin May Oo, Zaw Myint, Win Aung, Mon Mon Aung & Yin Yin Win ; Safety and immunogenicity of DMR Recombinant Hepatitis B Vaccine.
- 4 Scientific award (2006) Dr. Moh Moh Htun : Third level of best medical science award for local production of Recombinant Hepatitis B vaccine in Myanmar

7.2. Research Grants (Universities, UN Agencies)

Sr. No.	Title	Year	Funding agencies
1.	- Evaluation of the occurrence of naturally acquired immunity in malaria endemic area Mygyanglaung - Determination of parasite threshold in malaria endemic areas with diverse levels of transmission. - Histopathological study of placenta in malaria - Determination of anti-phospholipid antibodies in malaria with pregnancy.	1996-1997	Total Myanmar Export Petroleum (TMEP)
2.	- Determination of malaria R-I resistance by PCR technique -Identification of malaria virulent strain by genetic engineering.	1997-1998	Pasteur Institute, Paris
3.	Pathology of Dengue Hemorrhagic Fever and localization of Dengue viral infection in human tissue	2005-2007	PDVI/IVI
4.	Bladder carcinogenesis and epigenetics	2006-2009	Mobusho collaboration/ Kobe University
5.	Establishment of advanced laboratory techniques for screening, diagnosis and monitoring of common malignancies in Myanmar (Significance of some prognostic markers in histological proven breast cancer tissue samples)	2012-2013	WHO (APW)

8. Publications

Number of international publications = 40
 Number of local publications = 37
 Total number of publications = 77

PHARMACEUTICAL TOXICOLOGY RESEARCH DIVISION

1. Historical Background

Pharmaceutical Toxicology Research Division was established in 18th Oct 2003. First appointed head of the Pharmaceutical Toxicology Research Division is Dr. Thaw Zin. He established poison information and analytical toxicology laboratories and participated as a member of European Association of Poison Centers and Clinical Toxicologists (EAPCCT). He also made links with Ramathibodi Poison Center in Bangkok, Thailand. He was promoted to Director of National Poison Control Center in 2007 and retired in 2010. The staff structure in 2013 consists of 13 staff; one Deputy Director/Head of Division, one research scientist, three research officers, three research assistants II, three research assistants III and two research assistants IV.

The Pharmaceutical Toxicology Research Division is currently engaged in the research activities on poisoning, tuberculosis, traditional medicine, pharmaceutical equivalence and quality control of western and traditional medicine, pharmacokinetics and pharmacodynamic of drugs and adverse drug reaction monitoring. Pharmaceutical Toxicology Research Division 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 of cases with 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 all hospitals for poison control and management

2. Former Head

Sr No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Thaw Zin	MBBS, MMedSc (Pharmacology) FACTM, PhD (New South Wales)	2003 to 2007	Promoted to Director

3. Current Staff

3.1 Photograph (Group Photo)



3.2 List of Staff

Deputy Director & Head	...	Dr. Khin Chit, MBBS (UMI); MMedSc (Pharmacology) (UMI); PhD (UMII)
Research Scientist	...	Dr. Min Wun, MBBS (UMI); MMedSc (Pharmacology) (UMII)
Research Officer	...	Dr. Khin Hnin Pwint, MBBS; MMedSc (Pharmacology) (UMII)
	...	Dr. Nyi Nyi Win, MBBS; MMedSc (Pharmacology) (UMI)
	...	Daw Moe Moe Aye, BSc (Chemistry)(YU)
Research Assistant (2)	...	DawKyí Kyí Myint, BA (Geography)(YU)
	...	DawThiri Aung, BPharm (UP)
	...	Daw Phyu Phyu Aye, BSc (Zoology)(DU)
Research Assistant (3)	...	Daw Mya Mya Moe, BSc (Chemistry)(DU)
	...	Daw Swe Swe Aung, BSc (Marine Science)(MU)
	...	Daw Win Phyu Phyu Zaw (First Year, Myanmar)
Research Assistant (4)	...	Daw Thin Thin Hlaing, BSc (Zoology)(DU)
	...	Daw Thinzar Myo, BSc (Zoology)(EU)

4. Areas of Research Activities

1. Pharmaco-epidemiology of poisoning
2. Drug related poisoning
3. Unknown poisoning
4. Averse Drug Reaction Monitoring
5. Clinical Pharmacology
6. Traditional medicine
7. Tuberculosis
8. Malaria
9. Patient safety

5. International Training (Seminar, Workshop)

Sr. No.	Name	Fellowship	Duration	Country
1	Dr. Thaw Zin	Training on Clinical Pharmacology and Therapeutic Drug Monitoring (2003)	12weeks	Mumbai India
2	Dr. Thaw Zin	MDR-TB treatment with traditional medicine (2010)	14 days	Mumbai, India
3	Dr. Khin Chit	Training on cell line, cell culture technology(2009)	9weeks	Mahidol University, Bangkok, Thailand
4	Dr. Khin Chit	Training on pharmacokinetics of Artesunate and dihydroartemisinin in malaria patients (2011)	2 weeks	Mahidol University, Bangkok, Thailand
5	Dr. Min Wun	Training on Pharmacovigilance (2009)	8 weeks	Bangkok, Thailand
6	Daw Moe Moe Aye	Training on Analytical Toxicology (2009)	8 weeks	Thailand
7	Daw Moe Moe Aye	Training on pharmacokinetics of Artesunate and dihydroartemisinin in malaria patients (2011)	2weeks	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

Sr. No.	Title	Year	Universities and UN agencies
1.	Study of clinico-epidemiological pattern of poisoning and risk of fatality among poisoning cases at Yangon General Hospital.	2001-2003	WHO/SEARO
2.	Study of social and clinico-pharmacological factors likely to contribute to treatment failure in pulmonary tuberculosis patients, In: Institutional Capability Strengthening on Tuberculosis Research in Myanmar.	2002-2004	WHO/TDR/RCS
3.	Study on Traditional Medicine Culture and Impact upon Health care in Myanmar.	2004-2006	Toyota Foundation, Tokyo, Japan
4.	Health impact and Toxicity Hazards of Pesticide Residues in high risk agricultural workers.	2003-2004	WHO
5.	Analysis of different analytical methods used for identification and quantification of unknown drugs in acute poisoning	2004-2005	WHO
6.	Quality assessment of commonly used Artesunate tablets available in markets in quality diagnosis and standard treatment of malaria (QDSTM) project	2006	WHO
7.	Development of analytical toxicology laboratory with good laboratory practice and quality assurance assessment at NPCC	2007-2008	WHO
8.	Assessment of reliability, accessibility and practicability of pharmacovigilance (spontaneous reporting & record-linkage) methods at Poison Information Unit, NPCC.	2008-2009	WHO
9.	Detection of counterfeit and substandard drugs using simple and available resources in National Poison Control Center, Myanmar	2009-2010	WHO/Patient safety
10.	Antiproliferative and antioxidant activities of Some Myanmar Medicinal Plants	2009-2010	Bangkok, Thailand
11.	Urinary cotinine as an objective measure of cigarette smoking: potential support of national poison control center on tobacco-free initiatives in Myanmar	2010	Bangkok, Thailand
12.	Evaluation of Clinical, Bacteriological, Immunological Responses, Adverse Drug Reactions and opinion of MDR-TB patients treating with DOTS-Plus regime in Myanmar	2010	WHO

Sr. No.	Title	Year	Universities and UN agencies
13.	Determination of antibiotic residues in fish and prawns (Food Safety)	2010	WHO
14.	Improvement of patients safety through adverse drug reaction monitoring among general practitioners in Yangon region	2010	WHO
15.	Evaluation of safety and efficacy of tradition medicine as complementary to Cat II region in treatment of Tuberculosis	2013	WHO

7. Achievements

7.1 Awards

Best Poster and Paper Awards

First Prize

1. Best Poster Award in Myanmar Health Research Congress 2006 with the title of Study on factors influencing treatment outcome of Tuberculosis treated by 4-FDC at Thingangyun TB Centre
2. Best Poster Award in Myanmar Health Research Congress 2009 with the title of Health Impact and Ecological Consequences of Pesticide Residues in Inlay Lake, Southern Shan State.
3. Best Applied Research Paper Award in Myanmar Health Research Congress 2010 with the title of Pharmacokinetics of piperazine and clinical outcome of acute, uncomplicated falciparum malarial patients after administration of Piperamisinin, a locally manufactured ACT in Myanmar.

Second prize

1. Second prize for best poster award in Myanmar Health Research Congress 2006 on the title of " Application of Population Pharmacokinetics in the Treatment of Acute Poisoning: experience with paracetamol and methanol.
2. Second prize for best applied research paper in Myanmar Health research 2009 on the title of "Pharmacokinetics of Piperazine in in Myanmar Healthy Volunteers after Oral Administration of Two Fixed-dose Dihydroartemisinin-piperazine Combinations.
3. Second prize for best applied research paper in Myanmar Health research 2010 on the title of "Treatment Outcome of MDR-TB treated with Herbal Plants in Combination with Amoxycillin, Clofazimine, Quinolone & Kanamycin.

Third prize

1. Third prize for best applied research paper in Myanmar Health research 2009 on the title of Comparative Pharmacokinetics of Kanamycin in Multi-drug Resistant Tuberculosis Patients and Healthy Volunteers.
2. Third prize for best basic research paper in Myanmar Health research 2012 on the title of Evaluation of clinical, bacteriological, pharmacological factors and immunological responses of pulmonary TB patients in Yangon

7.2 Research Grants

Sr. No.	Title	Year	Funding agencies
1.	Study of clinico-epidemiological pattern of poisoning and risk of fatality among poisoning cases at Yangon General Hospital.	2001-2003	WHO/SEARO
2.	Study of social and clinico-pharmacological factors likely to contribute to treatment failure in pulmonary tuberculosis patients, In: Institutional Capability Strengthening on Tuberculosis Research in Myanmar.	2002-2004	WHO/TDR/RCS
3.	Study on Traditional Medicine Culture and Impact upon Health care in Myanmar.	2004-2006	Toyota Foundation, Tokyo, Japan
4.	Detection of counterfeit and substandard drugs using simple and available resources in National Poison Control Center, Myanmar	2009-2010	WHO/Patient safety

8. Publications

Number of international publications	= 8
Number of local publications	= 32
Total number of publications	= 40

PHARMACOLOGY RESEARCH DIVISION

1. Historal background

Pharmacology Research Division was established at the time of establishment of Burma Medical Research Institute (BMRI) at 1963. The first appointed Head of Division was U Sein Gwan, Senior Research Officer, as honorary consultant in 1963-66. Former staff structure in 1963 was four staff consisting of one Consultant/Head of Division, one Research Officer, one Technician Grade II and one Technician Grade III. The current Deputy Director and Head of Division is Dr May Aye Than and staff structure in 1992 consists of 20 staff; one Deputy Director/Head of Division, two Research Scientists, six Research officers, three Research Assistants II, three Research Assistants III, three Research Assistants IV and one Laboratory Attendant.

Dr Aung Naing, Research Scientist, was promoted to Director and transferred to the Department of Traditional Medicine in 1991. U Win Myint, Research Scientist was promoted to Deputy Director and transferred to the Department of Traditional Medicine in 1989. On separation of division, Dr Thaw Zin, Research Scientist was transferred to Pharmaceutical Toxicology Research Division as Deputy Director and Head, Dr Khin Chit, Research Officer was transferred to Pharmaceutical Toxicology Research Division as Research Scientist, Dr Ohnmar May Tin Hlaing and Dr Zaw Htet, Research Officers were transferred to Pharmaceutical Toxicology Research Division and Radiation Toxicology Research Division as same post in 2002.

The Pharmacology Research Division has mainly conducted Traditional and allopathic medicine research especially on six major priority diseases and some other diseases such as cancer. Additional activities include toxicological, phytochemical and pharmacological assessment of locally available traditional medicines from the private sector and also those from the Ministry of Health which were conducted on ad hoc basis. The division has also taken the responsibility in training pharmacological, experimental and biochemical techniques to medical and non-medical postgraduate students from various institutions and also researchers from other departments on a part-time basis.

2. Former Heads

Sr No.	Name	Degree	Year (From-To)	Remarks
1.	U Sein Gwan	B.Sc.(Hons:) Consultant Honorary (Senior Research Officer)	1963-66	
2.	Dr Khin Kyi Kyi	M.B.B.S(Rgn) Ph.D Consultant	1968-72	Professor, IM- I
3.	U Sein Gwan	B.Sc.(Hons:) Senior Research Officer and Acting Head of Department	1969-72	Retired
4.	Dr.S.J.Th	M.B.B.S(Rgn) Ph.D	1974-89	Deputy Director

Sr No.	Name	Degree	Year (From-To)	Remarks
5.	Daw Mya Bwin	M.Sc.(Washington D.C) Deputy Director/Head	1989-90 1991-95	Retired
6.	Dr Aye Than	M.Sc.(Zool) Ph.D.	22.2.95 to 19-9-2004	Technical Expert
7.	Dr Thaw Zin	M.B.B.S(Ygn) M.Med.Sc (Pharmacology) PhD(New South Wale) FACTM (Australia)	2004(acting)	Director
8.	Dr. May Aye Than	M.B.B.S(Ygn) M.Med.Sc (Pharmacology)	December 2004- to date	

3. Current Staff

3.1 Photograph(Group Photo)



3.2 List of Staff

Deputy Director & Head	...	Dr. May Aye Than MBBS (IM I), MMedSc (Pharmacology)(IM II)
Research Scientist	...	Dr. Khine Khine Lwin, MBBS(IM I), M.Med.Sc(Pharmacology)(IMM)
	...	Daw Mu Mu Sein Myint BSc, MSc (Zoology)(YU)
Research Officer	...	Dr.Khin Tar Yar Myint M.Sc, M.Res (MU) Ph.D(Chemistry)(YU)
	...	Dr.Ohnmar Kyaw MBBS(UM I)
	...	Daw Win Win Maw BSc (Physics)(YU)
	...	Dr.Zaw Myo Tint MBBS(UM II) 2 vacants
Research Assistant (2)	...	Daw Mar Mar Myint BA(Geography) (UDE)
	...	Daw Myint Myint Khine
	...	Daw Phyu Phyu Win, BSc(Botany)(WC)
	...	Daw San San Myint, BA(Myanmar) (UDE)
Research Assistant (3)	...	Daw Nu Nu Win BSc MSc (Botany)(DU)
	...	Daw Ei Ei Soe BSc(Zoology) (EYU)
	...	Daw Phyu Phyu Zin
Research Assistant (4)	...	Daw Mi Aye Aye Mon, BSc MSc (Botany) (DU)
	...	Daw Mie Mie Thaw, BA (Geography)(UDE)
	...	Daw Nandar Lin B Pharm(UOP)
Laboratory Worker	...	1 vacant

4. Area of Research

1. Malaria
2. Tuberculosis
3. Diarrhoea
4. Dysentery
5. Diabetes Mellitus
6. Hypertension
7. Environmental Health
8. Traditional Medicine

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	U Saw Po Aung	Training on methodology of analytical chemistry. UNDP/WHO	6 months	National University of Singapore

Sr. No.	Name	Fellowship	Duration	Country
2.	U Saw Han	Training on pharmacogonosy to execute the pharmacological work in drug standardization. UNDP/WHO	6 months 3 months	King's College, University of London, London, UK National Botanical Research Institute, Lucknow, India
3.	Daw Marlar Lwin	Training on the methodology of crude drug museum work. UNDP/WHO	3 months 6 months	National Botanical Research Institute, Lucknow, India National University of Singapore, Singapore
4.	Dr. Saw J. Tha	Training on Clinical Pharmacology to execute drug trials for therapeutic efficacy UNDP/WHO	9 months 3 months	Faculty of Clinical Science, University of London, (London, UK) Post graduate Institute of Medical Education Chandigarh, India
5.	U Chit Maung	Training in Phytochemical Techniques, Central Drug Research Institute, India, 1974. Phytochemical investigation of <i>Alstonia scholaris</i> . UNDP/WHO	8weeks	CDRI Lucknow, India Hamdard College of Pharmacy, New Delhi. Institute of Medical Sciences, Banaras Hindu University, Varanasi, India
6.	U Chit Maung	Member of delegation to China to study development of bees products and their usage in Traditional Medicine , beverages, cosmetics (Oct 1982- Dec 1982) 1983		Yugoslavia Japan
7.	U Win Myint	Training in Phytochemical Techniques, UNDP/WHO	2 months 10 months	Central Drug Research Institute, Lucknow, India. Department of Medicinal Chemistry University of Reading, UK.

Sr. No.	Name	Fellowship	Duration	Country
8.	Daw Aye Than	Training on drug screening and toxicology to investigate pharmacological actions and safely use of the traditional drugs. UNDP/WHO	9 months 3 months	The Robens Institute of Industrial and Environmental and Safety, University of Surrey, Guilford, UK. Central Drug Research Institute , Department of Pharmacology, Lucknow , India.
9.	Daw Aye Than	Experimental Pharmacology Testing of Herbal Drugs. 1997	6 weeks	China and Sri Lanka
10.	Dr Thaw Zin	PhD Malarial Pharmacology (1997) .(WHO)	10 months	School of Physiology and Pharmacology. The University of New South Wales, Sydney, Australia
11.	Dr Thaw Zin	TROPED Network , Rockfeller Health Equity Project , WHO/TDR for the submission and defense of his PhD Thesis, 2001.	3.5 months	Australia
12.	Dr Thaw Zin	Training on Therapeutic drug monitoring of anticancer drugs in breast cancer	3months	Seth GS Medical College and King Edward Memorial (KEM) Hospital, Parel, Mumbai, India.
13.	Dr Thaw Zin	Study tour on the recent advances in Traditional Medicine, WHO (2000)	3 weeks	India, China, Republic of Korea
14.	U Tin Myint	Experimental Pharmacology UNDP/WHO (1989)	6 months	Singapore
15.	Dr May Aye Than	Training on phytochemical analysis and phyto-pharmacology of medicinal plants WHO(2000)	11 weeks	Thailand
16.	Dr May Aye Than	Study tour on the recent advances in Traditional Medicine, WHO (2000)	3 weeks	India, China, Republic of Korea
17.	Dr May Aye Than	Method of determination of Nicotine and Tar from smoke, (2001)	1 week	Japan

Sr. No.	Name	Fellowship	Duration	Country
18.	Dr Khin Chit	Training on Molecular diagnosis of Tuberculosis, IAEA (2001)	3 months	Malaysia
19.	Dr Khin Chit	Method of determination of pesticide by GCMS, (2002)	2 weeks	Malaysia, Singapore
20.	Daw Mu Mu Sein Myint	Training on pharmacological and toxicological screening of herbal drugs in animal model, WHO (1996-97)	6 months	Central Drug Research Institute (CDRI) Lucknow, India and Institute of Medical Sciences, Banaras Hindu University, India.
21.	Daw Mu Mu Sein Myint	Safe handling of biological materials in research laboratory, WHO (2013)	1 week	Faculty of Science, Mahidol University, Bangkok, Thailand.
22.	Daw Win Win Maw	Method of determination of Nicotine and Tar from smoke, (2001)	1 week	Japan
23.	Dr.Khine Khine Lwin	Training on Therapeutic drug monitoring of anticancer drugs in breast cancer. WHO (2002-2003)	3 months	Seth GS Medical College and King Edward Memorial (KEM) Hospital, Parel, Mumbai, India
24.	Dr Ohnmar May Tin Hlaing	Poison information service and analytical toxicology method (Pesticide and Heavy Metals) WHO(2002-2003)	3 months	Lucknow, New Delhi, India.
25.	Dr Khin Tar Yar Myint	Analytical Toxicology , Screening and analysis for provision of toxicological information at poison control centre, WHO (2003)	4 months	All India Institute of Medical Sciences (AIIMS) New Delhi, India.
26.	Dr. Khin Tar Yar Myint	MDR-TB treatment with traditional medicine , WHO (2010)	2 weeks	(DIPSER, New Delhi) (PGI, Chandigarh) (KEM, Mumbai) (CDRI, Lucknow) India
27.	U San Kun	Green Health Technologies	1 month	Philippine

6. Coordination and Collaboration with Universities, United Nation and other Agencies

- University of Medicine (UM I, II, Magwe, Mandalay,)
- Arts and Sciences University (Yangon/ Dagon/ Mandalay/EastYangon)
- University of Pharmacy (UOP Yangon/ Mandalay)
- University of Dental Medicine (Yangon)
- WHO
- UNDP

7. Achievements**7.1 Awards (Research Paper award and other scientific awards)****BEST POSTER AND PAPER AWARDS****First Prize**

Best Basic Research Paper Award in Myanmar Health Research Congress 1996 on the title of “Pharmacological and chemical studies on *Orthosiphon aristatus* (Bl.) Miq. “

Second prize

Second prize for best Basic Research Paper Award in Myanmar Health Research Congress 2006 on the title of “Hypoglycemic effect of *Azadirachta indica* A. Juss (Tama) leaves on rabbit model.”

Third prize

Third prize for best Basic Research Paper Award in Myanmar Health Research Congress 2010 on the title of “ *In-vitro* and *in-vivo* antimicrobial activity of essential oil and thymol obtained from *Carum copticum* Benth and Hook fruit (စမုန့်ဖြူ). “

7.2. Research Grants

Sr No	Title	Amount US \$	Year	Funding agencies
1.	*Standardization, Pharmacological and Toxicological Evaluation of Traditional Drugs and Herbal Medicine, Myanmar.	691,000	1984-1989	UNDP/ WHO
2.	Research training grant for PhD. [Studies on the Pharmacokinetics of mefloquine stereoisomers (Enantiomers)]		1995	WHO
3.	Development of Clinical Pharmacology and Therapeutic drug monitoring Unit at the Pharmacology Research Division, DMR.	4,000	2000-2003	WHO
4.	Study on efficacy and safety of anti-hypertensive Myanmar medicinal plant (MP-004)	1,000	2006-2007	WHO / APW
5.	Study on efficacy and safety of anti-diabetic Myanmar medicinal plant (MP-014)	900 500	2007	WHO / APW WHO/S&E

Sr No	Title	Amount US \$	Year	Funding agencies
6.	Study on efficacy and safety of anti-dysentric Myanmar medicinal plant(MP-017)	1,000	2006/2007	WHO / APW
7.	Effectiveness of locally reputed herbal plant, <i>Millingtonia hortensis</i> Linn.f. in hypertension	2,000	2008-2009	WHO/APW
8.	Standardization, chemical characterization and hypoglycemic activity of locally available and highly reputed medicinal plant (Taung Tan Gyi) in treatment of diabetes mellitus in Myanmar	5,000	2008-2009	WHO/S&E
9.	Study on compliance and quality of life of type 2 diabetes patients attending Diabetic Clinic at NOGH-DMR/LM	2,000	2010-2011	WHO /S&E
10.	Evaluation of Food Safety: determination of adulterants in spices from market	600 1,000	2010/2011	WHO/ S&E WHO /TSA
11.	Upgrading of laboratory facilities for research on herbal plants	3,000	2012/2013	WHO/ S&E

***Standardization, Pharmacological and Toxicological Evaluation of Traditional Drugs and Herbal Medicine, Myanmar, Project.**

Need for standardization of the traditional medicine formulations

A great need to have reference standards for the various ingredients being used in the preparation of traditional drugs and remedies and to develop the capabilities of identification on a scientific basis.

Present methods of preparation of traditional drugs depend upon ill-defined household measures to measure the ingredients, so that the final products vary greatly in composition and efficacy. In addition, dosages administered to patients are often ill-defined and make use of household measure resulting in wide variations in efficacy and sometimes inadvertently leading to undesired side-effects and toxicity. Minimum effective doses and maximum tolerable doses are not well established.

There is a need to develop reference standards of the various traditional drugs and recipes using standard weights and measure to define the composition of ingredients and the dosages and also to develop the capability of analyzing these drugs so as to determine whether they confirm to the reference standards.

Need for pharmacological and toxicological evaluation

Many of the traditional household remedies in common use for minor illnesses are based on empirical and anecdotal evidence. The 57 formulations approved for use in the traditional medicine hospitals and dispensaries are based on evidence obtained from classical indigenous texts, evidence of wide-use among Myanmar traditional medicine practitioners and recognition of their efficacy by the Traditional Medicine Council.

Development Objective

Based on the above analysis and problems relating to traditional medicine in the country, the developmental objective of the project were set as follows:

- 1) To re-evaluate the traditional drugs on a scientific basis
- 2) To further develop the capability of the country to conduct traditional drugs research.

Immediate Objective

To achieve the desired developmental objective, six immediate objectives were identified as follows.

- 1) To characterize the physico-chemical and botanical nature of the existing approved list of traditional drugs
- 2) To ascertain and evaluate the toxicity of selective traditional drugs
- 3) To convert imprecise weights, measure and procedures of the existing traditional medicine formulary into standard metric weights and measures and procedures.
- 4) To establish a crude drug museum
- 5) To evaluate the reputed efficacy of selective traditional Myanmar remedies.

Out put

a) Publications

- 1) A volume on “**Myanmar Traditional Medicine Formulary**”
- 2) A volume on “**Hand book of Botanical and Physico-chemical Characterization of Myanmar Traditional Medicine Formulations**”
- 3) A volume on “**Pharmacognosy of plant Ingredients of Myanmar traditional medicine Formulations**”
- 4) A “**Catalogue of the Crude Drug Museum at the Pharmacology Research Division, Department of Medicinal Research, Yangon**”
- 5) A volume on the “**Pharmacognosy and Toxicological Evaluation of Myanmar Traditional Medicine Formulations**”

These books were published in all Universities, Insitutes , Department of Traditional Medicine including Traditional Medicine Hospitals, and other DMR in Myanmar

b) A Crude Drug Museum-cum-Herbarium was established in DMR (LM)

c) Training of Personal to gain expertise in various aspects of the project.

d) A Well-equipped Traditional Drugs Standardization and Research Laboratory has been established in DMR (LM)

7.3 Medicinal plants technical transferred to Ministry of Industry (1) and Department of Traditional Medicine

Sr. No.	Names of plants	Activity tested	Year
1.	<i>Momordica charantia</i> Linn. (Fruit)	Anti-hyperglycaemic activity	30.8.2002
2.	<i>Brucea javanica</i> Linn. (Seed kernal)	Antidysentric activity	30.8.2002
3.	<i>Plantago major</i> Linn. (Whole plant)	Antihypertensive activity	14.8.2007
4.	<i>Ixora coccinea</i> Linn(Leaves)	Anti-inflammatory activity and antiplague activity for gingivitis	14.8.2007
5.	<i>Cassia alata</i> Linn (Leaves)	Purgative activity	14.8.2007

8. Publication

Number of international publications	= 18
Number of local publications	= 125
Total number of publications	= 143

PHYSIOLOGY RESEARCH DIVISION

1. Historical Background

Physiology Research Division was established in 1963. The first appointed head of the Physiology Research Division was Dr. U Mya Tu, who was also the Founder- Director of Burma Medical Research Institute. Former staff structure in 1963 was ten staff members consisting of; one Head of Division, two research officers, six technicians Grade II and one technician Grade III. Current staff structure in 2013 consists of 15 staff; one Deputy Director/Head of Division, one research scientist, four research officers, two research assistants II, two research assistants III, two research assistants IV and one laboratory attendant.

The Physiology Research Division is currently engaged in the research projects on sports physiology, fitness and physical activity, and environmental health. The division had provided academic services such as assessment of physical fitness of Selected Myanmar Athletes for SEA Games, teaching of undergraduate and post graduate students attending Universities of Medicine and University of Public Health.

2. Former Heads

Sr No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. U Mya Tu	M.B.,B.S.,Ph.D(Edin.)	1963-70	Promoted to Director General
2.	Dr. U Myo Thein	M.B.,B.S., D.N.(Toronto), M.Sc (Toronto)	1970-89	Promoted to Director (Administration)
3.	Dr. U Soe Min Thein	M.B., B.S., M.Med.Sc(Physiology)	1989-2004	
4.	Dr. U Ye Tint Lwin	M.B., B.S., M.Med.Sc(Physiology)	2003-2006	Promoted to Director (Administration)
5.	Dr. Tin Khine Myint	M.B., B.S., M.Med.Sc(Physiology)	2007-2009	
6.	Dr. Kyaw Oo	M.B., B.S., M.Med.Sc (Preventive & Tropical Medicine), MSc (Epidemiology) (PSU, Thailand)	2009-2013	Promoted to Director (Research), DMR (UM)

3. Current Staff

3.1 Photograph (Group Photo)



3.2 List of Staff (Annual Report Format)

Deputy Director & Head	---	Dr Kyaw Oo MBBS, MMedSc (Preventive & Tropical Medicine), MSc (Epidemiology) (PSU, Thailand)
Research Scientist	---	U Sein Min BSc (Zoolgy, YU)
Research Officer	---	Dr. Pe Zaw Oo MBBS (UM2), MMedSc (Physiology) (UM1)
	---	Dr. Kyaw Zeya MBBS (UM1)
	---	Dr. Wah Wah Swe MBBS (UM2)
	---	Dr. Nway Htike Maw MBBS (UM2)
	---	Daw Kyi Kyi Win Zaw BA (Myanmarsar, UDE)
Research Assistant (2)	---	Daw Sanda Win BA (Psychology, UDE)
	---	Daw Khin San Lwin BA (Psychology, UDE)
	---	Daw Htike Htike Soe BSc (Botany) (Workers University, Yangon)
Research Assistant (3)	---	Daw Htet Htet Lwin BA (Myanmarsar, UDE)
	---	Daw Yi Yi Mon BA (Myanmarsar, UDE)
	---	Daw Le' Le' Win Hlaing BA (Eco, UDE)
	---	Daw Phyto Phyto Wai BA (Eco, UDE)
Laboratory Attendance	---	Daw Kyi Kyi Htwe

4. Areas of Research Activities

1. Sport Physiology, fitness and physical activity
2. Environmental Health
3. Non Communicable Diseases

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. U Mya Tu	Study Tour for Medical Research Organization, Sweden (1.10.1964 to 30.11.1964)	2 months	Sweden
2.	Dr. U Mya Tu	Study Tour/Seminar to discuss medical research policy formulation in relation to health needs and their implementation (4.10.1969 to 7.12.1969)	2 months	UK, Czechoslovakia, India and Switzerland
3.	Dr. U Mya Tu	Study Tour of Medical Research Institutions in the USA (1974)		USA
4.	Dr. U Myo Thein	Work Physiology (1983/84)	6 months	Sweden, Denmark
5.	Dr. Maung Maung Cho	Training in Pulmonary Physiology in children (1985)	1 year	USA
6.	U Myint Thein	Training in chromosome culture and staining	3 months	Singapore
7.	Dr. Tin Aung	Population Genetics Research Methodology (1991)	6 months	Australia
8.	Dr. Soe Min Thein	Training in Sports Physiology (WHO Fellowship Research Training Grant), Sports Research Centre, Singapore (10.1.1994 to 2.4.1994)	3 months	Singapore
9.	Dr. Soe Min Thein	Overseas Training to study proper handling and calibration of KINETIC machine, Adelaide, Australia (14.1.2001 to 26.1.2001)	13 days	Australia
10.	Dr. Ye Tint Lwin	IAEA fellowship training on uses of nuclear and isotope techniques in assessment of energy expenditure (Doubly labeled water method for measurement of energy expenditure) Monash University, Melbourne, Australia (3.2.1997 to 2.6.1997)	4 months	Australia

Sr. No.	Name	Fellowship	Duration	Country
11.	Dr. Ye Tint Lwin	2000 Lao Sports Medicine Course of IOC Medical Commission, Vientiane, Lao,(3.4.2000 to 7.4.2000)	5 days	Lao
12.	Dr. Ye Tint Lwin	Study Tour Programme on "Research Programme Development", College of Public Health Sciences, Chulalongkorn University, Bangkok, Thailand (12.5.2009 to 29.5.2009)	18 days	Thailand
13.	Dr. Ye Tint Lwin	Managers Seminar for "Establishment of Research laboratory on Communicable Diseases of Myanmar", Seoul, Korea (11.3.2012 to 24.3.2012)	2 weeks	Korea
14.	Dr. Tin Khine Myint	Radioimmunoassay Methodology, National Institute of Health, Nonthaburi, Thailand (1.9.1998 to 30.11.1998)	3 months	Thailand
15.	Dr. Tin Khine Myint	Toxicology of pesticides and industrial chemicals: to occupational health and safety, Chulabhorn Research Institute, Bangkok, Thailand (16.2.2003 to 23.2.2003)	8 days	Thailand
16.	Dr. Pe Zaw Oo	Applied Exercise Physiology and Physical Fitness Assessment Course, College of Sports Science and Technology, Mahidol University, Thailand (15-11-2010 to 7-1-2011)	7 weeks	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

Sr. No.	Title	Year	Universities and UN agencies
1.	Maternal nutrition, energy expenditure and time usage pattern study	1989-1990	UNICEF
2.	Population Genetics and Health Care in The Union of Myanmar	1991-1993	WHO
3.	Study on the magnitude and burden of genetically associated diseases in Myanmar population	1993-1994	WHO
4.	Patterns of AFP and PRL during pregnancy	1995-1996	IAEA

Sr. No.	Title	Year	Universities and UN agencies
5.	Association between sex hormone profile and menopausal symptoms in peri-menopausal women	1995-1996	IAEA
6.	Determination of sex hormone profile in relation to physical development in perimenarcheal girls	1995-1996	IAEA
7.	Effect of exercise training on sex hormone profile in Myanmar female athletes	1995-1996	IAEA
8.	Growth, development and Physical Fitness of Adolescent in Myanmar	1999-2000	WHO

7. Achievements

7.1 Awards (Research paper awards and other scientific awards)

7.2 Research Grants (Multi- collaborative research grants)

8. Publications

Number of international publications	= 28
Number of local publications	= 43
Total number of publications	= 71

QUALITY ASSURANCE DIVISION, VACCINE RESEARCH CENTRE

1. Historical Background

The Quality Assurance Division was first established in 2004 at the Hepatitis B Vaccine Plant, Department of Medical Research (Lower Myanmar), Hlegu Township, Yangon. It was first started with ten (10) staff and named as Quality Assurance and research Division, which is responsible for control of quality management systems at the plant, starting from the receipt of raw materials, through in-process intermediate products, up to the release of finished products, vaccines. The first appointed Head of the Division was Dr. Win Aung. In August, 2006, Vaccine Plant and most of the technical staff were transferred to the Myanmar Pharmaceutical Industries, Ministry of Industry (1) to continue vaccine production on a large scale. There was a gap during the period of August, 2008 to April 2012. The new organization set up Vaccine Research Centre including QA division was established in April, 2012. To date Daw Khin Khin Aye, Research Scientist is the current Head of QA Division. The division is primarily involved in research and quality assurance of vaccine, biological product and diagnostic test devices at each and every step of production processes to ensure that products are consistently produced and controlled to the quality standards.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Win Aung	M.B.B.S , M.Med.Sc.(Biochem), FACTM	2004 to 2006	Promoted to Director(Research)
2.	Daw Khin Khin Aye	B.Sc(Chem.),DS	2012- to Date	

3. Current Staff

3.1 Photograph(Group photo)



3.2 List of Staff

Research Scientist& Head	...	Daw Khin Khin Aye BSc (Chemistry), Dip. Statistics
Research Assistant (3)	...	Daw Myo Myo Aye BSc (Chemistry)
Research Assistant (4)	...	U Kyaw Kyaw Khine B.A (History)
	...	Daw Nay Yee Tun B.Com
Laboratory Attendant	...	Daw Swe Swe Zin

4. Areas of Research Activities

1. Research and Development of Vaccines
 - Plasma –derived Hepatitis B vaccine
 - Recombinant Hepatitis B vaccine
 - Other Vaccines against Major Communicable Diseases causing Health Problems in Myanmar
2. Quality Assurance and Quality Assessment of Laboratory and Vaccine Production Area
3. Promoting Safety and Facilities in Vaccine Production Areas

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr.Win Aung	Production, Standardization and Quality Control of Antivenom. Queen Savoabha Memorial Institute	10 weeks	Bangkok, Thailand.
2.	Dr.Win Aung	Molecular Biology and Recombinant DNA technology for production of recombinant hepatitis B vaccine.	6 months	Republic of Korea.
3.	Dr.Win Aung	Hand-on GMP Training for Vaccine Manufacturing Staff	6 weeks	Republic of Korea
4.	Dr.Win Aung	14 th Annual Conference on Vaccine Research. National Foundation for Infectious Diseases.	3 days	USA
5.	Daw Khin Khin Aye	Development of Hepatitis B vaccine in Myanmar	6 months	CDC, USA
6.	Daw Khin Khin Aye	Study Visit on vaccine production	4 weeks	Korea
7.	Daw Khin Khin Aye	Recombinant Hepatitis B Vaccine Production	8 weeks	Korea

6. Coordination and Collaboration with Universities, UN and other Agencies

Sr. No.	Title	Year	Universities and UN agencies
1	Enhancing laboratory safety in vaccine production area to ensure clean environment and quality water	2012-2013	WHO

7. Achievements

7.1 Award

1. **Passed with Credit**, Master of Medical Sciences (Biochemistry) Examination at the University of Medicine (2), 1993 (**Dr. Win Aung**)
2. **Medal for Excellent Performance in Medical Field (Third Grade) 2008**, conferred by the Government of the Union of Myanmar (SPDC) (**Dr. Win Aung**)
3. **Medal for Excellent Performance in Medical Field (Third Grade) 2008**, conferred by the Government of the Union of Myanmar (SPDC) (**Daw Khin Khin Aye**)
4. **International Travel Grant Award**, 14th Annual Conference on Vaccine Research, (2011), National Foundation for Infectious Diseases. Baltimore, Maryland, USA

Best Paper Awards

1. **Best Paper second prize for Basic Research** in Myanmar Health Research Congress 1993 on the title of “Clinical trial of intramuscular anti-snake venom administration as a first aid measure in the field in the management of Russell's viper bite patients”
2. **Best Paper first prize for Basic Research** in Myanmar Health Research Congress 1994 on the title of "Urinary NAG as an early indicator of renal damage in Russell's viper bite envenomation“
3. **Best Paper Prize for Applied Research** in Myanmar Health Research Congress 1996 the title of “Human reactogenicity, safety and immunogenicity study of hepatitis B vaccine produced at the Department of Medical Research”
4. **Best Paper third prize for Basic Research** in Myanmar Health Research Congress 2000 the title of “Hypocholesterolaemia : a simple indicator of Russell's viper (Daboia russelii siamensis) venom envenomation ”

7.2 Research Grants (>US\$10,000)

8. Publications

Number of international publications	= 13
Number of local publications	= 59
Total number of publications	= 72

QUALITY CONTROL DIVISION, VACCINE RESEARCH CENTRE

1. Historical Background

Quality Control (QC) Division was first established in 2004 at the Hepatitis B Vaccine Plant, under Department of Medical Research (Lower Myanmar). At the Hepatitis B Vaccine Plant, Dr. Khin May Oo was the Head of Quality Control Division. At August 2006, the Vaccine Plant including QC division was handed over to Ministry of Industry (I). There was no Quality Control Division in DMR-LM until 2012. In April 2012, Quality Control Division was re-established under the Vaccine Research Centre, at the Department of Medical Research (Lower Myanmar). QC division is responsible for research and quality control testing of hepatitis B vaccines, blood products and diagnostic devices. Currently Dr. Aung Zaw Latt is responsible as Head of QC division. The Division was currently involved in quality control testing of plasma derived hepatitis B vaccine and avian Russell's viper antivenom, and vaccine preventable disease research on Japanese encephalitis, Rabies, etc.

2. Former Head

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Khin May Oo	MBBS, DBact. MMedSc (Microbiology), PhD (Microbiology)	2003- 2006	Transferred to Blood Research Division

3. Current Staff

3.1. Photograph(groupPhoto)



3.2. List of Staff

Research Officer	...	Dr. Aung Zaw Latt M.B.B.S. (UM- 2), M.Med.Sc. (Microbiology)(University of Medicine 1, Yangon)
	...	Daw Kay Khine Soe B.Sc., M.Sc. (Zoology)(Yangon University)
Research Assistant (2)	...	Daw Yamin Ko Ko B. Pharm., M. Pharm. (University of Pharmacy, Yangon)
Research Assistant (3)	...	Daw San Yu Hlaing B Sc. (Botany)
Research Assistant (4)	...	U Nyunt Naing B.Sc. (Chemistry)
Laboratory Attendant	...	Daw Mi Mi Khine
Cleaning Staff	...	Daw Tin Oo

4. Areas of Research Activities

1. Areas of research activities

- Viral Hepatitis
- Rabies vaccine

2. Areas of service provided

- The responsibilities of the QC Division are;
- Quality control testing of plasma derived hepatitis B vaccine and avian Russell's viper antivenom, starting from raw material to final product testing to get safe and effective vaccine.

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Daw Kay Khine Soe	Regional Training Course on the Use and Production of Genotyping Diagnostic Reagents International Atomic Energy Agency, 1999	2 weeks	Republic of Korea
2.	Dr. Khin May Oo,	Quaility Control of hepatitis B vaccines, EDCF Loan, 2002	8 weeks	Republic of Korea
3.	Daw Nyein Nyein,	Quaility Control of hepatitis B vaccines, EDCF Loan, 2002	8 weeks	Republic of Korea
4.	Daw Phyu Phyu Khine	Quaility Control of hepatitis B vaccines, EDCF Loan, 2002	8 weeks	Republic of Korea
5.	Dr. Win Maw Tun	Training on Mouse Potency Test CJ Corporation, 2005	1 week	Republic of Korea

Sr. No.	Name	Fellowship	Duration	Country
6.	Daw Kyin Kyin San	Training on Gene Stability Test CJ Corporation, 2006	2 weeks	Republic of Korea
7.	Dr. Win Maw Tun	Hands-on GMP Training for Vaccine Manufacturing staff KOICA, 2006	6 weeks	Republic of Korea
8.	Dr. Aung Zaw Latt	Laboratory diagnosis of Japanese encephalitis, WHO, 2009	8 weeks	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies Nil

7. Achievements

7.1. Awards

- **Dr. Khin May Oo**

ပြည်ထောင်စုမြန်မာနိုင်ငံတော်အစိုးရမှချီးမြှင့်သည့် ဆေးပညာထူးချွန်တံဆိပ် (တတိယဆင့်)၊
၂၀၀၈ခုနှစ်၊ ဇန်နဝါရီလ (၄) ရက်။

8. Publications

Total number of publications = 7

RADIATION TOXICOLOGY RESEARCH DIVISION

1. Historical Background

The Radiation Toxicology Research Division at the National Poison Control Centre of Department of medical Research (Lower Myanmar) was established on 1st January 2003. U Htain Win, Research officer acted as the acting Head of the Division. Dr. Khin Maung Maung, transferred from Biochemistry Research Division, was the first appointed Deputy Director/Head of the Radiation Toxicology Research Division on 7th October 2004. After this, Dr. Win Maw Tun acted as the Deputy Director/ Head for 10 months. The current Head is Dr. Tin Oo, Deputy Director (Research) supervising 9 staff. The Division has established radiation safety practices of Radiation Protection Committee at the Ministerial level in accordance with the enforcement of regulations of Department of Atomic Energy (DAE) which is the authority for licensing and registration of radiation devices and radioisotopes. There is an in-house manual for safe handling of radioisotopes at DMR (LM). Future vision of the Division includes detection of occupational hazards due to radiation exposure in the community, promotion of information, education and communication for prevention of radiation hazards and radiation related accidents and injuries.

2. Former Heads

Sr No.	Name	Degree	Year (From-To)	Remarks
1.	U Htain Win (Acting Head)	BSc (Chemistry), DCSc (Institute of Computer Science) Yangon	2003-2004	Transferred to Computer Division
2.	Dr. Khin Maung Maung	MBBS, M.Med.Sc, PhD (Biochemistry)	2004-2009	Retired
3.	Dr. Win Maw Tun	MBBS, M.Med.Sc, PhD (Microbiology)	11.2.2009 - 6.12.2009	Transferred to Experimental Research Division
4.	Dr. Tin Oo	BSc , MPH (Mahidol), Ph.D (Queensland, Australia)	2009 - to date	

3. Current Staff

3.1 Photograph (Group Photo)



3.2 List of Staff

Deputy Director	...	Dr. Tin Oo BSc (Zoology), MPH (Mahidol), Ph.D (University of Queensland, Australia)
Research Scientist	...	Daw Win Thaw Tar Lwin, BSc (Physics), MSc (YU) Diploma in Radiation Safety (Malaysia)
Research Officer	...	Dr. Moe Moe Han BSc (Hons) (Meteorology), Sc (Engineering Physics), MRes (Physics), PhD (Physics) (YU), Diploma in Global English (YU)
Research Assistant (2)	...	Daw Htet Nandar Aung BA (Home Economics) (UDE)
	...	Daw Su Mon BA (Economics) (UDE)
	...	Daw Ni Ni Than BSc (Chemistry) (YU)
Research Assistant (3)	...	U Si Thu Soe Naing BA (History) (UDE)
	...	Daw Ni Ni Maw BSc (Physics) (Dagon University)
	...	Daw Naw Esther BA (Geography) (UDE)
Research Assistant (4)	...	Daw Wai Mon Lin BSc (Chemistry) (Dagon University)
Laboratory Attendant	...	

4. Area of research activities

1. X-ray
 - Radiation exposure and safety
 - Radiation risk communication in paediatric imaging
2. Disaster
 - Radiation exposure during emergencies
3. Environmental Health
 - Determination of radionuclide and multi elements concentration in the cigarette, water resources, drinking water, soil and dust
 - Determination of indoor radon

5. International Training Nil**6. Coordination and Collaboration with Universities, UN and other Agencies:**

Sr. No.	Title	Year	Universities and UN agencies
1.	Reliability and Safety of X-ray machines in Yangon	2006 - 2008	WHO
2.	Assessment of radiation exposure and knowledge, attitude, perception and practices of radiographers in radiation safety in private and public health care facilities	2008 - 2010	WHO
3.	Strengthening the National Poison Control Center's capacity on preparedness of disaster occurrences <ul style="list-style-type: none"> • Determination of elemental concentration in water, soil, ambient air and plants • Determination of radiation activities in different water samples and rain water • Determination of concentration of element in rain water 	2011	WHO
4.	Exploring knowledge, attitudes, risk perceptions and opinions towards pediatric imaging	2012	WHO
5.	Application of Energy Dispersive X-ray Fluorescence (EDXRF) method for determination of multi-elements in cosmetics	2009-2010	URC
6.	Determination of multi-element profile in street dust	2012-2013	URC
7.	Determination of radionuclide level in cigarettes available in Myanmar	2009-2010	DOH
8.	Determination of Radon (^{222}Rn) in non-biological samples from cement factories and construction sites in Yangon	2009-2010	DOH

7. Achievements

7.1 Awards (Research paper awards and other scientific awards)

- Tin Oo (2007) Outstanding Award for Health Research, ASEAN Institute for Health Development, Mahidol University. “*Channeling malaria information: local to global implications*” November 29-30, Thailand.

BEST POSTER AND PAPER AWARDS

Young Researcher Award

Young research award in Myanmar Health Research Congress 2012 on the title of “The determination of elemental concentration of soil and water in selected areas.”

7.2 Research Grants (≥ US\$ 10,000) (Multi-country collaborative research grants) –Nil

Sr. No.	Title	Year	Funding agencies
1.	Reliability and Safety of X-ray machines in Yangon	2006 - 2008	WHO
2.	Assessment of radiation exposure and knowledge, attitude, perception and practices of radiographers in radiation safety in private and public health care facilities	2008 - 2010	WHO
3.	Exploring knowledge, attitudes, risk perceptions and opinions towards pediatric imaging	2012-2013	WHO
4.	Strengthening the National Poison Control Center's capacity on preparedness of disaster occurrences <ul style="list-style-type: none"> • Determination of elemental concentration in water, soil, ambient air and plants • Determination of radiation activities in different water samples and rain water • Determination of concentration of element in rain water 	2011	WHO

8. Publications

Total number of publications = 2

TECHNOLOGY DEVELOPMENT DIVISION

1. Historical Background

Technology Development Division was established in April, 2012 for conducting research and development of vaccines, biological products and diagnostic tests. The current activities are purification of hepatitis B surface antigen (HBsAg) from plasma for laboratory scale production of hepatitis B vaccine, development of new diagnostic test kits and test methods, vaccine research studies like immunogenicity of hepatitis B vaccine and research on viral hepatitis infection. The production of hepatitis B vaccine and vaccine research were performed by Vaccine Production and Distribution Division in 1997 and Hepatitis B Vaccine Plant of Department of Medical Research (Lower Myanmar) in 2004. Vaccine Production and Distribution Division was established in 1997 with set up of 36 staff and the main activity was to produce the plasma-derived hepatitis B vaccine and to perform the quality control tests for vaccine. The Division also works in collaboration with the Experimental Medicine Research Division for the human immunogenicity trial of the DMR HB vaccine.

On 31 October 2000, the EDCF Loan Agreement was signed between the Department of Medical Research (Lower Myanmar), Ministry of Health and the Export-Import Bank of Korea, Republic of Korea. The Supply Contract was signed between the DMR, MOH Myanmar and the Samsung Corporation, Republic of Korea on 15 October 2001. Exact location for the construction of the HB Vaccine Plant has been confirmed by the both parties concerned, and the site chosen from the 30 acres of land allotted at the Sitpin village track of Hlegu Township. In 2002, new set up for Hepatitis B Vaccine Plant was established and total of 82 posts have been allotted for the Vaccine Production and Distribution Division and Hepatitis B vaccine Plant. In 2004, new set up was effective and Vaccine Production and Distribution Division was merged with Hepatitis B Vaccine Plant and there were three divisions in Hepatitis B Vaccine Plant, Vaccine Production Division, Vaccine Quality Control Division and Vaccine Research Division. In 2005, Vaccine Research Division was renamed as Quality Assurance and Research Division. In August, 2006, Hepatitis B Vaccine Plant was transferred to Ministry of Industry (1) and 13 officers were moved back to Department of Medical Research (Lower Myanmar) and carry out their duties in various research divisions. In April, 2012, Vaccine Research Centre set up was established at Department of Medical Research (Lower Myanmar) consisting of Technology Development Division, Quality Assurance Division and Quality Control Division.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	Dr. Khin Pyone Kyi	MBBS; MMedSc; PhD(Microbiology) FRCP	1997 to 2004 Deputy Director Vaccine Production and Distribution Division	Transferred to Vaccine Production Division Hepatitis B Vaccine Plant
2.	Dr. Khin Pyone Kyi	MBBS; MMedSc; PhD(Microbiology) FRCP	2004 to 2005 Deputy Director Vaccine Production Division Hepatitis B Vaccine Plant	Promoted as Director (Research)
3.	Dr. Moh Moh Htun	MBBS; MMedSc; PhD(Pathology)	2005 to 2006 Deputy Director Vaccine Production Division Hepatitis B Vaccine Plant	Transferred as Deputy Director to Pathology Research Division
4.	Dr. Aye Kyaw	BSc; MSc; PhD(USA)	2004 to 2005 Director Hepatitis B Vaccine Plant	Retired
5.	Dr. Khin Pyone Kyi	MBBS; MMedSc; PhD(Microbiology) FRCP	2005 to 2006 Director Hepatitis B Vaccine Plant	Promoted as Deputy Director General
6.	Dr. Win Maw Tun	MBBS; MMedSc; PhD(Microbiology)	2012 to Date Deputy Director Technology Development Division	

3. Current Staff

3.1 Photograph



3.2 List of Staff

Deputy Director/ Head	...	Dr. Win Maw Tun MBBS MMedSc PhD (Microbiology)
Research Officer	...	Daw Sandar Nyunt BSc (Zoology)
Research Assistant (2)	...	Daw Nu Nu Lwin BSc (Zoology)
Research Assistant (3)	...	U Phyo Wai Aung BSc (Physics)
	...	Daw Htwe Htwe Nyunt BA (Eco)
Research Assistant (4)	...	Daw May Zon Myint BA (Eco)
	...	Daw Yu Paing Thet BSc (Chem)
Laboratory Attendant	...	Daw Thiri Tun

4. Area of research activities

- Plasma-derived hepatitis B vaccine production
- Recombinant hepatitis B vaccine production
- Vaccine immunogenicity study
- Research on test methods for diagnosis of hepatitis B and hepatitis C
- Prevalence study of viral hepatitis

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. Khin May Oo	Microbiology of Sexually-Transmitted Diseases, WHO/HRP, 1997	6 months	Malaysia
2.	Dr. Moh Moh Htun	Detection of low level viral Genome (HBV DNA) by PCR in non-responders of plasma-derived hepatitis B vaccine. (Matsumae Foundation Grant)	6 months	Japan
3.	Dr.Khin Pyone Kyi, U Maung Maung Khin, Daw Khin Khin Aye, Daw Sandar Nyunt	Study visit on large scale production of hepatitis B vaccine. (WHO)	1 month	Republic of Korea
4.	Dr. Win Maw Tun, Daw Kay Khine Soe	Development of Hepatitis C Virus Test Kit by ELISA, (WHO), Centers for Disease Control and Prevention, Atlanta, 2001	6 months	United States of America
5.	Dr.Win Aung, Dr. Moh Moh Htun	Genetic Engineering, EDCF Loan, 2002	6 months	Republic of Korea
6.	Dr. Khin Pyone Kyi, Daw Khin Khin Aye, Dr. Ti Kyi Win	Recombinant Vaccine Production, EDCF Loan, 2002	8 weeks	Republic of Korea
7.	Daw Sandar Nyunt, Daw Thit Thit Win	Plasma-derived Vaccine Production, EDCF Loan, 2002	8 weeks	Republic of Korea
8.	Dr. Mya Mya Aye, Daw Tin Tin Aye	Finished Vaccine Preparation, EDCF Loan, 2002	4 weeks	Republic of Korea
9.	Dr. Win Aung, Dr. Zaw Myint,	Hands-on GMP Training for Vaccine Manufacturing staff (KOICA), 2006	6 weeks	Republic of Korea

6. Coordination and Collaboration with Universities, UN and other Agencies

Sr. No.	Title	Year	Universities and UN agencies
1.	Production of Plasma-derived hepatitis B vaccine		WHO/ UNDP
2.	Establishment of Hepatitis B Vaccine Plant and production of recombinant hepatitis B vaccine on EDCF Loan,	2002-2006	Republic of Korea

7. Achievements

7.1 Awards

- | | | | |
|-----|--------------------|-----------------------------------|------|
| (1) | Dr. Khin Pyone Kyi | စီမံထူးချွန်တံဆိပ်၊ (တတိယဆင့်) | ၂၀၀၂ |
| | | ဆေးပညာထူးချွန်တံဆိပ်၊ (ဒုတိယဆင့်) | ၂၀၀၈ |
| (2) | Dr. Aye Kyaw | စီမံထူးချွန်တံဆိပ်၊ (ဒုတိယဆင့်) | ၂၀၀၂ |
| (3) | Dr. Khin May Oo | ဆေးပညာထူးချွန်တံဆိပ်၊ (တတိယဆင့်) | ၂၀၀၈ |
| (4) | Dr. Win Aung | ဆေးပညာထူးချွန်တံဆိပ်၊ (တတိယဆင့်) | ၂၀၀၈ |
| (5) | Dr. Moh Moh Htun | ဆေးပညာထူးချွန်တံဆိပ်၊ (တတိယဆင့်) | ၂၀၀၈ |
| (6) | Dr. Zaw Myint | ဆေးပညာထူးချွန်တံဆိပ်၊ (တတိယဆင့်) | ၂၀၀၈ |
| (7) | Dr. Win Maw Tun | ဆေးပညာထူးချွန်တံဆိပ်၊ (တတိယဆင့်) | ၂၀၀၈ |
| (8) | Daw Khin Khin Aye | ဆေးပညာထူးချွန်တံဆိပ်၊ (တတိယဆင့်) | ၂၀၀၈ |

7.2 Research Grants (\geq US\$ 10,000) (Multi-country collaborative research grants)

12.6 Million EDCF Loan from Republic of Korea in 2000 for Hepatitis B Vaccine Plant Project

8. Publications

Number of international publications	= 2
Number of local publications	= 15
Total number of publications	= 17

VIROLOGY RESEARCH DIVISION

1. Historical Background

The Virology Research division was established in 1966 with the appointment of Dr. N. Ahad, M.B., B.S (Rgn), Director, National Health Laboratory as consultant of the Virology Department. In the initial stage of establishment, the staff members were trained in theory and practice of virological techniques on serology and egg inoculation. The first appointed head of the Research Division was Dr. N. Ahad followed by Dr Daw Hpay, Dr Daw Mi Mi Khin, Dr U Soe Thein, Dr U Kyaw Moe, Dr Daw Hlaing Myat Thu and currently Dr Daw Mo Mo Win. Dr Daw Mi Mi Khin was promoted to Director in the Department of Medical Research and then transferred to the National Health laboratory. Dr U Soe Thein was promoted to Director and later on to Deputy Director General in the Department of Medical Research (Lower Myanmar). Dr U Kyaw Moe and Dr Hlaing Myat Thu were also promoted to Directors (Research) in the Department of Medical Research (Lower Myanmar). The division was first formed with a staff structure of 4 staff members, 1 consultant, 1 Technician Grade –I, 1 Technician Grade –II and 1 Technician Grade –III. Later on this was expanded to a staff structure of 19 personnel. These being 1 Head of division (Deputy Director). 2 Research Scientists, 6 Research Officers, 2 Research Assistant (2), 4 Research Assistant (3), 3 Research Assistant (4) and 1 Laboratory Attendant .

The current research activities include research on HIV, arbovirology, viral diarrhea and viruses causing female and male genital cancers and acute respiratory infections. The main research activities are focused on surveillance of viral infections for timely prevention of disease outbreaks, monitoring of 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. Serology, Immunoassay, Western blot assay, Enzyme linked Immunosorbent assay (ELISA), Haemagglutination inhibition assay (HAHI), viral culture, molecular experiments as polymerase chain reaction (PCR) and Restriction Fragment Length Polymorphism (RFLP) were carried out. Research on genotyping of Dengue virus, Rotavirus, Human Papillomavirus and Influenza virus are performed.

2. Former Heads

Sr No.	Name	Degree	Year (From – To)	Remarks
1.	Dr. N. Ahad,	M.B., B.S (Rgn)	1966	Retired
2.	Dr. Daw Hpay	M.B., B.S. D.T.M. & H. Dip. Bact. M.B.H. M.C. path. (Lond.)	1967	Retired
3.	Dr. Daw Mi Mi Khin	M.B., B.S., Dip. Bact. (Manchester)	1968 - 1981	Promoted to Director and transferred to NHL

Sr No.	Name	Degree	Year (From – To)	Remarks
4.	Dr. U Soe Thein	M.B.,B.S.,Dip.Bact.(Ygn), M.Med.Sc,(Microbiology), PhD (Australia),FRCP (Edin)	1982- 1996	Promoted to Director
5.	Dr. U Kyaw Moe	M.B.,B.S.(Ygn), D.Path,(Ygn), M.Sc (Birmingham)	1997- 2004	Promoted to Director
6.	Dr. Hlaing Myat Thu	M.B.,B.S (Ygn), M.Med.Sc(Microbiology), MACTM, PhD (Molecular Virology)	2004-2010	Promoted to Director
7.	Dr. Mo Mo Win	M.B.,B.S (Ygn), M.Med.Sc(Microbiology)	2011-to date	

3. Current Staff

3.1. Photograph (Group Photo)



3.2. List of Staff

Deputy Director & Head	...	Dr. Mo Mo Win MBBS (IM1), MMedSc (Microbiology)(IM1)
Research Scientist	...	Dr. Theingi Win Myat MBBS (IM2), MMedSc (Microbiology) (UM1)
	...	Dr. Mu Mu Shwe MBBS (IM2), MMedSc (Pathology) (IM2)
Research Officer	...	Dr. Htin Lin MBBS (IM1) MMedSc (Microbiology) (UM1)
	...	Dr. Nila Zaw MBBS (UM1) MMedSc (Microbiology) (UM2)
	...	Daw Kay Thi Aye BSc (Botany) (YU) DPMS (Medical Technology) (Institute of Paramedical Science)
	...	Daw Khin Mar Aye BSc (Zoology) (YU) MSc (Zoology) (YU)
Research Assistant (2)	...	Daw Thin Thin Shwe BA (Myanmarsar) (YU)
	...	Daw Win Mar BSc (Mathematic) (YU)
Research Assistant (3)	...	Daw Hla Myo Thu (LLB) (YUDE)
	...	Daw Khin Sandar Aye BA (History) (YUDE)
	...	Daw Khin Khin Oo BSc (Zoology) (YUDE)
	...	Daw Thida Kyaw BSc (Zoology), MSc (Biotechnology)
Research Assistant (4)	...	U Khine Moe Aung BSc (Zoology) (YUDE)
	...	U Kyaw Myo Htut

4. Area of research activities

- HIV/ AIDS
- DIARRHOEA/ DYSENTERY (ROTA VIRUS)
- DENGUE HAEMORRHAGIC FEVER (DENGUE VIRUS)
- JAPANESE ENCEPHALITIS (JE VIRUS)
- CHIKUNGUNYA VIRUSES
- SEXUALLY TRANSMITTED INFECTIONS (HUMAN PAPILLOMAVIRUS)
- ACUTE RESPIRATORY INFECTIONS (INFLUENZA VIRUS, RESPIRATORY SYNCYTIAL VIRUS)

5 International Training

Sr No.	Name	Fellowship	Duration	Country
1.	Dr. U Soe Thein	Virology Training	7 months, 1972	USA
		Virology Training	9 months, 1978	Japan
		PhD thesis	6 months, 1989	Australia
4.	Dr.Kyaw Zin Thant	Ph.D Molecular Biology	5 years, 1991	Japan
5.	Daw Kay Thi Aye	Training in HIV/AIDS laboratory techniques	6 months, 1995	USA
6.	Daw Khin Mar Aye	Training in Arbovirus laboratory technology	6 months, 1995	Japan
7.	Dr. Hlaing Myat Thu	Microbial immunology research methodology	6 months, 1996	Australia
8.	Dr.Soe Thein	Immunopathogenesis in DHF	4 months, 1994	Australia
9.	Dr.Kyaw Zin Thant	Advanced WHO course on Immunology, Vaccinology and Biotechnology applied to Infectious Diseases	1.5months, 1999	Switzerland/ France
10.	Dr. Lay Myint	Special training course on virological diagnosis of HIV infection	3 weeks, 1999	Japan
11.	Dr.Lay Myint	Training in HIV virology	2 years, 1999	Japan
12.	Dr. Hlaing Myat Thu	Training in dengue research	5 months, 2000	Australia
13.	Dr,Kyaw Moe	Training in emerging viral diseases	6 weeks, 2001	USA
14.	Dr.Kyaw Zin Thant	Training in molecular biology of rubella	3 months, 2001	Japan
15.	Daw Kay Thi Aye	Training in HIV research	6 months, 2001	Japan
16.	Dr. Hlaing Myat Thu	Ph.D training course on molecular epidemiology	8 months, 2002	Australia
17.	Dr.Win Mar Oo	Molecular biology techniques for detection of respiratory viruses	12 weeks, 2002	India
18.	Dr. Hlaing Myat Thu	Ph.D traing course on molecular epidemiology	1 year, 2003	Australia
19.	Dr.Kyaw Moe	HIV subtyping	6 weeks, 2004	Thailand
20.	Dr.Win Mar Oo	Training course on diagnosis of new emerging	1 month, 2004	Thailand

Sr No.	Name	Fellowship	Duration	Country
		diseases		
21.	Dr. Win Mar Oo	Advanced WHO course on Immunology, Vaccinology and Biotechnology applied to Infectious Diseases	1.5 month 2006	Switzerland
22.	Dr. Mu Mu Shwe	Advanced training course on cervical cytology	2 months, 2006	Okayama University/ Japan
23.	Dr. Aung Zaw Latt	Laboratory diagnosis of Japanese Encephalitis	1.5 months, 2009	Thailand
24.	Dr. Theingi Win Myat	Rotavirus untypable strain characterization	2 weeks 2012	India
25.	Dr. Hlaing Myat Thu	Seminar for Senior Managers on Communicable Diseases Research in Myanmar	2 weeks, 2013	Korea
26.	Dr. Htin Lin	Training on laboratory techniques in diagnosing respiratory viruses	1 month 2013	Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

- 6.1. WHO Collaborating Centre for Arbovirus Reference and Research, Queensland University of Technology, Brisbane, Australia
- 6.2. WHO South-East Asia Regional Office
- 6.3. National Reference Laboratory for Rotavirus, Wellcome Trust, CMC, Vellore, India
- 6.4. Department of Immunology, WHO Collaborating Centre for Reference and Research on Measles, Luxembourg
- 6.5. Centres for Disease Control (CDC), USA
- 6.6. Okayama University, Japan
- 6.7. Nagasaki University, Japan
- 6.8. Japan International Cooperation Agency (JICA)
- 6.9. National Institute of Health, Thailand
- 6.10. International Vaccine Institute (IVI), Republic of Korea
- 6.11. Korean International Cooperation Agency (KOICA)

7. Achievements

7.1. Awards

7.1.1 Best Paper Awards

First Prize

1. Hlaing Myat Thu, Soe Thein and Khin Mar Aye. The effect of temperature and humidity on the propagation of dengue virus in *Aedes aegypti* mosquitoes -Myanmar Health Research Congress, 1995.

2. Kay Thi Aye, Thandar Lwin, Kyaw Moe, Soe Thein and Than Swe. Establishment and evaluation of Western Blot Method for detection of Human Immunodeficiency Virus (HIV) Antibody - the Myanmar Health Research Congress, 1997.
3. Kyaw Zin Thant, Si Si Hla, Kay Thi Aye, Hlaing Myat Thu, Khin Mar Aye, Kyaw Moe and Soe Thein. The establishment of reverse transcriptase-polymerase chain reaction (RT-PCR) technique and its application for dengue virus serotype-specific diagnosis in Myanmar- Myanmar Health Research Congress, 1999
4. Khin Mar Aye, Kyaw Moe, Thandar Lwin, Win Mar Oo and Tin Tin Htwe. Genomic Characterization of Rotavirus Isolates from Yangon Children's Hospital by Reverse Transcription Polymerase Chain Reaction - Myanmar Health Research Congress, 2005.
5. Hlaing Myat Thu, Theingi Win Myat, Khin Mar Aye, Thin Thin Shwe, Htin Lin, Kyu Kyu Khin, Htay Htay Tin, Khin Khin Oo and Mo Mo Win. Detecting rotavirus genotypes in children under five years admitted for diarrhoea in Yangon Children Hospital, 2010-2011 - Myanmar Health Research Congress, 2011.

Second Prize

1. Mu Mu Shwe, Kyi Kyi Nyunt, Hlaing Myat Thu, Hla Myat Mo Mo, Mo Mo Win, Khin Thet Wai, Khin Khin Oo, Khin Sanda Aye And Myo Khin. Molecular characterization of human papillomavirus genotypes 16, 18, 31, 33, 35, 52 and 58 in cervical neoplasia and relationship with clinicopathological findings- Myanmar Health Research Congress, 2012.

Third Prize

2. Mu Mu Shwe, Hlaing Myat Thu, Mo Mo Win, Khin Saw Aye, Khin Khin Oo, Ko Ko Zaw, Aye Aye Win, Nan Cho Nwe Mon and Yin Lin Myint. Genotyping of high risk type human papillomavirus (HR-HPV) in women with cervical cytological abnormalities- Myanmar Health Research Congress, 2011.

7.1.2. Dr Hlaing Myat Thu- Australian Leadership Award – 2011

7.2. Research Grants

- (1) WHO multi centre muliti disciplinary epidemiological study of DHF in Yangon (WHO)
- (2) Efficacy of rhesus rotavirus and human-rhesus rotavirus reassortant vaccines in Myanmar children (WHO)
- (3) WHO/TDR (Tropical Diseases Research) Research Training Grant and an International Research Development award from the Wellcome Trust Foundation, U.K to undergo training for PhD at the Queensland University of Technology, Brisbane, Australia (2001-2004).
- (4) WHO/TDR re-entry grant for post-doctoral research on Sentinel Surveillance of Dengue in Endemic Regions of Myanmar (2007-2009).
- (5) Sentinel surveillance of rotavirus diarrhea in Myanmar (WHO, 2009 to date)

8. Publications

Number of international publications	= 91
Number of local publications	= 27
Total number of publications	= 118

CENTRAL BIOMEDICAL LIBRARY

1. Historical Background

The Burma Medical Research Institute (BMRI) Library was established in the year 1963. The first librarian was Daw Khin Thet Htar. In 1980, the name of the library changed to Central Biomedical Library (CBL), Department of Medical Research. U Kyi Thaung was transferred and promoted to Computer Division in 1999, and U Aung Myo Min was transferred from Computer Division to Library as Head of Central Biomedical Library. The current librarian is Daw Cho Mar Oo and total number of staff are thirteen. CBL is mainly a research library in the field of medical and allied sciences. It is also the National Focal Point of HEalth Literature Library and Information Services (HELLIS) Network established by WHO / SEARO. CBL also serves as a WHO HELLIS Resource Centre and Depository Library.

2. Former Heads

Sr. No.	Name	Degree	Years From-to	Remarks
1.	Daw Khin Thet Htar	B.A. (Rgn.); Dip.Lib. (London); M.L.I.Sc. (Delhi); F.L.A. (U.K.); Ph.D. (Pacific Western)	1966 – 1978	
2.	Daw Hla Kyi	B.A. Hons. (Rgn.); Dip.Lib. (Rgn.)	1978 – 1990	
3.	U Kyi Thaung	B.A. (Rgn.); Dip.Lib.	1990 – 1991	Acting Head
4.	U Maung Maung Win	B.Sc. (Rgn.); Dip.Lib. (Calcutta); B.L. (Rgn.); Dip in French (Rgn.)	1991 - 2002	
5.	Daw Nyunt Nyunt Swe	B.A. (Rgn.); M.A. (Rgn.); Dip.Lib.Sc. (Rgn.); R.L. (Rgn.)	2002 - 2008	
6.	U Aung Myo Min	B.Sc. (Rgn.); Dip.Lib. (Rgn.); R.L. (Rgn.)	2008 -2011	

3. Current Staff

3.1 Photograph(Group Photo)



3.2 List of Staff

Research Officer/Head	...	Daw Cho Mar Oo BA (Economics); DipLibSc (YU)
Research Officer	...	U Khin Soe BSc (Maths.) (Workers' College, Yangon)
	...	Daw Wah Wah Hla Phyu MSc (Zoology) (YU); DCSs (UC)
	...	U Nyo Aung BSc (Zoology) (RASU)
Library Assistant (2)	...	Daw Mu Mu Myint BSc (Botany) (YU),DLIS (YU)
	...	Daw Cho Cho Aung BA (Myanmarsar) (Workers' College, Yangon)
	...	Daw Naw Than Than BA (Myanmarsar) (UDE)
Library Assistant (3)	...	Daw Wai Wai Hlaing Thu BSc (Physics) (UDE)
	...	Daw Phyo Phyo Ei BSc (Zoology) (UDE)
	...	Daw Khin Nan Pyone BSc (Botany) (UDE) DLIS (YU)
Library Assistant (4)	...	Daw Aye Mya Oo BA (History) (UDE)
	...	Daw Kyi Kyi Htay LLB (Law) (UDE)
Library Worker	...	Daw Aye Aye Mu

4. Area of Services Activities

- ❖ On-line information retrieval services
Library holding list / bibliographic databases
- ❖ Bibliographic search services
MEDLINE, Full Text, Internet, etc.
- ❖ Internet access and end-users services
Deliver the hard copy / file on CD to the users.
- ❖ Reprographic services
Photocopy & computer printouts
- ❖ Lending services
Membership
- ❖ Special Services
Bibliographies preparation and collection development of research information system

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	U Aung Myo Min	Training on Medical Informatics, Chulalongkon University	1990	Bangkok, Thailand
2.	U Kyi Thaung	Training in Health Information System	3 months 1992	Thailand
3.	Daw Nyunt Nyunt Swe	Training on New Information Technology and Computerized Library Services	1996	Bangkok, Thailand
4.	Daw Cho Mar Oo	e-Library Management training, Mahidol University	8 Jan 2007 to 26 Jan 2007	Thailand
5.	U Nyo Aung	Training in Health Information system networking. Faculty of Medicine, Prince of Songkla University	2009	Thailand

6. Coordination and Collaboration with Universities and UN and other Agencies

CBL is collaborating with other medical libraries under the MOH; SEARO; WHO and WR (Myanmar) office library.

7. Publications

Total number of publications = 16

COMPUTER DIVISION

1. Historical Background

Before the Computer Division was established, it was formed as the Computer Laboratory under the guidance of Medical Statistics Division in 1983. After the new set up, it was reformed as the Computer Division in May 1990 under the Socio-medical Research Center. Dr. Kyaw Min, Research Scientist was the first head of division and improved steadily under his management.

During the period while Dr. Kyaw Min attended Humphery fellowship course in United States, Dr. Soe Aung, Research Officer who transferred from Clinical Research Division and served as acting head of the division starting on 29th October 1990. In 1991, Dr. Kyaw Min returned and served till July 1998. Then he was promoted to Deputy Director (Administration) and U Kyi Thaung, a librarian was appointed as head of the Computer Division.

In 2000, U Kyi Thaung retired from government services, U Aung Myo Min who was also the librarian from Central Biomedical Library was promoted and transferred to the Computer Division as a Research Scientist/Head.

After U Aung Myo Min's retirement, U Htain Win, who was from Radiation Toxicology Division was promoted and transferred to lead the staff of the computer division from 2010 to 2011.

At present, U Tin Maung Maung, Research Officer is the acting head of the division.

2. Former Heads

Sr. No.	Name	Degree	Years From-to	Remarks
1.	Dr. Kyaw Min	MBBS, DAC	1990	
2.	Dr. Soe Aung	MBBS, MMedSc (Int. Med.)	1990	Acting Head
3.	Dr. Kyaw Min	MBBS, DAC	1991 to 1998	
4.	U Kyi Thaung	BA DipLibSc	1999	
5.	U Aung Myo Min	BSc(Physics) DipLibSc RL	2000 to 2009	
6.	U Htain Win	BSc (Chemistry), DCSc	2010 to 2011	

3. Current Staff

3.1. Photograph (Group Photo)



3.2. List of Staff

Research Officer & Head	...	U Tin Maung Maung BEcon(Statistics) IE, Yangon
Research Officer	...	Daw Nilar Khin BSc(Chemistry) RASU, DAC (UCC)
Research Assistant (2)	...	Daw Phyu Phyu Htun BSc(Chemistry) (YU)
	...	Daw Win Win Mar BA(Economics) (UDE), PGDCA(YU)
Research Assistant (3)	...	Daw Nwe Nwe Khine BA(Myanmarsar) Mawlamyaing University
Research Assistant (4)	...	Daw Zin Mar Khin Nyo BA(Economics)(UDE)
Laboratory Worker	...	Daw Khine Khine Win

4. Areas of Service Activities

- Data management and statistical analysis
- Graphic design and Power Point preparation
- Word processing and secretarial services (Desktop publishing)
- System maintenance, software installation and trouble shooting
- Services for hardware and software problems
- Basic Computer Application Course

5. International Training (Seminar, Workshop)

Sr. No.	Name	Fellowship	Duration	Country
1.	Dr. Kyaw Min	Computer Application in Medical Research	1990, 12 months	USA
2.	Daw Nilar Khin	Radioimmunoassay Quality Control - Data Processing and External Quality Assessment	1993, 2 weeks	Chulalongkorn University, Thailand
3.	U Tin Maung Maung	Advanced Tools and Techniques in Computer Applications Developments	1993, 3 months	Asian Institute Technology, Thailand
4.	U Aung Myo Min	Blood Donor Registry System in Japan	2002, 1 month	Okayama University, Japan
5.	Daw Wah Wah Hla Phyu	Data Communication and Networking and Computer Centre Management	1996, 3 months,	Asian Institute Technology, Thailand

6. Coordination and Collaboration with Universities, UN and other Agencies

1992 - Two Basic Computer Application Course (intra-departmental courses, 30 personnel of the DMR.

An Inter-departmental course of Basic Computer Handling sponsored by the Health Ministry Computer and Peripherals Supervision Committee was also conducted in collaboration with other departments under the Ministry of Health. 24 persons were trained at this course.

1998 - Basic Computer Application Course (1998) was conducted in September and October

1998. A Total of 29 personals, 24 from the DMR, 2 from the Ministry of Health office and 3 from the DMS. The duration of the course was 7 weeks.

2002 - Workshop on Use of e-Information System for Research Dissemination and Management of Blood Donors in Myanmar (24-4-2002, JICA Project)

2003 - Workshop on Establishment of Methodology for e-information Management and Communication System Research (12-6-2003 to 14-6-2003, WHO Project)

2004 - Computer training courses- The training courses were conducted in collaboration with the Korean International Co-operation Agency (KOICA) volunteer.

Basic Computer (Microsoft Word, Microsoft Excel, Microsoft PowerPoint) course for research officers

Hyper-Text Mark-up Language (HTML Advanced Course)

2005 - Computer training courses conducted in collaboration with the (KOICA) volunteers.

Trouble shooting & networking course - from 28-2-2005 to 11-4-2005 and

Microsoft Excel and Microsoft Power Point course- from 15-8-2005 to 14-10-2005

2006 – Computer system maintenance of DMR (LM) local area network and internet server, integration of the existing DMR (LM) network system in collaboration with KOICA volunteers were done.

In collaboration with the (KOICA) volunteer, Intranet training course (7-4-2006 to 26-5-2006) and Cyber security for PC users course (5-7-2006 to 7-7-2006)

INSTRUMENTATION DIVISION

1. Historical Background

Since the establishment of the Burma Medical Research Institute in 1963, and before renaming it into the Department of Medical Research in 1972, the Instrumentation Division was included with an awareness of the necessity of the instrumentation services. The main purpose of the Instrumentation Division is to provide repair and maintenance services for research and laboratory medical equipment in which U Toe Myint was the first Head of the Division.

Initially there were only 2 engineers and 3 technicians whereas the working space was only 500 sq. ft. with very few basic tools and test equipment. In 1972 the Australian Government under the Colombo Plan donated tools, test equipment and basic electronic components. In 1980, Japan International Cooperation Agency provided training and some basic tools for maintenance and repair of the laboratory equipment donated by the Japanese Government.

The working space was increased to 1000 sq.ft. in 1976 and to 2000 sq.ft. during the (1982-86) Four-Year Plan period and working rooms have been re-arranged and renovated to accommodate separate electronic, electrical, mechanical and optics sections. Instrumentation division had hosted three K.O.Vs in the year 2007 under the framework of technical exchange and development programme between the D.M.R and K.O.I.C.A. Significant amount of tools, spare parts, and test equipment were also donated by the K.O.Vs under the project.

At present, the Instrumentation Division has a total of 20 staff members. The responsibility of Instrumentation Division is to technically support DMR in its research activities. It has four main workshops such as, (1) Electronics, (2) Electrical, (3) Mechanical and (4) Optical lab with specialized expertise in each respective field to provide effective and reliable service in installation, repair and maintenance of various types of laboratory equipment and utilities for the whole department.

2. Former Heads

Sn.	Name	Designation	Degree	Year
1.	U Toe Myint	Head of Division	M.E (Electrical)	1964-1980
2.	U Soe Myint	Acting Head of Division Head of Division	M. Sc (Physics)	1980-1983 1984-1991
3.	U Htay Aung	Acting Head of Division	B. Sc (Physics)	1987-1988
4.	U Tial Ling	Head of Division	M. Sc (Physics)	1991-2005
5.	U Hla Shein	Head of Division	A.G.T.I (Electrical)	2005-2007

3. Current Staff

3.1 Photograph



3.2 List of Staff

Research Scientist & Head	...	U Maung Maung Gyi .BSc(Physics),D.A.P(Electronics)(RASU)
Research Officer	...	U Po Htwe B.Sc(Mathematics) (YDE),ETEC(Electrical)
	...	U Kyaw Min Oo B.Sc(Chemistry) (WC)
	...	Daw Cho Thandar Htun M.Res (Physics) (DU)
	...	Daw Yin Ei Kyaw M.Res (Physics) (DU)
	...	Daw Aye Nwe Soe M.Res (Physics) (YU)
	...	U Khine Win B.Sc(Zoology), D.C.S (YU)
Electrical & Mechanical Technician (2)	...	U Khin Maung Ohn ETEC(Mechanical)
	...	U Htain Linn BA(History) (UDE)
	...	U Kyaw Moe Swe BA(History) (UDE)
	...	U Myint Zaw B.A(Geography) (DU),AGTI(Electrical)
	...	U Phyto Minn Oo BA(Business management) (DU)
	...	U Tin Ko Kyi BA(History) (UDE)
	...	U Saw Ba win B.Sc(Physics) (DU)
	...	Daw Yu Yu Maw B.A (History) (UDE)
Electrical & Mechanical Technician (3)	...	U Thet Paing Soe B.Sc(Physics) (DU), AGTI(IT)
	...	U Phyto Wai Kyaw
	...	U Myo Min Aung
Electrical & Mechanical Technician (4)	...	U Thet Myint Oo
	...	U Sint Than

4. Areas of Service Activities

1. To give advice on procurement of medical and laboratory equipment to the users in research and other support divisions.
2. To install new equipment and instruments.
3. To provide maintenance and repair services for all medical laboratory equipment and instruments.
4. To provide maintenance and repair services for some of the engineering equipment in the Department of Medical Research estate.

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	U Toe Myint	Electronmicroscopy 1965	6 months	Japan
2.	U Soe Myint	Maintenance Engineering 1977-1978	1 year	Japan
3.	U Soe Myint	Microprocessor based equipment maintenance 1988	6 months	Japan
4.	U Htay Aung	Electronmicroscopy 1966	6 months	Japan
5.	U Htay Aung	Medical equipment maintenance 1980	2 months	Hungary
6.	U Myint Soe	Electromechanical equipment maintenance 1982-1983	1 year	Japan
7.	U Tial Ling	Repair and maintenance of medical equipment 1990-1991	1 year	Japan
8.	U Tial Ling	Advanced Nuclear electronic course 1993	3 months	China
9.	U Hla Shein	Repair and maintenance of laboratory electrical equipment, generator and power station 1990	6 months	Singapore
10.	U Hla Shein	Repair and maintenance of Biomedical equipment 1998	2 weeks	Thailand
11.	U Maung Maung Gyi	Repair and maintenance of medical and optical equipment 1990	6 months	Germany
12.	U Maung Maung Gyi	Repair and maintenance of Biomedical and computer assisted equipment 1994	1 month	Hungary
13.	U Chan Aye	Repair and maintenance of electromechanical equipment	3 months	Thailand
14.	U Chan Aye	Machine tools design and bio-mechanic techniques 1991	6 months	Japan
15.	U Than Win	Nuclear electronic instrumentation 1992	6 months	India
16.	U Aung Myo	Basic laboratory equipment repair and maintenance 1990	6 months	Singapore

Sr. No.	Name	Fellowship	Duration	Country
17.	U Phone Tint	Repair and maintenance of cold storage and refrigeration system 1996	3 months	Thailand
18.	U Thein Yu	Digital electronic technology 1991	6 months	Japan
19.	U San Hlaing	Glass fabrication technique 1991	6 months	Germany
20.	U Hla Htein	Cryogenic technology 1992	6months	Singapore
21.	U Soe Tint	Electronic Instrumentation 1991	6 months	Thailand
22.	U Khin Maung Ohn	Repair and maintenance of Biomedical equipment 1998	2 weeks	Thailand
23.	U Po Htwe	Maintenance and repair of medical equipment (2002)	2 months	Japan
24.	U Than Lwin	Maintenance and repair of medical equipment (2002)	2 months	Japan
25.	U Thein Htun Maung	Maintenance and repair of medical equipment (2002)	2 months	Japan
26.	U Htay Aung	Maintenance and repair of medical equipment (2003)	1 month	Japan
27.	Daw Le Le Win	Maintenance and repair of medical equipment (2003)	1 month	Japan
28.	Daw Khine Sabae Lwin	Maintenance and repair of medical equipment (2003)	1 month	Japan

6. Coordination and Collaboration with NGOs and Universities

Sr. No.	Title	Year	Universities and UN agencies
1.	Biomedical Engineer	1995-1996	ORBIS International, U.S.A
2.	Biomedical Engineer	1996-1997	ORBIS International, U.S.A
3.	Biomedical Engineer	1997-1998	ORBIS International, U.S.A
4.	Healthcare Technology Trainer	2008-2009	ORBIS International, U.S.A
5.	Medical Equipment Trainer	1. Nov/2011 2. Jul/2012	University of Perpetual Help System/Rotary Club of Manila, Philippines

LABORATORY ANIMAL SERVICES DIVISION

1. Historical Background

The Laboratory animal services division was established in 1965. It was named as the Animal House at that time. In December 1973 due to the increasing population of the laboratory animals, the animal houses were extended to include an adjacent wooden building. This building was used for the breeding of guinea pig and rabbit. The current building was built in 1980 with the support of the Japanese International Corporation Agency (JICA). Expansion of two stored building was extended in 1990-91. The first head of the division was U Soe Lu Kyaw, a research officer. During the period of 50 years, there have been a total of 8 heads. Dr Aye Win Oo, research officer, is a current head of the division since 2007 to date. There are a total 18 staff in Laboratory Animal Services Division. The responsibilities of the Division are: to produce and maintain good quality laboratory animals, to maintain and build up research facilities for experimental animal models, and to provide various strains of laboratory animals to various divisions from Department of Medical Research (Lower Myanmar) and other Institutes for their research purposes and to conduct research works on experimental animals.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	U Soe Lu Kyaw	M.Pharm (Shizuoka)	1965-66 to 1971	
2.	U Chit Maung	B.Sc (Rgn) M.Sc (Guelph)	1972-88	
3.	Dr. U Myint Oo	B.Sc (Biology) M.Sc (Zoology) Ph.D. (UNSW, Australia)	1989-93	
4.	U Khin Maung Naing	B.Sc (Hons). M.Sc (Lond) Nutrition	1994	
5.	Dr. U Thaw Zin	MB,BS. M.Med.Sc (Pharmacology) Ph.D. (Australia)	1995	
6.	Dr. U Myint Oo	B.Sc (Biology) M.Sc (Zoology) Ph.D. (UNSW, Australia)	1996-97	
7.	Dr. Ye Tint Lwin	M.B,B.S. M.Med.Sc (Physiology)	1998-2006	

3. Current Staff

3.1 Photograph (Group Photo)



3.2 List of Staff

Research Officer & Head	...	Dr Aye Win Oo BVS (IAHVS, Yezin).MVMedSc (Rep. of Korea)
Research Officer	...	Daw Mu Mu Win BSc (Zoology) (RASU)
Research Assistant (2)	...	Daw Than Myat Htay BA (Philosophy) (WC)
	...	Daw Khin Hnin Yi BSc (Zoology) (WC)
	...	Daw Mya Mya Sein BA (Psychology) (UDE)
Research Assistant (3)	...	U Aung Kyaw Zaw BA (Myanmar) (UDE)
	...	Daw Thandar Win BA (Geography) (UDE)
	...	Daw Hnin Ohnmar Oo BSc (Physics) (YU)
Research Assistant (4)	...	U Myint Oo
	...	U Kyaw Thu Myat
	...	U Thae Thiha Aung
Laboratory Worker	...	U Mahazan
	...	U Myat Htun Aung
	...	Daw Hla Hla Win
	...	Daw San San Myint
	...	Daw San
	...	U Myo Htat
	...	U Tint Zaw Maung

... U Wanna Htun

... U Aung Myat BA (Gerography) (UDE)

4. Areas of Service Activities

- to produce and maintain good quality laboratory animals
- to build up research facilities for experimental animal models
- to provide various strains of laboratory animals to scientists from Department of Medical Research (Lower Myanmar) and various Institutes for their research programs and purposes

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	U Khin Maung Zaw	Laboratory animal study	(1979-80)	Japan
2.	U San Win	Training on laboratory animal science	(1988)	Japan
3.	U Sein Win	Breeding and maintenance of laboratory animals	(1991)	Japan
4.	Dr Ni Thet Oo	Management of the laboratory animals	(1996)	England
5.	Dr Aye Win Oo	Animal husbandry in the vaccine quality control	(2000)	The Netherlands
6.	U Nay Win	Breeding in Inbred Strain of BALB/c mouse for production of Monoclonal Antibody	(2001)	Thailand
7.	Dr Aye Win Oo	Master course on preventive veterinary medicine	(2003-4/2005-6)	ROK

6. Coordination and collaboration with Universities, UN and other Agencies

- Revitalize the animal laboratory at DMR-LM for research on malaria (WHO-S&E 2011-2012)

7. Achievements NIL

8. Publications

Total number of publications = 2

PUBLICATION DIVISION

1. Historical Background

The Publication Division was established on July 25, 1966 with 7 staff although the Photographic Unit and Art Section had already existed under the Instrumentation Division since 1963. U Thi Ha, Research Officer, was the foremost head of the division. To date, a total of 7 persons have headed the division since 1966, and there have been twelve in staff strength since 1989. Dr Ni Thet Oo is the current head of the division since 2006.

There have been many changes within 50 years at the division. At the beginning, the publications on Burma Medical Research Council Special Report series, medical articles, Research Congress handouts and Conference papers, Union of Burma Journal of life Sciences and other scientific papers were printed at the Central Press, Yangon for printing.

When the Heidelberg Letterpress was received by the support of the International Development Research Centre, Canada in 1988, the printing facilities covered for DMR Bulletins, Myanmar Health Sciences Research Journal, Annual Reports, Invitation Cards and Program and Abstract booklets for Research Congress were carried out at the division for dissemination of scientific information to health personnels.

In 1994, TOKO offset was used in printing work and starting from 2004, it has been done by the use of Riso ks 500 copy printer machine. Regarding the formatting work, after the Desktop publishing had upgraded in 1991, the fully DTP service on formatting to Camera Ready Copies of the manuscripts was able to be carried out at the division in 2006.

In earlier years, the Art Section was responsible for drawing posters, graphs, maps, building plans, other illustrations and stencil duplicating service, typing service, electronic typing service, medical illustration service, and making the slide projection work. But these services were not functioning any more after the year 1999 due to the development of advanced computer technology. The Photo Unit played a role in documentation of research works and findings in a variety of divisions and conferences.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	U Thi Ha	B.A (English)	1966-1972	Transferred to Rangoon Art & Science University
2.	Daw Khin Thet Htar	B.A, Dip LibSc	1972-1975	Retired
3.	U Hla Myint	BSc (Hons), RL	1975-1990	Resigned
4.	U Tin Oo	-	1990-1994	Retired
5.	U Aung Myint	MA (Philosophy)	1994-2001	Retired
6.	Daw Khin Sann Aung	BSc (Botany)	2001-2006	Retired & currently working as a Technical Consultant

3. Current Staff

3.1. Group Photo



3.2 List of Staff

Research Scientist & Head	... Dr Ni Thet Oo BVS (IAHVS) HGP Dip ELTM (IOE)
Research Officer	... U Ye Thway BSc (Physics) (YU)
	... Daw Win Win San BA (History) (YU) Dip LibSc (YU)
	... Daw Nilar Soe BA (Myanmarsar) (UDE)
	Dip Japanese Language (YUFL) Dip LibSc (YU)
Printing Technician (2)	... U Htun Htun BA (History) (YU)
	... Daw Cho Cho Lwin BA (History) Dip Global English (YU)
	... Daw Pwint Phyu Khaing BSc (Zoology)(YU) PGDCA (YU)
Printing Technician (3)	... Daw Ei Zin Mar BA (Geography) (YU)
	... Daw Win Shwe Aye BA (Geography) (YU)
Printing Technician (4)	... Daw Ei Maw Han LLB LLM (YU)
	... Daw Naw Eh Sel Hti BA (History) (YU)
Printing Worker	... Daw Htoo Htoo Aung

4. Areas of Service Activities

The Publication Division provides the research capacity strengthening in Department of Medical Research (Lower Myanmar) by performing the services on publication, delivery service, computer service, medical photographic service and others.

4.1. Publications

(a) Myanmar Health Sciences Research Journal

1. The Myanmar Health Sciences Research Journal has been published including review articles, long articles, short reports, review articles and correspondences in the field of biomedical and health sciences three times a year (i.e. April, August & December) since 1989, with 500 copies per issue.
2. In 1992, the International Standard Serial Number (ISSN-1015-0781) was assigned to the MHSR Journal by the Centre for International Serial Data System located in France. It has been printed on each issue starting from Vol. 4, No.1, April 1992.
3. Starting at the Myanmar Health Research Congress (2009), the research papers presented at the paper reading session and displayed as posters were asked to the respective authors for publications in the MHSR journal.
4. A total of 653 research manuscripts were published with various research disciplines within 23 years.
5. The meeting of the MHSR Editorial Committee is usually held in August of the year and the Editorial Committee which consists of 21 members (ten from DMR (LM) and eleven from other medical universities) is formed and asked for the advice for the journal.
6. Dr Catherine DeAngelis, Professor of Pediatrics, Deputy Dean, Johns Hopkins School of Medicine, Emeritus Editor-in-Chief, JAMA made a discussion on "Upgrading the Myanmar Health Sciences Research Journal" with the MHSR Editorial Committee members in 2012.

(b) DMR (LM) Bulletin

1. The Bulletin in booklet form was published quarterly every year in 500 copies from 1986 to 2004 with the topics of Review Articles, News Related to Medical Research Activities in Myanmar, Un-reviewed Reports on Recent Research Findings, List and Abstracts of Medical Research Papers from or concerning Myanmar. However, the format of the Bulletin had to be changed in 2006.
2. Due to the shortage of review articles, the Editorial Committee halted the publications temporarily from November, 2004 to August, 2006. DMR (Lower Myanmar) Bulletin (monthly) was published in a new style since September, 2006. It covers international and local news about medicine & health, highlights on useful research findings applicable to health and abstracts of research papers published or read abroad by DMR (LM) scientists. In addition, advertisements on Hepatitis B Vaccine Clinic, Cervical Cancer Screening Clinic, Reproductive Health Hot-line, poison information and recently available research books at DMR (LM) are mentioned in the Bulletin. The Bulletin was printed in 660 copies.

3. Again, under the guidance of the Bulletin Editorial Committee, the Bulletin Review Committee comprising of six scientists from DMR (LM) was formed in April, 2010 to review the articles sent by various divisions of DMR (LM) so that articles are thoroughly reviewed and selected by the Bulletin Review Committee members according to the current priority of global health issue.
4. Furthermore, the style of the DMR (LM) Bulletin was changed to a more attractive and impressive presentation: the front page was illustrated with the colorful logo; under the section of “Highlights on useful research findings applicable to health”, the abstracts of awarded papers from the Myanmar Health Research Congress were published not only in English but also in Myanmar version to be applied by all levels of health staff. The monthly bulletin of April, 2010 was publicized as “Volume 22, No.8, 2010” having the status of consecutive volume number of the bulletin published since 1986. Copies for the Bulletin were increased from 660 to 680 copies.

(c) DMR (LM) E newsletter

1. DMR (LM) E newsletter is circulated to in-service and retired staff of the DMR (LM) in order to provide the current information on social as well as academic activities of DMR (LM) through On-line service starting from June, 2011 as the first issue. The Editorial Committee of the E newsletter organized to mail 3 times a year- (February, June & October) according to 3 seasons of Myanmar. E newsletters of Vol. 2, No. 2 has been sent during the year under report.

4.2. Special Publications

Apart from regular publications of the MHSR Journal and the DMR (LM) Bulletin, other special publications including Myanmar Health Research Congress' Program and Abstract booklets, Annual Reports, Lecture Guide on Research Methodology, the special publications to mark the 50th Anniversary of DMR (LM), i.e., “Profile of Pesticides Registered in Myanmar (2012), and Index of Research Papers Presented at Health Research Congresses (1965-2011), etc., have been prepared for publishing at the printing station.

4.3. DMR (LM) Website

To disseminate health information effectively through Information Communication Technology and to optimize information distribution among divisions, the project on “Developing an informative website of Department of Medical Research (Lower Myanmar) was carried out by the members of the Information Technology Group of DMR (LM) with the collaboration of the web developing company (WHO/DFC, 2010-2011).

The publications of DMR (LM) are regularly updated in the intranet website and the Photo Gallery of Department of Medical Research (Lower Myanmar) is exhibited for users who would like to make the most of up-to-date documents in the organization.

4.4. Dissemination service

Under the guidance of the Editorial Committee, the mailing list of the Journal and the Bulletin is updated as necessary. The Journal is delivered to departments, universities, and hospitals under the Ministry of Health, and sent to some international organizations and

universities including WHO, UNDP, Mahidol University etc.,. The Bulletins are delivered all over the country (i.e. up to township hospitals) by postal service.

4.5. Photographic service

In the earlier years, the photographic service was provided to the research divisions of DMR (LM) with the ordinary camera for the jobs on slide projection, reproduction and enlargement of old documentaries (black and white and color prints), documentations of various activities held in DMR (LM). Since 2006, this service has been conducted by the use of digital camera in high resolutions. Generally, the photographic service is carried out for many social and academic activities of the department, held in DMR(LM) in the calendar year in black and white as well as in colors.

4.6. Others

Other services including binding works, wax-printing and printing patient registration cards, information pamphlets and record books for Hepatitis 'B' Carrier Clinic are carried out.

5. International Training

Sr. No.	Name	Fellowship	Duration	Country
1.	U Tin Oo	Medical Photography	27-3-1990 to 27-3-1991	Japan
2.	U Aung Myint	Training in Scientific Publication	17-8-1993 to 6-11-1993	Thailand
3.	Dr. Ni Thet Oo	"Health Information and Dissemination"	5-1-2009 to 27-2 2009	Prince of Songhlar University Hat Yai, Thailand
4.	U Ye Thway	Training course on "Developing an informative website of the Department of Medical Research (Lower Myanmar)"	1-11-2010 to 24-12-2010	Prince of Songhlar University Hat Yai, Thailand

GENERAL ADMINISTRATIVE DIVISION ADMINISTRATION DIVISION (1)

1. Historical Background

Year of establishment is 1963

First Head of the Division if U Kyaw Thi

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	U Kyaw Thi		13.11.64 to 11.9.76	Retired
2.	U Hla Nyunt	DMA	1976 to 1988	Retired
3.	U Myo Myint		28.4.88 to 30.5.90	Retired
4.	U Thar Tun Aung	B.A	7.4.92 to 13.6.94	Retired
5.	U Myint Aye	HSF	22.2.95 to 10.9.2000	Retired
6.	U Nyunt Maung	B.Sc(Physics)	11.9.2002 to 3.6.2002	Retired
7.	U Ne Win	B.Sc(Physics)	12.9.2002 to 6.5.2010	Retired
8.	U Myint Aung	LLB	21.12.2004 to 28.2.2012	Retired
9.	U Aye Kyaw	B.A(Geo)	20.1.2009 to date	

3. Current Staff

3.1 Photograph (Group Photo)



3.2 List of Staff

Staff officer	... Daw Thein Thein Yin BA(History)
Office superintendent	... U Tin Shein BSc(Zoology)
Branch clerk	... Daw Cho Cho Win BA(History)
Upper division clerk	... Daw Ami Kyaw BA(Myanmar)
	... Daw Ngu War BA(LLB)
	... U Aung Kyaw Htoo
Lower division clerk	... Daw Me Me Maung BA(Geography)
	... U Shine Ko Ko
Typist	... U Tun Tun Win
	... Daw May Thet Aung
Peon	... Daw Nyein Nyein Ei
	... Daw Khin Thet Swe
	... Daw Thi Lwin Oo
	... Daw Pan Ei Ei Phyu
	... Daw Tin Htet Htet Aung BSc(Chemistry)
	... U Aung Thaung Htwe
Security(3)	... U Myint Aung
Record Keeper	... U Ko Ko Gyi
Gestener Worker	... U Myint Oo
Jemader	... U Kyaw Soe Moe
	... Daw Khin Myint Maw
	... U San Tun Aung
Driver	... (12) persons
Security	... (15) persons
Sweeper/ Gardener	... (22) persons

4. Areas of Service Activities

The division is involved in following activities:

Welfare of staff, Dispatch of office letters, Delivering the DMR(LM) Bulletins and MHSR Journals to various divisions of Myanmar. Sanitation and growing of plants in the department compound and General administrative activities

ADMINISTRATION DIVISION (2)

1. Historical Background

This division was established in 1963 and first head of the division was U Kyaw Thi.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	U Kyaw Thi		13.11.64 to 11.9.76	Retired
2.	U Hla Nyunt	DMA	1976 to 1988	Retired
3.	U Myo Myint		28.4.88 to 30.5.90	Retired
4.	U Thar Tun Aung	B.A	7.4.92 to 13.6.94	Retired
5.	U Myint Aye	HSF	22.2.95 to 10.9.2000	Retired
6.	U Nyunt Maung	B.Sc(Physics)	11.9.2002 to 3.6.2002	Retired
7.	U Ne Win	B.Sc(Physics)	12.9.22 to 6.5.2010	Retired
8.	U Myint Aung	LLB	21.12.2004 to 28.2.2012	Retired
9.	U Aye Kyaw	B.A(Geo)	20.1.2009 to date	

3. Current Staff

3.1 Photograph(Group Photo)



3.2 List of Staff

Staff officer	...	Vacant
Office superintendent	...	Daw Tin Latt Latt B.A(Myanmar)
Branch clerk	...	Daw Tin Aye Mu B.A(Philosophy)
Upper division clerk	...	Daw Yin Yin Nu B.A(Eco)
Lower division clerk	...	Daw Yu Yu Lwin 10 th standard pass
Typist	...	Daw Khin Htay Nwe
	...	Daw Hlaing Mar
Peon	...	Daw Kay Thi Zaw 10 th standard pass

4. Areas of Service Activities

The division is involved in following activities:

- Reporting and requesting permission from Ministry of Health for foreign Scholarship trainings, seminars and workshops.
- Reporting and requesting permission from Ministry of Health for visit of foreign consultants
- Reporting and requesting permission from Ministry of Health for foreign grants

5. International Training

- U Thar Tun Aung Thailand
- U Myint Aye Thailand
- U Nyint Maung Thailand
- U Ne Win India
- U Myint Aung Thailand
- U Aye Kyaw India

ADMINISTRATION DIVISION (3)

1. Historical Background

This division was established in 1963 and first head of the division is U Kyaw Thi.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	U Kyaw Thi		13.11.64 to 11.9.76	Retired
2.	U Hla Nyunt	DMA	1976 to 1988	Retired
3.	U Myo Myint		28.4.88 to 30.5.90	Retired
4.	U Thar Tun Aung	B.A	7.4.92 to 13.6.94	Retired
5.	U Myint Aye	HSF	22.2.95 to 10.9.2000	Retired
6.	U Nyunt Maung	B.Sc(Physics)	11.9.2002 to 3.6.2002	Retired
7.	U Ne Win	B.Sc(Physics)	12.9.22 to 6.5.2010	Retired
8.	U Myint Aung	LLB	21.12.2004 to 28.2.2012	Retired
9.	U Aye Kyaw	B.A(Geo)	20.1.2009 to date	

3. Current Staff

3.1 Photo



3.2 List of Staff

Staff officer	... Daw Aye Aye Shein B.A (History)
Office superintendent	... Daw Khin Maw B.A (Philosophy)
Branch clerk	... Daw Aye Myat Ko BSc (Maths)
Upper division clerk	... Daw Aye Aye Mar B.A (Geography) ... Daw Saw San Dar Pa Pa Win B.A (Eco)
Lower division clerk	... Daw Thi Thi Aye B.A (Myanmar)
Steno	... Daw Than Than Myint
Typist	... Daw San San Htay
Peon	... U Kyi Lwin

4. Areas of service activities

The division is involved in following activities

Organization set up, employment of officers and staff, promotions, increment, transfers, leaves, biography of officers and staff, service book, DE,PE, pay bill, reporting to Ministry of Health, awards, retirement.

5. International training

- U Thar Tun Aung Thailand
- U Myint Aye Thailand
- U Nyint Maung Thailand
- U Ne Win India
- U Myint Aung Thailand
- U Aye Kyaw India

BUDGET AND ACCOUNTS DIVISION

1. Historical Background

- Year of establishment is 1963.
- First Head of the Division is U Kyaw Lin.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	U Kyaw Lin		1963 to 18-9-1984	Retired
2.	U Myint Aye	B.Sc(Phy)	19-9-1984to22-2-1995	Retired
3.	U Nay Win	B.Sc(Phy)	23-2-1995to12-9-2002	Retired
4.	U Sein Thaung	B.A(Geo)	13-9-2002to24-9-2007	Retired
5.	Daw Myint Sein	B.Sc(Phy)	25-9-2007to26-4-2010	Retired
6.	U Tin Maung Htun	LLB	27-4-2010 to date	

3. Current Staff

3.1Photo



3.2 List of Staff

A/D	...	U Tin Maung Htun LLB
Senior Officer	...	Daw Khin Khin Myint B.Sc(Phy)
A/G-1	...	Daw Marlar Swe (10 th pass)
A/G-2	...	Daw Hla Myat Mon (10 th B pass)
A/G-2	...	Daw Nwe Nwe Yi B.Sc(Zoo)
U.D.C	...	Daw Hnin Shwe B.A(Law)
U.D.C	...	Daw Aye Aye Lwin (10 th B pass)
U.D.C	...	Daw Nilar Aung B.A(Geo)
L.D.C	...	Daw Htay Htay Win B.A(BM)
L.D.C	...	Daw Aye Aye Thwe (10 th B pass)
L.D.C	...	Daw Zarchi Thein Naing B.A(Public policy)
Peon	...	Daw Hnin Yatanar Oo
Typist	...	Daw Tin Tin Htike
	...	U Thet Khine

4. Areas of Service Activice Activities

Budget and Accounts Division is involved in following activities;

Preparation of pay bills, arrangement of budget for research projects and expenses of the department, consultation with audits for regularization of finances and budget according to rules and regulations and keeping of budgetary records.

5. International Training(Seminar,Workshop)

6. U Nay Win (India)

PROCUREMENT, STORES AND DISTRIBUTION DIVISION

1. Historical Background

The Procurement, stores&distribution Division (PSD) was established under the DMR in 1963. The very first person put in charge of the PSD was U Kyaw Thi and salient changes in heads within 50 years as mentioned below:-

Sr.	Name	Rank	Remark
1.	U Kyaw Thi	AEO	Promotion to EO for Admin:
2.	U Ba Than	Superintendent	Promotion to AEO
3.	U Tun Latt	AEO	Retired
4.	U Khin Soe	AEO	Resigned
5.	U Nyunt Maung	S.O	Promotion to AD
6.	Daw Myint Sein	S.O	Transfer to Accounts Division

After the expansion of sanctioned in 1990, PSD staff's strength had been increased to 17. Current head of the PSD is Daw Khin Myat Mon and a total of 14 staffs of the division also fulfils in research divisions.

2. Former Heads

Sr. No.	Name	Degree	Year (From-To)	Remarks
1.	U Kyaw Thi	BA(Geo)	1964-1968	
2.	U Ba Than	-	1968-1979	
3.	U Tun Latt	-	1982-1986	
4.	U Khin Soe	BSc(Chem)AGTI,DS,R.L	1990-1991	
5.	U Nyunt Maung	BSc(Physics)	1992-1999	
6.	Daw Myint Sein	BSc(Physics)	2000-2007	

3. Current Staff

3.1 Group Photo



3.2. List of Staff

There are 15 current staffs are working in the PSD as mentioned below: -

Staff officer& Head ... Daw Khin Myat Mon,BSc (Physics)(RASU)

Staff officer ... Daw Thida Moe,BSc (Bot)(YU)

Procurement Section & Clearance Section

Office Superintendent ... U Aung Tun

Branch Clerk ... Daw Myint Kay Thwe BA(Myanmar)(UDE)

Senior Clerk ... Daw Moe Moe Khine BA(Geo)(UDE)

... U Pyae Sone Htoo L.L.B(UDE)

... Daw Le Le Myint BA(Eco)(UDE)

Junior Clerk ... Daw Nan Thin Thin Htwe,BA(Myanmar)(UDE)

... Daw Nwe Mie Aung

Peon ... Daw Ei Ei Mon

Store & Distribution Section

Store Keeper I ... Daw Thi Thi Aye BSc(Zoo)(YU)

Store Keeper II	...	Daw Aye Aye Maw BA(Myanmar)(UDE)
Senior Clerk	...	Daw Aye Aye Mon BA (History) (UDE)
Junior Clerk	...	Daw Khin Zar Chi Tun BA (Myanmar) (UDE)
Store Attendent	...	U Nay Tun

4. Areas of Service Activice Activities

There are three working sections namely purchase section, clearance section and store and distribution section under the control of Procurement, store and distribution (PSD). That sections fulfils the requirements of research divisions.

PSD is responsible for purchase, clearance of goods received from Airport, Seaport, General Post office, storage and distribution of laboratory equipments, chemicals, etc. And then to fill up liquid N₂ and other gases which are required for the research divisions.

5. International Training(Seminar,Workshop)

U Nyunt Maung had been attended to undergo three months training in Computer Management Store in Thailand, in 1994.

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NO. 5, ZIWAKA ROAD, DAGON TOWNSHIP, YANGON 11191, MYANMAR.

Tel : 951-375447, 951-375457, 951-375459 Fax : 951-251514