A “learning by doing” programme at the service of India's health system

Ten Years of Field Epidemiology Training

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Ten years of leadership

Prof. Gupte reviewing results of an investigation with Dr Martolia, MAE-FETP graduate 2003

The MAE-FETP of the National Institute of Epidemiology (NIE, Indian Council of Medical Research) was initiated in 2001 under the leadership of Prof. Mohan Gupte, in partnership with the Centers for Disease Control (CDC), USA and WHO. MAE-FETP is an off-campus course of Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Tiruvanathapuram, Kerala, an institute of National importance. The programme has now matured and contributed to the strengthening of the Indian public health system.

This document summarizes key achievements in the field of (1) outbreak investigations, (2) surveillance, (3) operational research, (4) health systems and (5) training methodology. It frames future perspectives and challenges and provides a summary of the scientific work presented at international conferences and meetings.

Box 1: MAE -FETP from NIE-ICMR, Chennai: Key facts and figures

Initiation	**2001**
Cohorts to date	**10**
Graduates	**87**
Duration	**2 years**
Time in field	**75%**
Degree	**Master of Applied Epidemiology**
Recognition	**Medical Council of India**
Core and associate faculty	**12**

The 2006 class in Andhra Pradesh for the Chikungunya field exercise

Benchmarking new standards for outbreak investigations

Overcoming a traditional context that favours rapidity over quality

Outbreak investigations are not easy. Pressure from decision makers may be high to obtain conclusions and execute prevention measures before evidence can be consolidated. Senior staff members are preferred to conduct many high profile investigations, and because of their responsibilities, they cannot spend more than a day or two in the field. MAE-FETP is working to overcome this conventional perspective on outbreak investigations.

Standard operating procedures to ensure quality

The MAE-FETP model proposes a new vision where epidemiologists in training take the lead in quality investigations, with full technical support from the faculty. Standard operating procedures consist of the classical 10-step approach that goes through four main stages of (1) confirmation, (2) hypothesis-generation (3) hypothesis-testing and (4) prevention measures. Peer-review at all stages of the investigation and reporting is the keystone of the quality assurance process.

> *"It's not how we used to do it: FETP scholars look at symptoms, draw a map and plot an epidemic curve: They have no pre-conceived ideas"*
> Dr KN Tiwari, ex-health officer, Delhi Municipal Corporation

A track record of world class investigations

Since the beginning of the MAE-FETP in 2001, scholars investigated more than 90 outbreaks using analytical epidemiology methods (i.e., case control or cohort studies). The MAE-FETP covered the classical outbreak-prone pathogens in India, including bacteria (e.g., Cholera, anthrax, leptospirosis,), viruses (measles, hepatitis E, Chikungunya), parasites (e.g., malaria, kala-azar) and toxic agents (e.g., organo-phosphorous). Timely investigations led to evidence-based recommendations to reduce morbidity and mortality.

New standards for outbreak management in India

As a result of the MAE-FETP experience acquired in the field, India now benefits from a new technical partner to investigate rumours and outbreaks in the context of the new International Health Regulations (IHR), 2005.

Box 2: Fighting cholera associated with unprotected wells in rural Orissa

Dr Amitav Das, MAE-FETP graduate used rigorous epidemiologic methods to document that un-protected wells spread cholera during two outbreaks in rural Orissa. He then worked with the rural engineering departments to protect old wells and ensure that new ones would be built with protections. Case studies written on the basis of his investigations are now used in the WHO South-East Asia region. Promoted today as state epidemiologist for the National AIDS Control Organization (NACO), his skills are now at work to drive decision making on another emerging public health issue for the state of Orissa.

Surveillance data analyzed and used for action

Integrated disease surveillance: A new opportunity for India

For many years, the surveillance system in India suffered from a number of limitations that limited its usefulness. Public health officials did not trust the quality of the data and did not use it. Today, the Integrated Disease Surveillance Project (IDSP) provides a new opportunity to detect outbreaks and generate information for public health action. But more efforts are needed to ensure that surveillance data is analyzed into information and that the information is used for action.

Surveillance: A key core capacity of the MAE-FETP

Public health surveillance is one of the seven core competencies of the MAE-FETP. Scholars produce two reports: An analysis of secondary surveillance data and an evaluation of a surveillance system. These two mandatory projects build the key attitudes that a public health person needs in terms of surveillance: Knowing everything one can say with the data and everything one cannot say with the data. MAE-FETP graduates are now occupying key positions in IDSP in several Indian states.

> *"Training people according to the same principles and then having them work together as a team. That is how the system improves"*
> Dr GNV Ramana, World Bank, New Delhi

Selected examples of MAE-FETP surveillance projects

Project	Action
• Malaria data analysis in Darjeeling	Change in treatment protocol
• Malaria data analysis in Orissa	Allocation of resources from Global Fund
• Emergency surveillance system for outbreak-prone diseases in tsunami affected areas in Tamil Nadu and Andaman and Nicobar islands.	Detection and containment of outbreaks of measles and rota-virus diarrhea.

Box 3: Avian influenza in Maharashtra and West Bengal

The first outbreak of avian influenza in poultry was reported from Jalgaon, district of Maharashtra in 2006. Dr. Ravi Katti, MAE-FETP graduate 2005 and the State Surveillance Officer played a key role in the containment of the outbreak in the state. He is also a national trainer for state and district Rapid Response Teams for avian influenza outbreak investigations.

The state of West Bengal is at an international crossroad and is key to avian influenza surveillance in India. To combat the threat at its entry point, Dr Asit Kumar Biswas, MAE-FETP graduate 2004, is now assigned to the planning unit of the state public health department. He developed an extensive plan within the government system that now proposes to keep a watch on animal and human disease.

Operational research to serve policy makers with information

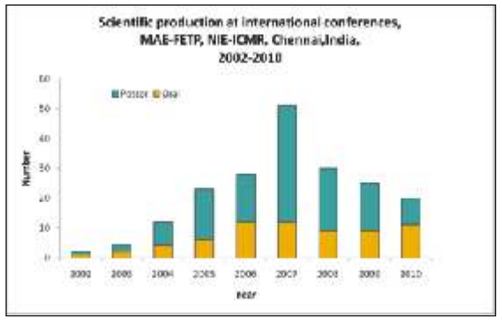
Research questions relevant to local health problems

The process that leads to the right research question is key to the epidemiologic investigation. Scholars do not do a project because they like a topic. They choose a subject because it will generate a body of data that will fill a gap in the information needs, and filling that gap must trigger some kind of action.

"I worked on toxemia in pregnancy because the chief medical officer in my district was concerned and wanted to do something about it"

Dr Sobhan De, MAE-FETP graduate 2006

Technical excellence in applied epidemiology



As of 2009, the MAE-FETP of the National Institute of Epidemiology had reached a total of 55 oral presentations and 120 posters in international conferences. In addition, 50 papers have been published in the peer-reviewed literature, with additional numbers in press and preparation. Most importantly, all MAE-FETP investigations are debriefed at the district and/or the state level to ensure that those who need the information the most can take immediate action.

Examples of MAE-FETP projects with policy implications

Project	Action
Malaria evaluation in Purulia, West Bengal	Use of framework for national evaluation
Leishmaniasis in Chatrakhali, West Bengal	Funds allocation for prevention

Box 4: <u>Diphtheria booster shots are key for protection in Hyderabad, Andhra Pradesh</u>

Starting with a basic mapping of cases, Dr Sailaja Bitragunta, MAE-FETP graduate 2005, wanted to understand the persistence of diphtheria in the city of Hyderabad. She combined descriptive epidemiology, a coverage survey and a case-control study and concluded that boosters are key for protection among children five years of age and above. This was particularly true for minorities who initially participate in immunization activities but get lost to follow up. On the basis of this evidence, additional resources were invested to increase booster coverage, which is now considered as a key monitoring and evaluation indicator.

Evidence and information to strengthen health systems

A recent mobilization for public health training in India

In India, with the exception of a few apex institutions, physicians get promoted from clinical to administrative jobs with little public health training. Now the country is mobilized to catch up and develop a strong cadre of public health professionals.

Bringing scholars to a whole new different way of thinking

One can teach facts (e.g., malaria is transmitted by mosquitoes), skills (e.g., analyze data in the computer) and attitudes (e.g., appetite for peer review and scrutiny). The MAE-FETP training focuses on fostering pertinent skills and positive attitudes more than the facts so as not to clog the minds with unnecessary elements.

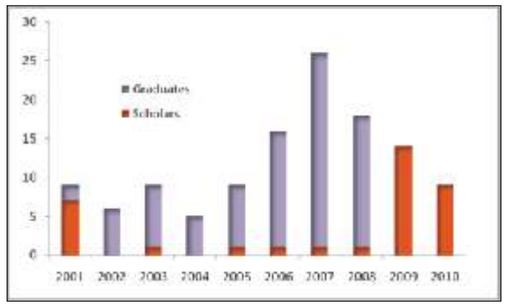
"We were administrators. Now we look at data to guide action"

Dr Puran Sharma, MAE-FETP graduate 2005

23 current scholars and 87 MAE-FETP graduates in 2010

The MAE-FETP workforce is available throughout India and a strong word of mouth effect leads to an increase in the number of applications year after year.

The state of West Bengal decided to ensure that each district would have at least one MAE-FETP graduate assigned to the department of public health.



A cadre of graduates who use data for decision-making

After eight years, the MAE-FETP has constituted a network of experts. State governments now recognize this expertise, support scholars and developed new career plans for graduates.

Box 5: <u>Improving the performance of female community health workers in West Bengal</u>

As a former manager, Dr Dipankar Maji, MAE-FETP graduate 2006, did not like to see tasks passed on the sub-centers where over-burdened female health workers constitute the final common pathway of the Indian health system. To improve their effectiveness, he systematically compared those who performed well with others in terms of various factors. His findings suggest that a number of key elements are essential, including sufficient floor space, arrangements for privacy and supportive supervision. However, his study also documented that inefficiency in the heavy documentation process may be an obstacle to health services delivery and should be addressed.

Quality assurance in training

The huge training needs in India

The quantification of the human resource development needs in India lead to large, intimidating figures. Scaled-up training efforts can only happen through standardization, training of trainers and contracting. Thus, many actors are concerned and quality assurance becomes key.

Part of a global network of field epidemiology programmes

The MAE-FETP at NIE is a member of Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET), a global network of 32 field-based training programmes. The aim of TEPHINET is to strengthen international public health capacity through the support and networking of field-based training programs that enhance competencies in applied epidemiology and public health practice.

Areas of strength of the MAE-FETP curricular process

- Regular curriculum review
- Learning by doing approach
- Feedback from scholars to faculty
- Evaluation checklists
- Standardized procedures
- Systematic mentoring assessment

A strong learning system for India

- Trained graduates who can mentor
- Core faculty team of six persons
- Alumni association
- Participation in TEPHINET
- Curriculum on CD-ROM/ Internet
- Continuous quality improvement

Box 6: <u>Mini contact sessions: Rounding up the scholars by states to review field projects</u>

Supportive field supervision is a real challenge, in terms of ensuring quality while covering all scholars with a limited faculty group. Hence came the concept of "Mini-contact" sessions during which scholars are regrouped in the field to review projects at various stages (e.g., protocols, preliminary results, final reports). The group uses various tools (e.g., quality checklists) to review projects and provide input. In addition to improving the efficiency of the supervision process, mini-contact sessions have led to the development of a peer review culture. They have also allowed further professional developments among the graduates who are called in to support these mini-contact sessions in all aspects, from organization to scientific input.

Remaining challenges and future perspectives

Towards a network of institutions running applied epidemiology programmes

After ten years of work and many achievements, the MAE-FETP is still focused on a number of key states (e.g., West Bengal, Orissa, Himachal Pradesh, Manipur). Given the needs in terms of human resources development in India, the strategy is to partner with other institutions running similar programmes such as the Master of Public Health (Field Epidemiology) of the National Institute of Communicable Diseases (NICD). Such partnership would allow scaling up competency-based training programmes to reach similar audiences in other states and other audiences (e.g., District surveillance officers) who need to be trained at a simplified level but according to the same principles.

Distribution of the MAE-FETP graduates, India, 2001-2010

Assignment of the MAE-FETP graduates, India, 2001-2010

Expanding public health training

In order to address the acute shortage of trained public health human resources in the country, ICMR has decided to initiate the public health training by establishing Schools of Public Health. ICMR has also developed a partnership with several national and international institutes involved in public health training. The first ICMR School of Public Health was established at the National Institute of Epidemiology, Chennai in October 2006 and started its Master of Public Health (MPH) programme in July 2008. Like the MAE-FETP, this 2-year MPH programme targets in-service candidates who belong to the health system.

Inauguration of ICMR School of Public Health at NIE, Chennai 2006

Inauguration of MPH (Epidemiology and Health systems) programme, July 2011

In view of the reforms happening under the National Rural Health Mission (NRHM), the flagship health care delivery programme of the country, it was felt necessary to change the course content to align with the health system goals. NIE integrated the MAE-FETP and MPH courses, building on their respective strengths, into a single competency-based- Master of Public Health (Epidemiology and Health Systems) with a focus on applied epidemiology and health systems.

Annexure I

Manuscripts published in peer reviewed journals

1. Ramakrishnan R, Patel MS, Gupte MD, Manickam P, Venkataraghavan S. An institutional outbreak of leptospirosis in chennai, South India. J Commu Diseas. 2003;35:1-8.

2. Sugunan AP, Ghosh AR, Roy S, Gupte MD, Seghal SC. A cholera epidemic among the nicobarese tribe nancowry, Andaman and nicobar, India. Am J Trop Med Hyg. 2004;71(6):822-7.

3. Saravanan S, Manickam P, Ramakrishnan R, Hutin Y, Gupte MD. Estimation of measles vaccination coverage using the lot Quality assurance sampling (LQAS) method Tamilnadu, India, 2002-2003. Morb Mortal Wkly Rep. 2006;55 Suppl:16-19.

4. Sen TK, Biswas AB, Chakrabarty I, Das DK, Ramakrishnan R. et al. Persistence of iodine deficiency in a gangetic flood-prone area, West Bengal, India. Asia Pac J Clin Nutr. 2006;15(4):528-32.

5. Kumar S, Murhekar MV, Hutin Y, Subramanian T, Ramachandran V, Gupte MD. Prevalence of Posttraumatic Stress Disorder in a Coastal Fishing Village in Tamil Nadu, India, After the December 2004 Tsunami. Am J of Public Health. 2007;97(1):99-101

6. Sugunan A, Roy S, Murhekar MV, Naik T, Sehgal S. Outbreak of rotaviral diarrhoea in a relief camp for tsunami victims at Car Nicobar Island, Indian J Public Health. 2007; 29:449-50.

7. Bitragunta S, Murhekar MV, Hutin YJ, Penumur PP, Gupte MD. Persistence of diphtheria, Hyderabad, India, 2003-2006. Emerging Infectious Diseases 2008;14: 1144-6.

8. Sharma PK, Ramakrishnan R, Hutin YJ, Gupte MD. Increasing incidence of malaria in Kurseong, Darjeeling district, West Bengal, India, 2000-2004. Transactions of Royal Society of Tropical Medicine and Hygiene. 2008;9:9

9. Kaur P, Manickam P, Murhekar MV, Ramachandran V, Ramachandran R, Raju HK, Perumal V, Mishra AC, Gupte MD. Chikungunya outbreak, South India, 2006. Emerging Infectious Diseases 2008;14: 1623-5.

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11. Bhunia R, Hutin Y, Ramakrishnan R, Pal N, Sen T, Murhekar M. A typhoid fever outbreak in a slum of South Dumdum municipality, West Bengal, India, 2007: Evidence for foodborne and waterborne transmission. BMC Public Health 2009; 5: 115

12. Bhunia R, Hutin Y, Ramkrishnan R, Ghosh PK, Dey S, Murhekar M. Reducing Use of Injections Through Interactional Group Discussions A Randomized Controlled Trial. Indian Pediatr. 2009; Sep 3 [Epub ahead of print]

13. Bhunia R, Ramakrishnan R, Hutin Y, Gupte MD. Cholera outbreak secondary to contaminated pipe water in an urban area, West Bengal, India, 2006. Indian J Gastroenterol. 2009; 28:62-4.

14. Das A, Manickam P, Hutin Y, Pal BB, Chhotray GP, Kar SK, Gupte MD. An outbreak of cholera associated with an unprotected well in Parbatia, Orissa, Eastern India. J Health Popul Nutr. 2009; 27:646-51.

15. Das A, Manickam P, Hutin Y, Pattanaik B, Pal BB, Chhotray GP, Kar SK, Gupte MD. Two sequential outbreaks in two villages illustrate the various modes of transmission of cholera. Epidemiol Infect. 2009; 137:906-12.

16. Martolia HC, Hutin Y, Ramachandran V, Manickam P, Murhekar M, Gupte M. An outbreak of hepatitis E tracked to a spring in the foothills of the Himalayas, India, 2005. Indian J Gastroenterol. 2009;28:99-101.

17. Murhekar MV, Bitragunta S, Hutin Y, Chakravarty A, Sharma HJ, Gupte MD. Immunization coverage and immunity to diphtheria and tetanus among children in Hyderabad, India. Journal of infection 2009;58(3):191-6.

18. Panda M, Hutin Y, Ramachandran V, Murhekar M. A fatal waterborne outbreak of pesticide poisoning caused by damaged pipelines, Sindhikela, Bolangir, Orissa, India, 2008, Journal of Toxicology 2009

19. Ray TK, Hutin YJ, Murhekar MV. Cutaneous Anthrax, West Bengal, India, 2007. Emerging Infectious diseases 2009;15:497-8.

20. Saha S, Ramachandran R, Hutin YJ, Gupte MD. Visceral leishmaniasis is preventable in a highly endeic village in West Bengal, India. Trans R Soc Trop Med Hyg. 2009; 103:737-42.

21. Sarkar J, Murhekar MV, Shah NK,Hutin Y. Risk factors for malaria deaths in Jalpaiguri district, West Bengal,India: evidence for further action. Malaria Journal 2009; 8: 133.

22. Seyler T, Hutin Y, Ramanchandran V, Ramakrishnan R, Manickam P, Murhekar M. Estimating the burden of disease and the economic cost attributable to chikungunya, Andhra Pradesh, India, 2005-2006. Trans R Soc Trop Med Hyg. 2009; Aug 25

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27. Swain SK, Baral P, Hutin Y, Venkat Rao T, Murhekar MV, Gupte MD. A hepatitis E outbreak caused by a temporary interruption in a municipal water treatment system, Baripada, Orissa, India, 2004. Trans R Soc Trop Med Hyg 2010; 104: 669.

28. Takum T, Gara D, Tagyung H, Murhekar MV. An Outbreak of Pertussis in Sarli Circle of Kurung kumey District, Arunachal Pradesh, India. Indian Pediatr. 2009;46(11);1017-20.

29. Murhekar M, Moolenaar R, Hutin Y, Broome CInvestigating outbreaks: practical guidance in the Indian scenario. Natl Med J India. 2009 Sep-Oct;22(5):252-6.

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32. Murhekar MV, Shah NK. Research funding in India: need to increase the allocation for public health. Indian J Med Res. Indian J Med Res. 2010; 132:224-5.

33. Bitragunta S, Murhekar MV, Chakravarti A, Verma V, Namjoshi GS, Parekh SS, Sharma HJ, Kumar BK, Gupte MD. Safety and immunogenicity of single dose of tetanus-diphtheria (Td) vaccine among non/partially immune children against diphtheria and/or tetanus, Hyderabad, India, 2007. Vaccine. 2010;28(37):5934-8

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42. Murhekar MV, Hutin YJ, Ramakrishnan R, Ramachandran V, Biswas AK, Das PK, Gupta SN, Maji D, Martolia HC, Mohan A, Gupte MD. The heterogeneity of measles epidemiology in India: implications for improving control measures. J Infect Dis. 2011 Jul;204 Suppl 1:S421-6.

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Annexure II

Presentations at international meetings

2002

The Second TEPHINET global conference, June 26, 2002 Madrid, Spain

Oral presentation

Ramakrishnan R, Kumar SS, Manickam P, Venkataraghavan S, Gupte MD, Patel MS. An institutional outbreak of leptospirosis during a drought in Chennai, South India.

XVI World Epidemiology Congress; 11-15 Aug 2002; Montreal, Canada

Poster presentation

Saravanan S, Kumar S, Rao TV, Gupte MD. Dengue outbreak in Chennai city.

2003

Second South-East Asia and Western Pacific Bi-Regional TEPHINET Scientific Conference at Boracay, Philippines 24-28 November 2003

Oral presentations (2)

Ramakrishnan R, Naik HK, Parvathy S, Gupte MD. An Outbreak of typhoid fever in a village in Tamilnadu South India.

Parvathy S, Krishnamurthy P, Ramachandran V, Gupte MD. Maternal Mortality in Tamil Nadu - A descriptive study.

Poster presentations (2)

Pradhan MM, Gupta M, Gupte MD. Overview of Multi-Disease Surveillance System in Orissa State of India.

Ramachandran V, Gupte MD. Evaluation of Short Term Epidemiology training Programme for Surveillance, Epidemic preparedness and Response in India.

2004

The Third TEPHINET Global conference, 8-12 Nov 2004, Beijing, China

Oral presentations (4)

Saravanan S, Manickam P, Ramakrishnan R, Gupte MD, Coverage Evaluation of the Measles Immunization, by Lot Quality assurance Sampling (LQAS) Method, Poondi Primary Health Centre, Tiruvallur District, Tamilnadu, India, 2003.

Biakthansangi, Ramachandran V, Manickam P, Gupte MD. Prevalence, awareness, treatment status treatment status, knowledge & practices of hypertension among adults aged 30 years above, Aizawl, Mizoram.

Das A, Rao TV, Gupte MD. Investigation of an outbreak of Cholera in a community Parbatia, Dhenkanal, Orissa.

Mohan A., Manickam P, Gupte MD. Epidemiology of unintentional injury in a rural community, Trichirappali district.

Poster presentations (8)

Saravanan S, Manickam P, Ramakrishnan R, Gupte MD. Factors associated with default among new sputum positive pulmonary tuberculosis patients treated in Revised National Tuberculosis Control Programme (RNTCP) - Directly Observed Treatment Short course (DOTS) strategy, Tiruvallur district, India.

Biakthansangi, Ramachandran V, Gupte MD. Evaluation of national anti-malaria programme, Aizawl district, Mizoram.

Mohan A, Radhakrishnan R, Dhanapal, Manickam P,Gupte MD. Outbreaks of cholera Central Tamil Nadu, 2002.

Mehta VK , Ramachandran V, Manickam P, Gupte MD. Anemia in urban and rural school girls of Shimla district, Himachal Pradesh.

Chakma T, Rao PV, Meshram PK, Singh SB, Babu, Ramachandran V. Gupte MD. Reversal of bony deformities due to fluorosis in a village of Madhya Pradesh, Central India.

Martolia HCS, Ramachandran V, Gupte MD. Outbreak Investigation of unknown fever with rash in a remote village District, Uttaranchal, India April 2004.

Das KK, Rao TV, Gupte MD. Factors affecting utilization of childhood immunization services in Khurda district, Orissa, 2003.

Parvathy S, Ramachandran V, Gupte MD, Krishnamurthy P. Evaluation of Rural malaria surveillance system, Saidapet Health Unit District, Tamilnadu, 2003.

2005

The Third Southeast Asia and Western Pacific Bi-Regional TEPHINET Scientific Conference; 9-12 Jan 2005, Chennai, India

Oral presentations (5)

Martolia HCS. An outbreak of Hepatitis E in Mehragaon village, Uttaranchal, India 2005.

Solanki SS, Ramachandran V, Rao TV, Kaur P, Gupte MD. Prevalence of risk factors for Cardio Vascular Diseases among industrial workers in Chennai city.

Pramanik T, Ramakrishnan R, Gupte MD. Food poisoning outbreak following a religious festival in Mathabhanga-II block, Coochbehar district, West Bengal, India, 2005.

Roy D, Hutin Y, Saha S, Murhekar MV, Gupte MD.A food-borne gastroenteritis outbreak in Kultikri village, West Medinipur, West Bengal, 2005.

Das A, Rao TV, Ramachandran V, Gupte MD. Anemia and its causes among pregnant mothers in the Dhenkarnal district of Orissa, India 2004.

Swain SK, Panigrahi SR, Das MN, Baral P, Hutin Y. Vitamin A supplementation improves sputum conversion among new sputum positive pulmonary TB patients treated with DOTS in Orissa 2004-05.

Poster presentations (14)

Biswas AK An outbreak of measles in Jhalda I, Purulia district, West Bengal, India, 2005.

Pradhan MM, Ramakrishnan R, Manickam P, Rao TV, Gupte MD. Factors associated with the suspected cutaneous anthrax outbreak among humans in a tribal area of Koraput district, Orissa (India), 2002.

Saha S, Ramakrishnan R, Gupte MD. Cholera outbreak at Kachua village of Magrahat-I block, South 24 Parganas, West Bengal, India, 2005.

Sailaja B, Murhekar MV, Hutin, Ramana SP, Reddy S, Gupte MD. Using epidemiological data to improve the water supply system and curtail a waterborne outbreak of hepatitis E in Hyderabad, India 2005.

Sharma PK, Ramakrishnan R, Gupte MD. Outbreak investigation of malaria in the Naxalbari block of Darjeeling district of West Bengal, India.

Mohan A, Murhekar MV, Hutin Y et al. An outbreak of measles in a highly vaccinated population following the tsunami in Tamilnadu, India, 2004-05.

Kumar S, Murhekar MV, Hutin Y et al. Prevalence of post-traumatic stress disorder (PTSD) in a Tamil village following the Asian Tsunami, March 2005.

Parvathy S, Ramachandran V, Gupte MD. Effectiveness of liquid iron alone with folic acid on hemoglobin status of children aged 6-35 months, rural area, Tamil Nadu, 2003: a double blind randomized comparative trial.

Das KK, Rao TV, Ramachandran V, Murthy BN, Gupte MD. Evaluation of National Immunization Programme by 30 cluster survey method, Mendhasal Primary Health Centre, Khurda district, Orissa, India 2003.

Saha S, Ramakrishnan R, Gupte MD. Evaluation of Kala azar (Visceral leishmaniasis) control programme in South 24 Parganas district, West Bengal, India.

Sen TK, Das DK, Ramachandran V, Ramakrishnan R. Persistence of gaps in case detection in the tuberculosis control programme in Gangetic West Bengal, India, 2004.

Chakma T, Ramachandran V, Sisodiya R, Gupte MD. Health profile of Madhya Pradesh and the National Health and Millennium Goals an assessment.

Halder D, Murhekar MV, Gupte MD. Situation analysis of acute diarrheal diseases.

Roy G, Manickam P, Gupte MD. Evaluation of the de facto surveillance system for HIV infection at Shyampur I Block under Kamalpur Block Primary Health Centre, District Haora, West Bengal.

54th Annual Epidemic Intelligence Service (EIS) Conference; 11-15 Apr 2005, Atlanta, USA

Oral presentation

Swain SK, Rao TV. An outbreak of Hepatitis E Caused by a contaminated water supply in Baripada, Orissa, India 2004.

Poster presentations (2)

Sen TK, Sarkar K, Das D, Ramachandran V, Gupte MD. Persistence of gaps in case detection in the tuberculosis control programNorth 24 Parganas district, West Bengal, India, 2004.

Martolia HCS. Outbreak of measles in Nai, a remote village of Uttaranchal, India, December-2004.

2006

55th Annual Epidemic Intelligence Service (EIS) Conference; 24-28 Apr 2006, Atlanta, USA

Poster presentation

Chakma T, Ramachandran V, Gupte MD. Iron supplementation reduces anemia and improves performance among adolescent tribal girls in central India.

The Fourth TEPHINET Global conference, 3-7 Nov 2006, Brasilia, Brazil

Oral presentations (12)

Biswas AK et al. Increased financial accessibility and targeted education messages could increase the ownership and use of bednets in Purulia district, West Bengal, India, 2005.

Halder D. et al. A cholera outbreak in an urban slum, West Bengal, India: The importance of washing utensils with clean water and the danger of contaminated tube well water.

Roy G et al. Low prevalence of arsenicosis in Shyampur II block of West Bengal could be due to successful implementation of mitigation programme, 2005.

Kaur P et al. An outbreak of Chikungunya fever in Avadi, Thiruvallur district, Tamil nadu, South India,2006.

Lalmalsawma, P et al. Vitamin A deficiency worsened despite supplementation among pre-school children in rural Mizoram, North-eastern India, December 2004.

Panda MB et al. Unsafe injection practices cause of injection abscess in two villages of Bolangir district, Orissa, India, 2006.

Mehta VK et al. Persistence of consumption of non-iodized salt in rural areas, Solan District, Himachal Pradesh, India, 2005.

Bhunia R et al. Contaminated pipe-water was a probable cause cholera outbreak in a semi-urban area in West Bengal, India.

Saha, S et al. An accumulation of visceral leishmaniasis cases in Chatrakhali, Canning, West Bengal, India: Need to develop new case finding strategies.

Saha, S et al. Leishmaniasis is preventable in a highly endemic village of the South 24 Parganas district, West Bengal, India.

Sen Tapas K et al. Limited access to iodized salt among the poor and the disadvantaged in the "North 24 Parganas" District of West Bengal, India, 2005.

Swain SK et al. Cholera caused by pirated connections on a rural water supply pipeline system, Eastern India, 2003.

Poster presentations (15)

Das A et al. Two sequential outbreaks in two villages illustrate the various modes of transmission of cholera in Eastern India, 2005.

Patnaik B et al. Hepatitis among children Pada community, Dhenkanal district, Orissa, India 2005.

Debasis R et al. Performance gaps in blindness prevention, Haora district, West Bengal, India, 2006.

Martolia HCS et al. Drinking water is the sole factor associated with caries among schoolchildren in Uttaranchal, at the foot of the Indian Himalayas.

Kaur P et al. Increased prevalence of cardiovascular risk factors among male shift workers in an industrial unit in Chennai, Tamil Nadu, India,2005.

Manickam P et al. Chikungunya fever outbreak in Mallea village, Kadapa district, Andhra Pradesh, India, 2006.

Panda M et al. Outbreak of Hepatitis A cases in village Bhalumunda of Bolangir district, Orissa, India, 2006.

Panda M et al. Outbreak of Mumps cases in three adjacent villages of Bolangir district, Orissa, India, 2006.

Murhekar MV et al. Medicines must be used rationally to manage Chikungunya patients, Andhra Pradesh, India, 2006.

Lalmalsawma P et al. Prevalence of Vitamin A Deficiency Among Pre-School Children in a Rural Area of Mizoram, North-East India, December 2004.

Jain PK et al. High use rates of tobacco among adolescents in rural areas of the Indian state of Uttaranchal, 2004-2005: The role of fathers.

Ramachandran V et al. Causes and Associated Determinants of Infant Mortality (IM) in Tiruvannamalai District, Tamilnadu, India.

Saha, S et al. The danger of using dirty pond water for personal hygiene during a cholera outbreak, Kachua, South 24 Parganas District, West Bengal, India, 2004.

Sen TK. Better, homogeneous case detection is needed to control urban malaria in Kolkata metropolis -West Bengal, India.

Sisodiya R et al. Unsafe water supply leading to an outbreak of gastro-enteritis in a nursing students hostel -Indore , Madhya Pradesh, India,2006.

2007

56th Annual Epidemic Intelligence Service (EIS) Conference; 16-20 Apr 2007, Atlanta, USA

Poster presentations (4)

Sharma PK, Ramakrishnan R, Hutin Y, Barui AK, Manickam P, Gupte MD. A Case-Control Study To Identify Risk Factors for Typhoid in Darjeeling, West Bengal, India, 20052006: Evidence for Practical Action.

Roy D, Murhekar MV, Hutin Y, Gupte MD. Surveillance in the Public Sector Captures Only a Small Fraction of Measles Cases in Howrah District, West Bengal, India, 2005.

Panda M, Ramachandran V, Gupte MD. A Fulminating Food Poisoning Caused by *Bacillus cereus* in Village Kuhabaus of Bolangir District, Orissa, India, 2006.

Bitragunta S, Murhekar MV, Hutin Y, Prasad PP, Gupte MD. Persistence of Diphtheria in Hyderabad, the Capital of Andhra Pradesh State, India: Importance of Booster Doses.

The Fourth Southeast Asia and Western Pacific Bi-Regional TEPHINET Scientific Conference; 26-30 Nov, 2007, Taipei, Taiwan

Oral presentations (11)

India FETP Measles working group. The heterogeneity of measles epidemiology in India: Comparing outbreaks from two states with different vaccine coverage.

Mohapatra PK et al. Increased breeding of Anopheles minimus in slow running streams during an outbreak of malaria in North Lakhimpur, Assam, India.

Mohapatra PK et al. A therapeutic efficacy trial of sulphadoxine / pyrimethamine alone and in combination with artesunate in uncomplicated falciparum malaria cases in Miao area of Changlang, Indo-Myanmar border district, Arunachal Pradesh, India.

Singh B. et al. Hepatitis A outbreak due to contamination of drinking water supply, Shimla city, Himachal Pradesh, India, 2006-07.

De S. et al. An outbreak of measles in Kantadih village, Purulia district, West Bengal, India, 2007

Maji D et al. Malaria surveillance in Kolkata does not detect clusters and cannot identify areas for targeted intervention-Kolkata, India, May-2007.

Katti R et al. Risk levels of vector indices for Dengue are poor surrogates for predicting chikungunya outbreaks.

Pramanik T et al. High frequency of suicide among socio-economically disadvantaged cultivators, Coochbehar, West Bengal, India, 1996-2005.

Bitragunta S et al. Evaluating the universal immunization programme in Hyderabad, India.

Roy D et al. Hospital based active surveillance of road traffic injuries and deaths in the Howrah district, West Bengal, India 2006.

Swain SK et al. Staphylococcal food poisoning caused by food handlers in a marriage ceremony gathering in an Eastern State of India, June 2006.

Poster presentations (38)

Ramachandran V et al. High prevalence of Iodine Deficiency Disorders (IDD) among rural school children aged 6-12 years in coastal district of Tamilnadu, South India, 2007.

Ramachandran V et al. Iron deficiency anemia is very high among rural school children aged 6-12 years in two districts of Tamil Nadu, South India, 2007.

Singh B et al. Training needs hamper progress of Integrated Disease Surveillance Project (IDSP) in Himachal Pradesh, India, during 2006.

De S et al. Weak health education and lack of supervision challenge lymphatic filariasis elimination in Purulia district, West Bengal, India, 2007.

Sharma PK et al. A multi-factorial outbreak of malaria in Darjeeling district, India, 2005-2006.

Sharma PK et al. Clean environment, personal protection and hygiene could contribute to scrub typhus prevention in Darjeeling, West Bengal, India, 2005.

Sharma PK et al. Lack of access to public health care, shift towards unqualified private providers and malaria deaths in Jalpaiguri district, West Bengal, India, 2006.

Sharma PK et al. Climatic factors and increasing malaria transmission in Kurseong, Darjeeling district, West Bengal, India, 2000-2004.

Rudra S et al. A cholera outbreak in a village of West Bengal, India, 2006: The danger of using ponds for soiled clothes disposal.

Rudra S et al. Poor knowledge of health workers is an obstacle to leprosy deformity prevention in the South 24-Parganas district, West Bengal, India, 2006.

Das PK et al. Unprotected well continue to cause cholera outbreaks in West Bengal, India, 2006.

Das PK et al. Measles surveillance in Purulia, West Bengal, India suffers from low sensitivity and failure to capture sporadic cases.

Das PK et al. Using surveillance data to control malaria in Boudh district, Orissa, India, 2006.

Mitra S et al. Leaking drinking water pipeline led to diarrhea outbreak in Barrackpur, North 24 Parganas, West Bengal, India 2007.

Ray TK et al. Cutaneous anthrax outbreak in a village of West Bengal, India, 2007: The danger of unsafe handling of infected dead cow.

Chander S et al. Success of Revised National Tuberculosis Control Programme, District kullu, Himachal Pradesh, India 2006-07.

Gupta SN et al. An outbreak of Rubella in a hilly district of Chamba, Himachal Pradesh, India, 2006.

Bhunia R et al. Poor data transmission limited outbreak detection in urban areas of the North 24 Parganas district, India, 2006-2007.

Saha S et al. Poor population screening, lack of vector control and limited bednet coverage weakened the visceral leishmaniasis control programme in the South 24 Parganas District, West Bengal, India, 2005.

Saha S et al. Contaminated Rural Pipe-Water supply System was a Probable Cause of Cholera Outbreak in Jhawkhali village, North 24 Parganas district, West Bengal, India, 2007.

Saha S et al. Chikungunya fever outbreak in Ramchandrapur village, North 24-Parganas district, West Bengal, India, 2006.

Saha S et al. Outbreak of measles in village Chandanvati, Bolangir district, Orissa, India, 2007.

Chakma T et al. Enhanced Malaria Control Programme (EMCP) reduces Malaria incidence among tribal population in Mandla district, Madhya Pradesh.

Chakma T et al. Factors associated with high compliance during Iron Folic Acid (IFA) supplementation in a tribal area of Madhya Pradesh.

Chakma T et al. Low immunization coverage in a tribal area of Madhya Pradesh, India 2005.

Panda M et al. Prevalence of cardiovascular risk factors in a rural population, Orissa, India using WHO STEPs surveillance.

Panda M et al. A cluster of accidental organophosphorous poisoning cases due to inhalation of pesticides in a village, Orissa, India, 2006: a public health problem that calls for immediate, integrated and intense intersectoral coordination.

Panda M et al. Outbreak of measles in village Chandanvati, Bolangir district, Orissa, India, 2007.

Sen TK et al. Use of Geographical Information System (GIS) helped to control dengue outbreak in Kolkata metropolitan city, West Bengal, India, 2005.

Sen TK et al. Epidemiological tool enabled Jalpaiguri district to detect and predict malaria epidemic, West Bengal, India, 2007.

Halder D et al. Low coverage of cataract surgical services in the South 24 Parganas district, West Bengal, India.

Roy G et al. Contaminated municipality-water was a probable cause for cholera outbreak in an urban slum area in West Bengal, India, April 2007.

Pradhan MM et al. An outbreak of falciparum malaria in a low transmission area of Orissa, India, 2007.

Pradhan MM et al. Using surveillance data to control malaria in Boudh district, Orissa, India, 2006.

Mehta VK et al. Better knowledge of symptoms and awareness about availability of treatment could improve cancer management, in the Hamirpur district of Himachal Pradesh, India 2005.

Das A et al. Face mask use may prevent chickenpox among non immunized population, Parikheda village, Orissa, India 2006.

Lalmalsawma P et al. Malnutrition remained prevalent among pre-school children in rural Mizoram, North-East India, December 2004.

Das KK et al. An outbreak of hepatitis A caused by contaminated well water from a religious place in Dihapur, Orissa, India, 2006.

2008

57th Annual Epidemic Intelligence Service (EIS) Conference; 14-18 Apr 2008, Atlanta, USA

Oral presentation

Roy TK. Cutaneous Anthrax Outbreak In A Village Of West Bengal, India, 2007: The Danger Of Unsafe Handling Of Infected Cow Meat.

Poster presentation

Rudra S. Mothers and health workers can influence adolescent girls with reproductive tract infection for them to seek care in government facilities, South 24-Parganas, West Bengal, India, 2007.

The Fifth TEPHINET Global conference, 3-7 Nov 2008, Kuala Lumpur, Malaysia

Oral presentations (9)

Kumar O et al. Consumption of contaminated water from a local water source - 'a Bawri' leads to An Outbreak of Hepatitis A in a scarcely populated hilly village, Sharair near Shimla, Himachal Pradesh, 2007.

Panda M et al. A fatal waterborne outbreak of pesticide poisonings caused by damaged pipelines, Sindhikela, Bolangir, Orissa, India, 2008.

Pradhan MM et al. An outbreak of falciparum malaria in a low transmission area of Orissa, India, 2007.

Ray TK et al. Measles outbreak in a remote village of West Bengal, India, 2007.

Sagolsem Ibungochouba et al.An outbreak of scrub typhus in Bishnupur district, Manipur State, India, 2007.

Bitragunta S et al. Single dose of diphtheria tetanus (Td) vaccine is immunogenic among school children in Hyderabad, India, 2007.

Sood RK et al. Contaminated water from shallow Hand pump leads to Salmonella Typhii outbreak inVillage Darnu, District Kangra, Himachal Pradesh, India: 2007.

Bhunia R et al. Danger of Drinking Contaminated Piped Water in a Municipality of West Bengal, India, 2007.

Roy G et al. Containment of two epidemiologically linked outbreaks of Chikungunya Fever at two blocks of district Howrah, West Bengal, India, October and November 2007.

Poster presentations (21)

Jain P et al. First Time Investigated Cholera Outbreak in the Indian State of Uttarakhand 2007: The Danger of Drinking Unprotected, Untreated Spring Water.

Ray TK et al. Cutaneous anthrax outbreak in a village of West Bengal, India, 2007: the danger of unsafe handling of infected cow meat.

Sagolsem Ibungochouba et al. Treatment delays and low utilization of public health sector among women with reproductive tract infections / sexually transmitted infections -Imphal east district, Manipur, India, 2007.

Saha TK et al. A food borne outbreak of gastro-enteritis in two villages in West Bengal, India, 2007.

Bitragunta S et al. Low immunity against diphtheria and tetanus among school children at Hyderabad, India, 2006.

Sood RK et al. Outbreak of Indian Tick typhus, Deol, District Kangra, India, April -August 2007.

Banik K et al. Safe blood' is it really safe in North 24 Parganas, West Bengal, India, 2007-08.

Bhunia R et al. A Typhoid Fever Outbreak in a Urban Slum of West Bengal, India, 2007: Evidence Suggesting Food Borne Followed by Water Borne Transmission.

Chander S et al. Conventional Iodised Salt Inadequate to meet Increased Iodine demand during pregnancy Need for Higher fortified Salt for Pregnant Women. A Community Based Survey of pregnant women in Kullu town, Himachal Pradesh, North India.

Das PK et al. Inadequate antenatal care and lack of preplanning regarding place of delivery results in poor institutional delivery in Purulia district, West Bengal, India, 2007.

Das PK et al. Accumulated susceptible population due to poor vaccine coverage continues to cause measles outbreak in Purulia district, West Bengal, India, 2006.

De S et al. Adequate prenatal care could prevent adverse outcome among mothers suffering from toxemia in pregnancy in Purulia, West Bengal, India, 2007.

Maji D et al. Improvement of physical facilities in health subcentres and management skill of female health workers can better their performance in a situation of multi-tasking South and North-24 Parganas District, West Bengal, India, 2007.

Maji D et al. Limitations in vector control strategy failed the control of malaria in Kolkata City Kolkata, India, May-2007.

Mitra S et al. Factors associated with infant mortality in rural community of South 24 Parganas District, West Bengal, India, 2007.

Mitra S et al. Leaking drinking water pipeline led to diarrhea outbreak in Barrackpur, North 24 Parganas, West Bengal, India 2007.

Mohapatra PK et al. Evaluation of chloroquine and sulphadoxine/pyrimethamine therapy in uncomplicated falciparum malaria North Lakhimpur district, Assam, India, 2006.

Mukherjee R et al. Cholera outbreak occurred due to ill maintained age-old pipelines by a municipality in an urban area - West Bengal, India, August 2007.

Mukherjee R et al. Need for reorientation training in Oral Rehydration Therapy Programme for health workers to reduce morbidity and mortality among <5 yrs. children in a district of West Bengal, India, 2008.

Ningombam S et al. Prevalence and pattern of substance use among the higher secondary school students of Imphal, Manipur, India, 2007.

Rajkumari T et al. Prevalence of Overweight and Obesity among Government employees working in Imphal West district, Manipur, India, 2007.

2009

58th Annual Epidemic Intelligence Service (EIS) Conference; 20-24 Apr 2009, Atlanta, USA

Oral presentation

Sarkar J et al. Towards the elimination of malaria deaths from Jalpaiguri District, West Bengal, India: Evidence for further action.

Poster presentations (3)

Datta K et al. Survey of knowledge, attitude and practices for tuberculosis and Revised National Tuberculosis Control Programme among private practitioners Hooghly, West Bengal, India, 2008

Singh DM et al. Factors associated with default among new sputum-positive tuberculosis patients treated with Directly Observed Treatment Short Course (DOTS) Thoubal District, Manipur, India, 2008.

Katoch V et al. Assessment of drug use in a semi-tribal district of Himachal Pradesh, India, 2008.

The Fifth TEPHINET Southeast Asia and Western Pacific Bi-Regional Scientific Conference; 2-6 Nov, 2009, Seoul, Korea

Oral presentations (8)

Singh B et al. Increasing HIV prevalence amongst high risk populations indicates an imminent transition from low to concentrated epidemic - trends from Himachal Pradesh, India, 2000-07.

Kumar A et al. Chikungunya fever among horticulture labourers in Muchisha Block, South 24 Parganas district, West Bengal. India

Anand PK. Water born Typhoid outbreak in remote village of desert district Pali in Rajasthan, India, 2007

Kumar O et al. Breaking the barriers to establish a low cost Intra-dermal Anti-rabies Clinic (IDRV) in Shimla district of Himachal Pradesh through innovative "Pooling Strategy"- A first in North India.

Biswas DK et al. Contaminated drinking water from a leaking pipe line was probable cause of diarrhea outbreak in an urban area of West Bengal, India, 2008.

Lakhani M et al. Factors associated with leptospirosis in the District Valsad, Gujarat, India, 2008.

Ningombam S et al. An outbreak of Hepatitis E - Khoyathong Polem Leikai, Imphal west district, Manipur, India, 2006.

Patra T et al. Delayed antenatal visit, unsafe breast feeding practices and inadequate care of high risk neonates increases risk of neonatal mortality among tribal community, Orissa, Eastern India, 2008.

Poster presentations (13)

Lakhani M et al. Description and Evaluation of the Leptospirosis Surveillance System, Valsad District, Gujarat-India, 2007.

Singh B et al. Inappropriate clinical use of blood exposes one third of the recipients to unwarranted risks of transfusions: a study from Kangra District, Himachal Pradesh, India, 2008.

Saha T et al. An urban, waterborne outbreak of Shigellosis in Nadia District, West Bengal, India, 2007.

Kumar U et al. Participation of private sector is crucial to improve TB programme performance.

Katoch V et al. Has Directly Observed Treatment (DOT) Improved Outcome for patients with Tuberculosis in semi tribal district Chamba, Himachal Pradesh, India 2003-2007.

Takum T et al. Measles outbreak in an urban locality, Papum Pare district, Arunachal Pradesh, India, 2007.

Kumar O et al. Investigating a death due to Rabies and initiation of containment of the outbreak in a scarcely populated hilly Village, Talai near Shimla, Himachal Pradesh, 2009.

Takum T et al. Determinants of complete childhood immunization, Papum Pare district, Arunachal Pradesh, North East India, 2008.

Datta K et al. Measles outbreak in an urban locality, Hooghly, West Bengal, India, 2008: The consequence of low vaccination coverage.

Ray T. Targeting the poor and the illiterate to control measles in Murshidabad, West Bengal, India, 2008.

Singh B et al. Modified ATP III (Adult Treatment Panel-Third Report) criteria are superior to IDF (International Diabetes Federation) criteria in diagnosis of metabolic syndrome - results from a study among hypertensives.

Kumar O et al. Programme evaluation of the Revised National Tuberculosis Control Programme, RNTCP in Shimla district of Himachal Pradesh, India.

Singh D et al. An outbreak of gastrointestinal illness following consumption of Hawaijar, a traditional fermented soybean, in Kieshamthong locality, Imphal West, Manipur, India, 2008.

2010

59th Annual Epidemic Intelligence Service (EIS) Conference; 20-24 Apr 2009, Atlanta, USA

Oral presentation

Bhunia R, Ghosh S. The Danger of Pirated Piped Water Connections: Post-Cyclonic Cholera Outbreak Sundarban Area of West Bengal, India 2009

TEPHINET 6TH Global TEPHINET Scientific Confeence held on 13th to 17th December 2010 at Cape Town, South Africa

Oral Presentation (9):

Chakraborty AK Et al. Interaction with health workers improved awareness and desired care-seeking practices for childhood illness in Sundarban backward zone, West Bengal, India, 2010.

Touthang J Et al. Factors associated with low institutional delivery in Kangpokpi block, Senapati district, Manipur, India.

Baral P Et al. An outbreak of Cholera due to contaminated pipe water in a developing urban settlement of Mayurbhanj district in Orissa, India, 2009

Thakur JS Et al. Contaminated school water led to diarrhoeal outbreak among Primary School children in Parsha village, District Kullu, Himachal Pradesh, India, 2009.

Guleri R Et al. A mixed Outbreak of Cholera & E.coli in Sanjauli area of Shimla Municipal Corporation, Himachal Pradesh, India, July 2010

Majhi AK Et al. A Randomized controlled assessment of the effect of community based health education campaign on the usage of long lasting insecticide impregnated mosquito nets (LLINs) in Purulia district, West Bengal, India, 2010.

Singh LA Et al. Testing for Human Immunodeficiency Virus among Registered Tuberculosis Patients - Imphal West district, Manipur, India, 2010

Dasmohapatra S Et al. Address poor patients, concerns about side-effects and importance of community care to increase adherence to anti-retroviral therapy, Berhampur, North-Eastern India

Mandal DK Et al. Outbreak of Japanese Encephalitis in a non-endemic district, West Bengal, India, 2008.

Poster Presentation (9):

Mandal ON Et al. Measles outbreak among a minority community in a remote village, West Bengal, India, 2009.

Biswas DK Et al. Outbreak of rubella in urban slums of North Barrackpore municipality district North 24 Parganas, West Bengal, India 2009

Acharya T Et al. High prevalence of Non Communicable Disease risk factors in urban slums of North 24 Parganas district, West Bengal, India, 2010

Mukopadhyay K Et al. Low coverage led to measles outbreak in the tribal village in North 24 Parganas district , West Bengal, India 2008

Mahalakshmi S Et al. Outbreak of pandemic influenza A (H1N1) among children of an orphanage home and further spread among their contacts, Chennai, South India, 2009-10

Biswas S Et al. Factors associated with initial defaulters under Revised National Tuberculosis Control Programme Hooghly district, West Bengal, India, 2010

Gangadhar Parage Et al. Factors associated with non-use of insecticide treated nets in tribal area - Thane district, Maharashtra, India 2010

Datta SS Et al. An outbreak of cholera among mentally retarded females of a Shelter Home, West Bengal, India, May, 2010

2011

International Conference on "Emerging Frontiers and Challenges in HIV/AIDS Research", held on February 5-8, 2011 at Mumbai

Oral presentation

Bhatnagar T et al. The Burden of the HIV Epidemic among Women in Tuensang district, Nagaland, India, 2009

Poster presentation

Chang P Et al. Risk Factors Associated with HIV Infection among the Clients of Integrated Counseling and Testing Centres in Tuensang Sadar Block - Tuensang District, Nagaland, India, 2010