

# MUHIMBILI RESEARCH STATION (CENTRAL TUBERCULOSIS REFERENCE LABORATORY)

The main responsibility of the Muhimbili Research Station (MRS) has been to undertake laboratory and other research on tuberculosis (TB) and its related diseases in the country. Other activities of the station have been laboratory diagnosis of TB in terms of direct smear and culture of sputum, drug sensitivity testing and surveillance, supervision and quality control of laboratory services to the peripheral and zonal laboratories. The station contributes in strengthening TB laboratory diagnostic activities in the country by training and re-training medical and paramedical workers.

Five research areas were set/targeted for action during the period. These were:

1. TB diagnosis

2. Epidemiology of TB in HIV error
3. Surveillance of anti-TB drug resistance
4. Case holding and
5. Prevention.

### Inputs

Despite the major draw back that the institute for the period of the plan had no defined machinery for obtaining funds for research, the scientists continued carrying out research activities using funds obtained through collaboration with other research institutions in and outside the country.

Enormous efforts was put on developing research proposals to achieve the target areas.

Discipline/Cadre	Present strength	Retiring	Shortfall	Additional Staff by Programme Year			
				1999	2000	2001	2002
<b>1.0 Research Scientists</b>	5	-	2		1	1	
1.1 Epidemiology	2	-	-				
1.2 Microbiology	3	-	-				
1.3 Biostatistics	-	-	1		1		
1.4 Social Sciences	-	-	1			1	
1.5 Parasitology	-	-	-				
<b>2.0 Lab Technologists</b>	5	-	-				
2.1 Parasitology	-	-	-				
2.2 Microbiology	2	-	-				
2.3 Hematology	-	-	-				
2.4 Others	3	-	-				

A number of the station's scientific staff underwent various professional courses through personal and institutional effort.

The courses included masters degrees, Advanced Diplomas, computer courses and Epidemiology.

Rehabilitation of the station's laboratory and construction of new office premises were also done under collaboration with the Sokoine University of Agriculture as part of the planned activities in the period.

Listed below are studies which have been proposed, conducted and some are still ongoing:

1. The zoonotic implication of bovine on human TB and its integrated control strategies in Arusha region.
2. Epidemiology of TB and cost-effectiveness of community -Based DOTS in Kilombero district.
3. Impact of HIV infection on outcome of treatment and survival of TB patients in Mwanza Tanzania.
4. The study on the interaction of tuberculosis and HIV infection in Tanzania.
5. Evaluation of the MycoDot™ Test in patients with suspected Tuberculosis in a field setting, in Tanzania.
6. The epidemiology of TB and cost effectiveness of community based DOTS Urban areas (Dar es Salaam).
7. Quality assurance of smear microscopy services in Dar es Salaam and neighboring urban areas.
8. The efficacy of secondary TB prophylaxis in HIV infected patients.
9. Algorithmic tool for diagnosis of smear negative TB.
10. Incidence of TB in tea farming area in Mufindi district.
11. Survey of anti-TB drug resistance in Tanzania.
12. The Efficacy and Cost-effective Treatment Regimen for Smear Negative Pulmonary and Extra-Pulmonary Tuberculosis in Dar es Salaam.
13. Drug sensitivity pattern of Mycobacteria isolated from TB patients with and without HIV co-infection in Ilala and Mwanza Districts, Tanzania.
14. Combined Chemotherapy and Immunotherapy in Treatment of TB in Dar es Salaam.
15. The Incidence of Cutaneous Hypersensitivity Among HIV Positive TB Patients Treated with Thiacetazone Regimens in Dar es Salaam.

### Funded Projects

Research proposals No. 1 - 5 above were carried out through collaborate efforts between NIMR and other institutions.

Project	Collaborating Institutions	Source of Funds
1.	NIMR, SUA, MMC Moledun Institute (MI)	DFID
2.	IHRDC, NIMR, NTLP Instituto de Immunologia of Colombia (IIC), Kilombero District Council (KDC)	HC, HRTF
3.	NTLP, MRS, MUCHS	IUATLD
4.	NTLP, MRS, KNCV, IUATLD	IUATLD
5.	NIMR, NTLP, WHO	WHO

Out of the three funded research projects, two (No. 1 and 2) are still going on whereas, two studies (No. 3 and 5) were completed and published in scientific journals. Data analysis and -report writing for study No. 4 are in progress.

### The following research proposals were granted ethical clearance but were not funded

1. The epidemiology of TB and cost effectiveness of community based DOTS in Urban areas (Dar es Salaam).
2. Quality assurance of smear microscopy services in Dar es Salaam and neighboring urban areas.
3. The efficacy of secondary TB prophylaxis in HIV infected patients.
4. Drug sensitivity pattern of *Mycobacteria* isolated from TB patients with and without HIV infection in Ilala and Mwanza Districts, Tanzania.
5. Combined Chemotherapy and Immunotherapy in Treatment of TB in Dar es Salaam.

### The following research proposals were developed but were yet to be submitted to the MRCC for peer review and ethical clearance

1. Algorithmic tool for diagnosis of smear negative TB.
2. Incidence of TB in tea farming area in Mufindi district.
3. Survey of anti-TB drug resistance in Tanzania.
4. The Efficacy and Cost-effective Treatment Regimen for Smear Negative Pulmonary and Extra-Pulmonary Tuberculosis in Dar es Salaam.
5. Drug sensitivity pattern of *Mycobacteria* isolated from TB patients with and without HIV co-infection in Ilala and Mwanza Districts, Tanzania.

6. The Incidence of Cutaneous Hypersensitivity Among HIV Positive TB Patients Treated with Thiacetazone Regimens in Dar es Salaam.

### **Output from Research Activities**

#### **Achievements**

Despite the fact that there were difficulties in obtaining funds for conducting research, the station's scientists managed to prepare the following review articles;

1. Anti - TB drug resistance pattern and the relationship with HIV prevalence among TB patients in Tanzania.
2. Impact of HIV/AIDS epidemic on tuberculosis problem in developing countries: Tanzania experience.
3. The epidemiological trend of tuberculosis and associated risk factors in HIV endemic areas: Tanzania experience 1979 - 1996.
4. The role of private sector in tuberculosis control in Tanzania.
5. Analysis of the laboratory drug sensitivity-data available at the station's data base.
6. New diagnostic methods and their place at present in the tuberculosis problem in developing countries (Tanzania).
7. Current situation of tuberculosis in Tanzania.
8. Problem in surveillance of anti-TB drug resistance in low income countries Tanzania experience.

#### **Published Research Results**

The following research projects were executed either during the 1991-1996 (not reported in the 1991 - 1996 evaluation report) or during, the 1996 - 1999 research development plan. These were published in various scientific journals.

1. Impact of HIV infection on outcome of treatment and survival of tuberculosis patients in Mwanza, Tanzania.
2. Effects of delayed processing of sputum specimen on laboratory results at the Central Tuberculosis Laboratory, Dar es Salaam.
3. Evaluation of the MycoDot™ Test in patients with suspected tuberculosis in a field setting in Tanzania.

#### **Other Publications**

##### **Published Review Articles**

1. New diagnostic methods and their place at present in the tuberculosis problem in developing countries (Tanzania).
2. Current situation of tuberculosis in Tanzania.
3. Problem in surveillance of anti-TB drug resistance in low income countries Tanzania experience.
4. Characterization of mycobacteria from an HIV endemic area.

#### **Failures**

Some of the programme objectives were not achieved during the named research development plan. The reasons where that these areas were not within the current changing world scientific interests in tuberculosis.