I am delighted to note that the National Centre for Disease Control (NCDC), Delhi is going to bring out a quarterly newsletter. It is a welcome initiative and I congratulate the NCDC for using the medium of a newsletter for dissemination of technical information.

Ministry of Health & FW has decided to undertake upgradation of the NCDC so that it may emerge as a centre of excellence in the field of public health and, thus, play a crucial role in responding to the emerging and re-emerging public health challenges in our vast and diverse country.

As the NCDC grows from strength to strength, it will be called upon to widen its mandate and basket of services to support and strengthen various disease prevention and control programmes at Centre and State levels. Publication of a quarterly newsletter is only one of the important steps in this direction, and I hope that the NCDC will ensure richness, variety and technical quality in the contents of the newsletter so that it turns out to be both informative and useful.

(P.K. Pradhan)

It is very heartening to note that NCDC is bringing out a Quarterly Newsletter. In our busy schedule it is important to find time to keep abreast with the developments in the field of public health and Newsletters are very useful to achieve that.

This inaugural issue of the NCDC Newsletter is coinciding with the launch of the EIS-Like training at NCDC, being organized in close collaboration with CDC, Atlanta USA. I am sure the Newsletter shall be very useful for the EIS scholars and others interested in public health. Every effort should be made to sustain the momentum and further broaden the contents by inviting articles and news updates from various National Programmes, States, Medical colleges and other academic institutions.

I congratulate Director NCDC and the Editorial team for this wonderful initiative and urge them to continuously keep improving its contents and quality.

(Dr. Jagdish Prasad)

**LEAD STORY**

**EIS like training in India**

India is in a state of epidemiological transition. While on one hand diseases associated with poverty and compromised sanitation continue to kill millions every year, on the other hand newer diseases associated with changes in lifestyle and emerging and reemerging infections underscore the vulnerability of our population to these new threats. There is an urgent need therefore to strengthen the existing public health infrastructure through augmentation of disease response, surveillance and programme management capabilities.
The India EIS like training has been conceptualized to complement Government’s strategy to augment availability of skilled epidemiological capacities at the national, state and local levels. It is modeled on the best practices of the United States Epidemic Intelligence Service of “training through service”.

Beginning in 1951, the US EIS programme has successfully trained more than 3000 quality epidemiologists, who are at the forefront of public health in the United States, WHO and other international organizations.

India EIS like training is a competency based specialized training in epidemiology in which trainees shall develop their analytical public health skills while working under field conditions in a public health programme or in a state health department for two years under the technical guidance of experienced mentors. Additionally, this program would complement existing surveillance programs in India, the most prominent being the IDSP, currently implemented throughout India.

This training programme will be run by NCDC, Delhi in close collaboration with the US Centers for Disease Control and Prevention (CDC), Atlanta. A series of consultations with a wide range of public health professionals were held at NCDC in the year 2011 to develop a model for India EIS like training. A compendium of operational guidelines for EIS like training was developed based on these deliberations. The compendium of the training model was approved by the Global Disease Detection (GDD) Steering Committee headed by the Secretary, Health and Family Welfare. The programme aims to train medical doctors with at least 2-years public health experience.

State and Central public health agencies are required to forward the application of their employees interested in this training who, if selected, will be released from their duties for the duration of 2 years. Selection will be based on a highly competitive process over seen by a committee of experts.

Each trainee will be assigned a placement site for the two years. Trainees will complete a prescribed set of public health activities – the Core Activities of Learning (CALs) – to acquire the needed skills of a practicing field epidemiologist.

The CALs include a field investigation, analysis and evaluation of surveillance data, epidemiologic data analysis, oral and written scientific communication, and service to the organization where the officer is placed.

While the trainees will spend most of their time working at their placements, short courses, seminars, and an annual conference to enhance learning will be conducted at NCDC.

Completion of all of the CALs is required for successful completion of the training. Candidates will be obligated to work in public health for a prescribed period of time after completion of the two-year programme.
To begin with, the training programme has 10 vacancies for state sponsored candidates and 2 for self sponsored candidates. The training will be scaled up as the number of assignments with trained and qualified mentors grows.

Based on the guidance as outlined in the compendium, NCDC solicited applications for the first EIS-like Training Programme cohort from all interested candidates in June 2012. Through a two tier screening process 34 candidates were invited to Delhi to participate in an interview with a panel at NCDC from August 9-11, 2012.

Outbreak updates

Outbreak of Acute Encephalitis Syndrome in Bihar, 2012

Between 27 May to 10 July, 2012, 469 cases of acute encephalitis syndrome (AES) and 178 deaths were reported from health facilities at Muzaffarpur, Bihar with case fatality rate of 38.6%. While majority (73%) of the cases were from Muzaffarpur district, other districts were also affected including Sitamarhi, East Champaran, Sheohar, Vaishali, Samastipur and West Champaran. Of the 469 cases, 17 cases were admitted to the various PHCs and the District Hospitals, of which 2 deaths occurred.

The graph on the following page shows the number of cases admitted to the two hospitals in Muzaffarpur - Sri Krishna Medical College & Hospital (SKMCH) and Krishna Devi Devi Prasad Kezriwal Maternity Hospital (KDKMH). The age of the cases ranged from 6 months to 16 years with 92% of them being between 1 & 10 years. 53% of the cases were females and 47% males.

Clinical presentation included sudden onset of convulsions with clenching of teeth and loss of consciousness mostly in the early morning. The cases had no prodrome and no sequelae. Many cases did not have fever. Most (70%) of the cases had no pre-existing illness. Hypoglycemia was a common feature (50% of the observed cases). CSF examination was largely inconclusive.

All the tested sera and CSF samples were found to be negative for IgM antibodies for Japanese encephalitis, Dengue, West Nile, Entero virus 71 and Herpes simplex type 1 virus. Two serum and 12 CSF samples tested for Pan enteroviruses by reverse transcriptase Real-Time PCR (rRT-PCR) technique were also found negative.

Testing for IgM antibodies were found positive for Human Parvovirus B19 (5/7, of which 4 were borderline positive) and Epstein-Barr virus (8/10, of which 7 were borderline positive).

A large majority (84% of the total studied) of these children live in houses that are in close vicinity to the fields and/or fruit plantations thus increasing the chances of their contact with wild rodents, fruit bats as well as various pesticides used therein.

A central team from NCDC and the Kalawati Saran hospital, Delhi which visited Muzaffarpur for outbreak investigation in June recommended that 1) in view of the negative reports for the common etiological agents of AES, other microbial causes should be explored in the laboratory at NCDC, 2) The record maintenance outside the outbreak period needs to be strengthened by the state health system at Muzaffarpur and other districts, and 3) Central teams in future should explore possible zoonotic links to the disease. The need for improving
management of unconscious children especially at PHC level was communicated to the authorities.

AES is reported from many states in India and occurs as outbreaks every year. Due to the high case fatality rate and occurrence primarily among children below the age of ten, it is a cause for much concern and preventable mortality.

Muzaffarpur district in Bihar has been reporting cases of AES among children since 1995 with a high case fatality rate. Last year, there were 147 AES cases and 54 deaths (CFR 36.7%) in the district. All cases occurred during May and June, which coincides with the litchi plucking season in the district. Further studies on the possible links and modes of transmission are underway.

Chikungunya outbreak and the impact of IEC, Jalpaiguri, 2011

An outbreak of Chikungunya fever characterized by joint pain, swelling and rash occurred in the Tuslipara Tea Garden (TG) area under Madarihat block of Jalpaiguri district, West Bengal near Bhutan international Boarder from October 30 to December 6, 2011.

A total of 780 Chikungunya cases (an acute illness characterized by sudden onset of fever with any of the symptoms like headache, backache, photophobia, severe arthralgia and or rash) occurred in the Tea Garden area having 4375 population. Amongst the cases 52% were female and remaining 48% were male. The overall attack rate was 17.8%; rate among female (19%) was slightly higher than among males (16%). Age specific attack rate was highest among the adult population of 15-64 years age group (20.2%) followed by 0-14 years age group (16%) and 65 and above age group (5.5%).

Six out of twenty samples were found to be Chikungunya reactive serologically at the School of Tropical Medicine, Kolkata. Entomological investigation revealed that *Aedes aegypti* was predominantly present and the main breeding sources were the domestic and peri-domestic containers like cement tank, plastic containers, metal containers, tiers, earthen pots, tree stumps and discarded containers.

Initially, the House Index (HI) was 78.4% and Container Index (CI) was 80.8% and both were much higher than the threshold values (20% and 25%) respectively) Both the indices started to decline with continuous containers cleaning in a weekly ‘Pulse’ mode.

The weekly ‘Pulse’ cleaning means cleaning of all containers having water in the domestic and peri-domestic area on a specific day of the week for consecutive four weeks. Weekly pulse cleaning was done by deploying manpower from health sector and other local bodies.
Several teams were formed, each assigned to clean at least 40 households on the day and motivate the household members to do the same. As a result, number of cases also started to decline. Prompt control measures indicate that the ‘weekly pulse cleaning’ and covering all the potential (man-made) breeding sites of mosquitoes played a crucial role in controlling the transmission of the disease in the outbreak affected area within a month with a comparatively decreasing attack rate.

Contributed by: Satinath Bhuniya, District Epidemiologist, Debasis Mandal, Dy. CMOH-II & DSO and Aparna Dutta, Data Manager, DSU, Jalpaiguri, West Bengal.

NCDC Highlights

Integrated Disease Surveillance
To further strengthen the system of early detection and rapid response to outbreaks in the country, the Government of India launched in 1997 the national surveillance programme for communicable diseases initially in 5 districts. This was then expanded to 101 districts in 2004 when it was merged with the Integrated Disease Surveillance Project (IDSP).

Supported by World Bank, the IDSP initially envisaged data collection both on communicable and non-communicable diseases. However, based on the recommendations of the international and national experts, the project focus from 2007 onwards was on epidemic prone diseases. At present, IDSP is being implemented with national funds. Much progress has been made so far, in
particular in establishing surveillance units in all states and districts in the country.

In the area of human resources, as of August 2012, 301 epidemiologists, 61 microbiologists and 22 entomologists have been recruited on contract under IDSP. In collaboration with National Informatics Centre (NIC) and Indian Space Research Organization (ISRO), connectivity has been established with all the states, districts and many medical colleges through an information technology network spanning 776 sites throughout the country.

Laboratory capacity was strengthened in 50 districts for the diagnosis of epidemic prone diseases. In 9 states, referral laboratory network has been established in collaboration with medical colleges and other major centres. In addition, a network of 12 labs has been established for influenza surveillance in the country. The data reported by health care workers, clinicians and lab staff on weekly basis are analysed and used for public health action through rapid response teams.

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Presently, more than 90% districts in the country are reporting weekly data on epidemic prone diseases through email or portal.

In addition, states and districts have been asked to notify disease outbreaks immediately. As a result, there has been a gradual increase in the number of outbreaks reported and responded to through IDSP system over the years. During 2008, 553 outbreaks were reported and this number increased to 1675 in 2011. Earlier, only a few outbreaks were reported by states and union territories.

The weekly outbreak report is shared with all stakeholders and is available also in the IDSP portal [www.idsp.nic.in](http://www.idsp.nic.in). Regular video conferencing is used to monitor project implementation and to discuss programmatic and technical issues.

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This is helping greatly in rapid data transfer, video conferencing and distance learning activities. A one-stop portal provides facility for data and trend analysis and free technical documents such as guidelines and training materials relating to disease surveillance.

A 24/7 call centre established in 2008 provides a medium to receive from the field alerts on disease outbreaks or unusual events through a toll-free telephone number. The facility was used extensively during H1N1 influenza pandemic in 2009.

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To test the strategy a pilot project on prevention and control of human rabies has been carried out as “New Initiative” under 11th Plan in 5 cities with NCDC as nodal agency. The objectives of the project were prevention of human deaths due to rabies, enhance awareness in general community, develop trained health manpower, strengthen diagnostic facilities, strengthen surveillance and maintenance of continuous surveillance and sensitization of other sectors.

Under this project, wound management, intra-dermal Post-exposure prophylaxis (PEP vaccination, and IEC activities have been augmented. Much focus has been on creating awareness in general community.

In addition, one laboratory in each pilot project city has been strengthened, surveillance has been strengthened and interface has been developed with veterinary sector. Experience gained in implementation of pilot project on prevention and control of human rabies indicates that strategy is feasible, reproducible and implementable.

Attempt is now being made to march ahead and roll out a comprehensive strategy for control and eventual elimination of human rabies throughout the country. The plan will include strengthening of PEP to prevent human deaths in all States/UTs, operationalization of cost effective and efficacious intradermal route, extension of rabies treatment facilities to peri-urban/rural areas, and active involvement of NGOs and community through strengthened intersectoral coordination and vaccination of stray dogs.

Centre for AIDS & Related Diseases receives NABL Accreditation

Centre for AIDS and Related Diseases at NCDC received NABL (National Accreditation Board for Testing and Calibration) accreditation on 29 November 2011 conforming to ISO 15189:2007 Standard. Laboratory accreditation uses criteria and procedures specifically developed to determine technical competence. NCDC is amongst the few laboratories in the Public Sector in Delhi to receive this distinction. NACO and CDC provided the necessary support in this achievement.

Specialist technical assessors conduct a thorough evaluation of all factors in a laboratory that affect the production of test data. The criteria are based on the international standards called ISO 15189, which are used for evaluating laboratories throughout the world.

Laboratory accreditation bodies use this standard specifically to assess factors relevant to the laboratory’s technical competence, validity and appropriateness of test methods, traceability of measurements and calibrations to national standards, suitability, calibration and maintenance of test equipment, testing environment, sampling, handling and transportation of test items and quality assurance of test and calibration data.

Laboratory accreditation aims at assuring laboratory and customers that laboratory’s test results are accurate and reliable. Laboratory accreditation is highly regarded both nationally and internationally as reliable indicator of technical competence. Mutual Recognition Agreements (MRAs) among the countries enable test data produced by accredited laboratories to be accepted between these countries.
A Joint ICMR- NCDC- NVBDCP-NDMA-CDC Workshop on Public Health and Research Priorities on Japanese Encephalitis / Acute Encephalitis Syndrome was held at Sanjay Gandhi Postgraduate Institute of Medical Science (SGPGI), Lucknow, Uttar Pradesh from 24th – 26th May, 2012

The objectives were to develop a protocol for strengthening surveillance for identification of etiological agents of AES, agree on areas for research on AES, and to identify projects for applied research including assessment of disease burden. More than 100 experts including national, international (US CDC,WHO,PATH) and local participants (UP Govt. & medical colleges of UP) attended the workshop. A protocol on AES/JE surveillance & public health actions was discussed and finalized.

NCDC to spearhead India Association of Public Health Institutes (APHI)

National Centre for Disease Control became a member of International Association of National Public Health Institutes (IANPHI) at the sixth Annual meeting of the IANPHI in Helsinki, Finland in September 2011, becoming the only Public Health Institute in India to be an integral part of the International Association of National Public Health Institutes (IANPHI)’s global network of excellence.

As a member of IANPHI, NCDC will soon launch an Association of Public Health Institutes (APHI) in India primarily concerned with improvement of public health capacity through service, research and training, in order to improve the health of populations and reduce health disparities.

The objectives are to support member Public Health Institutes through technical cooperation, sharing of expertise in organizational development, peer assistance, policy development and other public health functions; to support and guide the country technically on various public health issues; build coalitions with other public health organizations and support the public health activities in India; and initiate co-operative actions and help build international and national coalitions with other organizations whose mission is to improve the public health.

Stakeholders discuss research priorities in Acute Encephalitis Syndrome (AES), May 2012
The Institutions that are responsible for evaluation and analysis of health status, public health surveillance, problem investigation, outbreak investigation, and control of risks and threats to public health and actively involved public health research and teaching can become the members.

The Managing Committee, elected by the Institutional members biennially, will consist of a Chairman, General Secretary, Joint Secretary, a Treasurer, and 5 members/ ex-officio members.

The APHI will support and guide the country technically in various Public Health issues

News and Events

Indo-Swedish collaboration in antibiotic resistance

Antimicrobial resistance in pathogens causing important infectious diseases is a matter of great public health concern globally, as well as in India. A major factor responsible for this is the widespread use and availability of practically all antimicrobials over the counter for human as well as animal consumption.

Against the background of an MoU signed by the MOH&FW, India and Sweden Ministry of Health and Social Affairs to broaden cooperation about antibiotic resistance between the two countries, a Swedish Delegation led by Karin Tegmark Wisell, Head Unit Antibiotics & Infection Control, visited NCDC from 16th to 20th April, 2012 to participate in discussion.

The following areas were identified for collaboration between the two countries: 1) Epidemiological typing of carbapenem resistant strains and plasmids, 2) Monitoring of antibiotic use and development of methodology for Indian monitoring system, 3) Develop, implement and evaluate algorithms for diagnosis and guidelines for treatment for common infections in the community, 4) Develop an Indian National Programme against Antimicrobial Resistance (INPAAR) web portal with interactive modules for collection of data and output similar to Swedish Strategic Programme against antibiotic Resistance (STRAMA) at Sweden, and 5) develop a CME module for containment of AMR, surveillance of rational use of antibiotics, and development of web portal. The collaboration was named ISCAR (Indo-Swedish collaboration on Antimicrobial Resistance) and nodal persons from both sides were identified.

Use of newer techniques in unveiling circulation of novel Chikungunya virus with existing dengue virus in Delhi

Independent outbreaks of dengue virus (DENV) infection and sporadic cases of chikungunya virus (CHIKV) have been recorded in the metropolitan city of Delhi on several occasions in the recent past.

However, during arboviral outbreak of 2010 in Delhi, many cases turned negative for DENV. This prompted NCDC to use duplex reverse transcriptase polymerase chain reaction (D-RT-PCR) and gene fingerprinting-based studies to establish the aetiology of novel strain(s) of dengue and chikungunya through sequencing of CprM and E1 genes of dengue and chikungunya viruses.

Interestingly, for the first time, both DENV and CHIKV co-circulated simultaneously and in equally dominant proportion during the post-monsoon period of 2010. On the basis of gene fingerprinting, DENV-1 genotype III and the East Central South African (ECSA) genotype of CHIKV were found to be associated with post-monsoon spread of these viruses.
Phylogenetic analysis of DENV-I strain found it to be in close proximity with Comoros and Thailand strains. CHIKV strain was found to be similar to strains of Reunion, Seychelles, S27 African prototype and Tanzania strains. Further, gene sequencing revealed novel mutation K211E [replacement of lysine (K) by glutamic acid (E)] at position 211 in the E1 gene of CHIKV.

**Combating leptospirosis in India: a pilot project proves successful**

During the 11th Five-year plan, a pilot project on Control of Leptospirosis undertaken by zoonosis division of NCDC was implemented in 3 states namely Gujarat, Kerala and Tamilnadu. This was later extended to Karnataka, and Maharashtra.

The objectives of the pilot project was to reduce the morbidity and mortality due to leptospirosis by strengthening lab diagnosis and case management, mobilizing and sustaining inter-sectoral coordination, and implementation of IEC activities. The project involved the Dept of Health, Agriculture, Animal Husbandry, Rodent Pest Control Dept and environment.

The medical and paramedical personnel were trained, treatment guidelines developed and disseminated and provision was made for presumptive treatment of the clinically suspected Leptospirosis patients in endemic areas especially during rainy season. Prototype IEC materials were distributed to states for translation in local language and dissemination. The experience in the 5 states has shown that the strategy for prevention and control of leptospirosis is feasible to implement. During the XIIth Five Year Plan, the project will be continued and strategy disseminated to other state for implementation.

It is hoped that with enhanced public awareness and early diagnosis and timely treatment of patients, it will be possible to prevent and control leptospirosis in the country.

**17th Regional Field Epidemiology Training Programme begins at NCDC**

The 17th, three month Field Epidemiology Training Programme commenced at NCDC on the 23rd July 2012, is being attended by 11 Public health professionals from seven countries of the South-East Asia Region.

The purpose of this course is to impart skills to the senior health personnel and make them competent in application of basic epidemiology, including surveillance and outbreak response.

The methodology of conducting FETP includes lectures, technical discussions, modular exercises, visits to institutions and field exercises. Basic skills for use of EPI INFO at computer workstations are also provided. Field exercises are conducted in collaboration with the regional branches of the NCDC, which is a WHO Collaborating Centre for Epidemiology and Training.

Since 1996, 261 participants from Bangladesh, Bhutan, DPR Korea, Indonesia, India, Myanmar, Maldives, Nepal, Thailand, Papua New Guinea and Sri Lanka have been trained under FETP.
Masters in Public Health (Field Epidemiology) course helps build national capacity in Epidemiology

Students of MPH FE Batch 2010-12 during their field visit to review surveillance system in Alwar, Rajasthan.

A two year Master’s course in Field based Epidemiology (MPH-FE) training programme is run by National Centre for Disease Control (NCDC) to strengthen field epidemiological competencies of existing health practitioners and carrier oriented professionals.

The programme has students from various parts of India as well as WHO SEARO region. The seventh batch of the training programme commenced in August 2012. During the training, the MPH FE trainees will be exposed to a wide variety of field conditions including real time outbreak investigations, monitoring and evaluation of health programmes and health surveys. To further enhance the career of MPH (FE) scholars, the period of MPH FE training has now been recognized by the National Board of Examination (NBE) for eligibility to DNB FE.

So far, 77 students in six batches including 6 candidates from WHO SEARO region have successfully completed their course and are engaged in various positions in Governmental and Non Governmental Public Health organizations.

Tuesday morning seminars at NCDC

The weekly seminar, organized every Tuesday morning is being held as a build up to the EIS like training programme and is presently open to all those interested in public health including health professionals in the government and non government sector, medical students, as well as those in academic sector.

The seminars are given by the eminent guest faculties from within and outside Delhi covering a range of current public health topics of interest and relevant to India. Many prominent speakers have so far participated in the seminars.

Environment an important determinant of health: a review

Environment risk factors contribute substantially to the burden of communicable and non communicable diseases globally and in India. To get more insights on this and to read about the strategies for preventing diseases through healthy environment, readers may consult http://www.ijmr.org.in/text.asp?2012/136/2/185/100756

Conferences & important days

The 9th Joint Conference of Indian Society for Malaria and Other Communicable Diseases (ISMOCD) and Indian Association of Epidemiologists (IAE).

**Theme:** Healthy Public Policies: opportunities and challenges.

**Dates:** 2-4 November 2012

**Venue:** India Habitat Centre, Lodhi Road, New Delhi

Details are available on website www.ismocd.org

Email ID: nkyorgsec@gmail.com

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Surveillance corner

Dengue trends in Delhi

In Delhi, the outbreaks of dengue fever / dengue hemorrhagic fever occur during post-monsoon season almost every year. Figure below shows the month wise trend of dengue cases during the current year till August and Container Index (CI) as compared to previous year. The data show that till July 2011, average House Index (HI) and CI were lower but by the month of August, it has slightly increased as compared to previous year. According to Municipal Corporation of Delhi till 4 August, 2012, 13 dengue cases were reported as compared to 66 in 2011.

The vector *Aedes aegypti* was found as the most prevalent species (86.89%) occurring throughout the year, while *Aedes albopictus* and *Aedes vitattus* were found mostly during monsoon and post monsoon period. All three species were found infected with DENV and adapted for manmade containers. The circulation of all serotypes serve as a warning for the national capital to make every effort to check the further spread of the disease.