(iv) MISCELLANEOUS STUDIES
(a) Antimalarial activity screening of synthetic/plant products

Investigators : Dr. Anil Prakash, Dr. D. R. Bhattacharyya, Dr. P. K. Mohapatra

An MOU was signed between RMRC, Dibrugarh and the Department of Pharmaceutical Sciences, Dibrugarh University (DU) for the screening of synthetic compounds/botanical products for antimosquito/antimalarial activities. During the year a total of 14 coded compounds submitted by DU were screened for in vitro antimalarial activity. In addition, on request from Indian Lac Research Institute, Ranchi, 2 synthetic compounds were evaluated for mosquito repellant activity.

(b) IRS monitoring in Assam under NVBDCP

Investigators : Dr. P. K. Mohapatra, Dr. D. R. Bhattacharyya, Dr. S. A. Khan, Dr. Anil Prakash

(c) Evaluation of microfilaria prevalence and disease after Mass Drug Administration (MDA) Programme for the Eradication of Lymphatic Filariasis in Assam.

Investigators : Dr. A. M. Khan, Dr. P. Dutta, Dr. S. A. Khan

On being requested to evaluate the ongoing mass drug administration (MDA) programme in some select districts of Assam since 2004 for eradication of lymphatic filariasis by NVBDCP, Delhi the centre assessed the microfilaria prevalence rate in sentinel as well as randomly selected sites of the three districts namely, Dibrugarh, Sibsagar and Dhemaji. In Dibrugarh district, a total of 4084 night blood slides were collected from 8 locations (4 sentinel & 4 random). Overall, microfilaria prevalence rate of 3.9% and disease rate of 0.8% was found. In Sibsagar district, from 8 locations (4 sentinel & 4 random) a total of 4060 blood slides are collected which gave 5.01% mf rate and 0.67% disease rate. In Dhemaji district, a total of 3575 blood slides were collected from 7 locations (4 sentinel & 3 random) and 0.11 mf rate and 0.22% disease rate was found.

Overall results indicated that prevalence of lymphatic filariasis was quite high even after 3 rounds of DEC in Dibrugarh and Sibsagar districts. Lymphatic Filariasis Control / eradication programme needs to look into various aspects of the implementation, compliance to drug coverage and active participation of the communities for its successful eradication in Assam.
(d) Midterm Assessment of DEC Coverage and Compliance in Dhemaji and Darrang Districts of Assam Under Mass Drug administration (MDA) Programme for eradication of lymphatic filariasis in Assam

Investigators : Dr. A. M. Khan, Dr. P. Dutta, Dr. S. A. Khan

An elephantiasis case

On being requested by the NVBDCP, Delhi the centre took up the mid-term Assessment of MDA in Dhemaji and Darrang districts of Assam during 11-15 December, 2007 using a semi-structured questionnaire.

District Dhemaji: A total of 122 families and 623 members as per the selection criteria were surveyed in the 4 select PHCs. Only 62 families (50.8%) were found to receive DEC either by the whole family (55 families) or at least by one member (5 families). Among the 55 families who received DEC for whole family, only in 26 families (41.9%) all members consumed DEC. In 32 families (51.6%) most but not all family members consumed DEC. In 4 families (6.4%) who received DEC for the whole family none of the members consumed DEC for one or the other reason. The drug distributor visited only 40 families (32.8%) but neither explained the purpose of the DEC administration properly nor persuaded family members to swallow the DEC tablets in his presence. The reasons for not consuming DEC by the surveyed members were- side effects seen in the family members or in the neighbourhood (0.8%), illness (1.6%), fear of consuming many tablets at a time (0.5%), apparently fit and healthy (0.8%), forgot to take (0.2%) and lack of IEC (0.6%). Mild side effects were reported by 6 respondents which included stomach pain, vomiting, and loose motion.

District Darrang : A total of 123 families and 615 members as per the selection criteria were surveyed in the 4 select PHCs. All families received DEC for whole family. Of these, all members in 81 families (65.8%) consumed DEC, by most but not all in 41 families (33.3%). Drug distributor visited all 123 families and persuaded 61(49.6%) families to take drug in his presence. However, only 3 families (2.4%) swallowed drug in front of him. The reasons for not consuming DEC were- illness (3.4%), apparently fit and healthy (0.2%), forgot (0.2%), lack of IEC (0.2%). Mild side effects reported by 7 respondents (5.7%) included stomach pain, vomiting, and headache. The side effect was mild and diminishes within few hours.

Over all, drug compliance was poor in Dhemaji as compared to Darrang district. The process of drug distribution needs more attention to ensure the house-to-house visit by the drug distributors IEC activities also need to be strengthened.
(e) *A study on community-associated methicillin resistant Staphylococcus aureus (CA-MRSA) in Dibrugarh*

**Investigators:** Dr. B. Borkakoty, Dr. D. Biswas

A pilot study was undertaken in a rural community around Dibrugarh town to know the prevalence of CA-MRSA and their antimicrobial sensitivity pattern. Randomly collected 120 *Staphylococcus aureus* isolates from various clinical sites (throat, skin, pus, urine) from patients attending out patient department of rural health centers were screened for mecA gene by PCR, oxacillin screening plates, E-test for MIC and antimicrobial sensitivity pattern by standard procedures. MRSA was detected in 21 (17.5%) isolates by oxacillin screening plates while mecA gene was detected in 17 (14.2%) isolates by PCR, vancomycin MIC upto 1 ug/ml was detected in two isolates, while all the 17 mecA positive isolates showed Methicillin resistance above 240 ug/ml. Linezolid was sensitive in 100 % isolates.

![Graph showing distribution of MRSA and MSSA](image)

**MRSA & MSSA isolated from different clinical sites**

(e) **Epidemiological investigation of Kala-azar in Assam**

**Investigators:** Dr. A. M. Khan, Dr. P. Dutta, Dr. S. A. Khan

On getting information about many suspected cases of Kalazar near Guwahati, Assam from Media as well as State Health Department, the centre carried out an investigation during 21-26 February, 2008. A total of 28 blood samples from suspected symptomatic subjects (fever cases with clinical history) were collected in the village Chapaidang during house-to-house visit from the affected locality and tested for (i) malaria by Rapid Diagnostic Kit (RDK) and microscopy (ii) for Kalaazar (serum after separation from blood) by Immunodiagnostic test rK 39 (Kala-azar Detect Rapid Test; InBios, USA). In addition, 16 healthy contacts, living nearby the houses of the suspected Kala-azar subjects, were also screened for Kala-azar. All 28 suspected subjects were tested negative for malaria. However,
18 (64.3%) subjects (12 male, 6 female) were tested positive for Kalazar. All 16 healthy contacts were found negative for Kala-azar. In entomological collections, using sticky trap and suction tubes, 4 specimens of *Phlebotomus argentipes* sand fly were collected. Preventive measures like treatment of positive cases, active/passive surveillance of fever cases of more than 2 weeks, vector control measures, spraying of DDT as per norms and distribution of LLIN in the area were suggested to the state health authorities.

(f) **Avian Influenza outbreak investigation in Imphal, Manipur and Cooch Behar, West Bengal**

Investigator: Dr. D. Biswas

A large number of poultry deaths were reported from Chingmeirong locality of Imphal city during 2/3\textsuperscript{rd} week of July, 2007. The first poultry death was recorded in a backyard poultry on 10.07.07 and within 4 days 132 of 144 birds died. Investigations initiated by the Manipur State Health Department confirmed these deaths due to H5N1 on 25.07.07. State Veterinary Department started culling operation of the poultry since 26.07.07.
Field work during avian influenza outbreak in Imphal

In view of the possibility of human cases of avian influenza Govt. of India on 26/7/2007 deputed a team from NICD Delhi, NIV Pune and RMRC, Dibrugarh to Manipur in order to investigate and help containing the outbreak. The team visited RIMS, Imphal and checked the hospital admission records of suspected human cases. After epidemiological investigations blood and throat samples were collected from 11 suspected cases all of which were tested negative for H5N1. Further, Dr. D. Biswas, Scientist D, assisted the Central Rapid Response Team during January 2008 in Avian influenza outbreak investigation and containment programme in Cooch Behar, West Bengal.

(g) Acute diarrhoeal disease outbreak in district Golaghat, Assam

Investigator : Dr. D. Biswas, Dr. B. J. Borkakoty

An outbreak of acute diarrhoeal disease was reported in tea gardens situated in Golaghat and Jorhat districts of Assam during September/October 2007. A six-member team consisting of Microbiologist, Clinician & technical personnel from Regional Medical Research Centre, Dibrugarh, along with Dr. A. Mukhopadhaya of NICED, Kolkata, visited the affected areas on 17.10.2007. The team visited two worst affected tea gardens, clinically examined acute cases and collected samples of stool & rectal swabs along with few suspected drinking water sources.
As per the information gathered from the office of the Joint Director of Health Services, Golaghat, a total of 2,960 cases of diarrhoea were reported between 6.9.2007 and 17.10.2007 with 34 reported deaths. Attack rate of 8.8 % and case fatality rate of 1.2 % was found in the affected area. Initially diarrhoeal episodes started from Sockeiting TE which turned into an outbreak following a social gathering during a festival in a nearby garden. These gardens were affected by floods before and during the period of outbreak. A total of 35 rectal swabs and stool samples were collected by the investigating team of which 19 showed growth of *Vibrio cholerae O1* (16 Ogawa strain and 3 Inaba strain) confirming the diarrhoeal disease outbreak as Cholera outbreak.

Similar diarrhoeal outbreak was also reported from the adjoining district Jorhat involving lesser number of cases. Two samples collected from Jorhat district also yielded growth of *Vibrio cholerae O1*. Water samples collected from drinking water sources showed evidence of faecal contamination. (*E. coli*)