Today humans live relatively disease free as compared to the past. Modern science, good public health systems and better nutrition along with advances in agriculture and animal husbandry make this possible. If we remove any leg of this delicate equilibrium our civilization would revert back to the era of death and pestilence identified with the middle ages.

Recognizing the importance of the institute, Hon’ble Minister of Health & Family Welfare, Shri JP Nadda visited the institute on 30 September, 2016 to inaugurate the Epidemiology & Disease Control Complex along with administrative block and staff quarters. His visit is covered in this issue of the newsletter. Good public health systems are made on the foundation of improving disease surveillance, diagnostic capabilities, workforce development and emergency response. Lead story in this issue of NCDC newsletter focusses on one of these critical four strategies- workforce development in epidemiology.

Monitoring Disease trends section focusses on the trend of an emerging vectorborne disease chikungunya. The outbreak section highlights two outbreaks investigated by Officers from NCDC and the EIS programme- a mumps outbreak in Rajasthan and Cholera outbreak in MP. I hope you will enjoy reading this issue of the newsletter.
Speaking on the occasion, the Union Minister stated that NCDC is the backbone of the public health landscape of India and is integral to the “Transform India” vision of our Hon’ble Prime Minister Shri Narendra Modi. NCDC has contributed to four disease eradication programmes in India, namely small pox eradication (1978), eradication of guinea-worm (2000), polio eradication (2014), eradication of yaws (2016). Eradication of these diseases has only been possible due to application of core principles of epidemiology for disease detection and control that this institute stands for.

The Hon’ble Health & Family Welfare Minister along with other dignitaries also appreciated an exhibition put up by the institute of various activities carried out. Hon’ble Minister also unveiled a plaque commemorating yaws eradication from India.

(Contributed by Dr TG Thomas-NCDC)
Five Decades of Epidemiology Training at NCDC

The National Centre for Disease Control is a premier institute in the field of public health in India, committed to prevention and control of communicable diseases. The institute is mandated with the responsibility for manpower development, applied research and service support to the states and other health agencies in the country. In addition the institute provides expertise to the states and union territories (UTs) on rapid health assessment and laboratory based diagnostic services.

In 2002 the National Health Policy highlighted the shortage of expertise in the areas of public health and stressed the need for capacity building in this field. In 2005 consequent upon the launch of NRHM it was envisaged that the public health systems including prevention and control of communicable diseases should be strengthened in the country. In response to these developments in the health scenario, India Field Epidemiology Training Programme (FETP) or Masters in Public Health - Field Epidemiology (MPH-FE) was initiated in March 2006 with the approval from the Ministry of Health and Family Welfare, Govt. of India.

In April 2011 a Global Diseases Detection Centre (GDD-IC) was established in collaboration with CDC Atlanta for strengthening epidemiology and laboratory capacity in India to address emerging and re-emerging diseases. In 2012 NCDC started Epidemic Intelligence Service (EIS) training in collaboration with GDD-IC.

History of the institute

The National Institute of Communicable Diseases (NICD) had its origin as Central Malaria Bureau, established at Kasauli (Himachal Pradesh) in 1909, which after expansion was renamed in 1927 as the Malaria Survey of India. The organization was shifted to Delhi in 1938 and re-designated as the Malaria Institute of India.

In view of the drastic reduction achieved in the incidence of malaria under National Malaria Eradication Programme (NMEP), Government of India decided to reorganize and expand the activities of the institute to cover other communicable diseases. The National Institute of Communicable Diseases, Delhi was inaugurated on 30th July 1963 as a national centre for research and training in the field of communicable diseases and control in India. With the expansion and reorganization, the institution comprised of six divisions viz. Biochemistry, Epidemiology and Statistics, Medical Entomology, Microbiology, Zoonosis and Training and Administration with a number of sections under each division. In the same year Filaria Training and Field Centre at Ernakulam was shifted to Calicut. Also a second Filariasis training cum research centre was opened at Rajahmundry, Andhra Pradesh. Two more centres at Varanasi and Gujarat were set up later.

With a view to increase the scope of influence of the institute beyond communicable diseases, NICD was re-designated as a National Centre for Disease Control in 2011.

A critical mandate of this institution from its inception has been to plan, organize and conduct specialized trainings in different disciplines related to communicable diseases to raise trained manpower for efficient management of National Disease Control Programmes and also for undertaking advance and applied research. The section below briefly describes the evolution of various short term and long term epidemiology training programmes in NCDC (formerly NICD).
Epidemiology Trainings (1960's to 1980's)

After it was founded in 1963, NICD started two epidemiology courses, one at the national level and the other in partnership with WHO.

National course on epidemiology: It began in 1965 with the objective to train medical and veterinary doctors from state and defence organizations in principles of biostatistics, general epidemiology and special epidemiology of commonly prevalent communicable diseases of tropical countries with particular reference to India. The duration of the course was for 3 months. The programme continued till 1986. In 1986, a national workshop reviewed the existing programme. Based on the recommendations, several short term courses including a capsule course focusing on epidemiological services for Medical officers (1987) and surveillance of epidemic prone diseases was added (1993).

WHO combined course in epidemiology (also known as Delhi Prague course):

It began in 1965 with the objective to strengthen epidemiological capacity in WHO regions. The course duration of nine months was split between training in NICD for 3 months and Prague for 6 months. Intensive practical training through lecture discussion, practical demonstration and field exercise was provided along with visits to various organizations in different parts of the country devoted to research/training and control of communicable diseases. At the end trainees submitted evaluation reports with regard to training received.

It was renamed as WHO inter-regional training course in epidemiology and control of communicable diseases in 1971 due to large number of trainees from various WHO regions including EURO (FDR Germany, Czechoslovakia), AMRO (Mexico, South America), AFRO (Sudan, Ghana), EMRO (Afghanistan, Iran, Mongolia), WPRO (Japan, Phillipines) and SEARO (Thailand, India).

By late 1970s many parts of the world started developing their own competency based epidemiology training programmes on lines of the apprenticeship based US Epidemic Intelligence Service which was started in 1951 by CDC Atlanta. Due to this, demand for short term trainings decreased and participation in the WHO interregional training course in epidemiology and control of communicable diseases reduced. In 1976 it was discontinued and replaced with a Regional training course in epidemiology and control of communicable diseases by WHO for the SEAR region.

Three-Week Epidemiology Course, (1984-88)

From 1984 to 1988, the Epidemiology Department each year organized a 3-week epidemiology training course at NICD. The course was attended by senior staff of the State Health Departments, teachers from medical colleges, and the staff of the NICD. Main objectives of the course were:

- Orient participants on the principles and methods of Epidemiology and to impart skills in epidemiological analysis, outbreak investigations and in planning and conducting a field survey
- Provide opportunity to the participants to interact with managers of national health programmes.

The curriculum consisted of topics such as importance of epidemiology in public health practice, measures of distribution, descriptive and analytical epidemiology, survey techniques, and outbreak investigations. These were covered through lectures or presentations followed by case studies and exercises. In addition,
various national programme managers were invited to present in their programme area the disease burden, programme strategies and operational details. The programmes included those of diarrheal diseases, acute respiratory infections, expanded program on immunization, tuberculosis, malaria etc. As a part of the field exercise, participants were involved in the planning and implementation of a field survey conducted in Alwar district in Rajasthan, followed by presentation and feedback to the district health office.

Each course was attended by an average of 20 participants, most of whom now are senior health officials, public health professors or/and programme directors at the national and at state levels. The course was highly regarded and received good response from the states.

**Trainings in Epidemiology (1990’s till date)**

In its three decades of establishment in 1963 NCDC had substantially contributed to strengthening health systems, through an active role in small pox eradication, plague control, guinea-worm eradication and yaws elimination. However the 1990's also brought in a new set of challenges to the institute with chikungunya and dengue resurgence, focal outbreaks of plague, changing epidemiology of childhood illnesses such as diphtheria, measles with focal outbreaks in adult age groups and new viral illnesses such as Chandipura, emergence of resistance to antimicrobials etc.

A strong need was felt to establish a National disease surveillance programme and in 1996 a wide consultation was held with national stakeholders, World Bank and WHO. Subsequently a pilot project, the National surveillance project for communicable diseases was started in 5 districts for field testing and an integrated disease surveillance programme to generate early warning signals was launched in 2004 throughout the country in a phasic manner. An acute shortage of public health manpower was identified as a critical bottleneck by experts to build or strengthen organizational units for surveillance and health interventions. An Indian Expert Committee on Public Health System in 1996 recommended development of a contemporary national health policy, a modern Public Health Act, development of a career track for public health professionals, and establishment of regional schools of public health. The National Health Policy–2002 for India refers to the shortage of public health expertise and the outdated curricula that are unrelated to contemporary community needs.

WHO also identified Southeast Asia region as increasingly vulnerable to the threat of rapidly evolving microorganisms given the confluence of existing environmental, socioeconomic, and demographic factors. In view of this, NCDC (formerly NICD) was designated as a WHO collaborating centre for training and epidemiology in 1996. NCDC introduced several changes in its existing epidemiology training programme making it more relevant to the present day needs with a mix of short term and long term trainings in applied epidemiology.

**Regional Field Epidemiology Training Programme (FETP)**

Since 1996, a three month Regional FETP is being organized in NCDC for in-service senior and mid-level health professionals of WHO SEAR countries with the objective to build capacity in regional countries through strengthening knowledge and skills in field epidemiology and its tools and application. To strengthen the competency based FETP, the curriculum of the training programme was reviewed in 2006 to incorporate five
weeks of classroom teaching followed by six weeks of field posting and two weeks of evaluation upon return to the institute. Field exercises in outbreak investigation, descriptive and analytical study and evaluation of surveillance system are carried out in NCDC field units during the six week field posting. These exercises are carried out under close mentorship of NCDC and WHO officers and provide an opportunity of ‘learning by doing’ to the trainees.

From 1996 to 2016, 284 trainees have successfully completed the course (Figure 1). Evaluation of trainees of Regional FETP found all the FETP graduates to be working with their countries’ respective health departments as mid-level managers and above, contributing towards public health service delivery and influencing public health decisions and policies.

### Table 1: Distribution of FETP Trainees by Country (1996-2016)

<table>
<thead>
<tr>
<th>Country Name</th>
<th>No. of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>5</td>
</tr>
<tr>
<td>Bhutan</td>
<td>24</td>
</tr>
<tr>
<td>DPR Korea</td>
<td>22</td>
</tr>
<tr>
<td>India</td>
<td>87</td>
</tr>
<tr>
<td>Maldives</td>
<td>14</td>
</tr>
<tr>
<td>Myanmar</td>
<td>35</td>
</tr>
<tr>
<td>Nepal</td>
<td>46</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>3</td>
</tr>
<tr>
<td>Thailand</td>
<td>8</td>
</tr>
<tr>
<td>Timor Leste</td>
<td>1</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>27</td>
</tr>
<tr>
<td>WHO staff</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>284</strong></td>
</tr>
</tbody>
</table>

Besides the 3 month FETP, NCDC also organizes a special course for paramedics for four weeks where candidates from SEARO region are imparted training. Also resource persons are invited from NCDC to undertake 2-weeks FETP in SEARO region. IDSP also conducts one week FETP for Surveillance Medical Officers of States and Districts all over the country.

**Epidemic Preparedness Trainings:**

1996 onwards a unique training on epidemic preparedness was commenced in collaboration with WHO. The main focus of the training was to train medical officers working in the field of public health in various capacities. They were trained in managing emerging and re-emerging disease and respond to health related events during or after outbreaks/disasters.

### Master’s in Public Health- Field Epidemiology Programme

In response to India’s acute shortage of trained public health manpower in 2005, the institute started a Master of Public Health (Field Epidemiology) [MPH (FE)] Course of two years duration on full time basis affiliated to the Guru Gobind Singh Indraprastha University, Delhi. The training programme is a competency based programme with emphasis in field epidemiology alongside incorporating other components of public health disciplines such as health promotion, economics and programme management making it more broad-based and viable for grant of a degree. Therefore providing a viable career ladder at the end of the two year training.

The course for MPH FE underwent revision in a review meeting of experts from NCDC, WHO, experts from leading medical colleges, Sri-Chitra Tirunal Institute for Medical Sciences and Technology, Directorate General Health Services, in June 2008 to substantially increase the service component of the curriculum. At present 60% of the
curriculum comprises of learning through service field epidemiology projects. The revised syllabus was introduced from 2009 batch. Intake for the programme is limited to a maximum of 20 seats with upto 10 seats for candidates working with state/ central Govt. The selection process comprises of an all India level written test conducted independently by Guru Gobind Singh Indraprastha University, Delhi. So far, 95 students have successfully graduated from 2005- 2016 with core competencies in field epidemiology, biostatistics, entomology & vector management, management of health programmes and application of computer epidemiological softwares like Epi-info.

The teaching and training sessions are so designed that the MPH-FE scholars can learn and interact with the subject matter experts in a concern topic. Specialists from the divisions of Epidemiology, IDSP, Zoonosis, Medical Entomology, Parasitology and also from National Vector Borne Disease Control Programme act as regular faculty. Besides this, guest faculty is invited from various other reputed organizations such as: experts from National health programme, faculty from various medical colleges and national and regional training institutes such as NIHFW, PHFI. The scholars are also imparted hands-on training on application of computer softwares and its use for data analysis and health surveillance.

The figure shows the distribution of the MPH syllabus into different modes of teaching. Their entire course is divided into four semesters (each of six months duration). A scholar is awarded 26 credits (14 in theory and 12 in practical) at the end of each semester. All our pass-outs have been well-placed as consultants in reputed institutions such as NCDC, WHO, NACO, State IDSP, NIHFW and Health Programmes all over the country.

**India Epidemic Intelligence Service training**

A memorandum of agreement was signed between NCDC and the Centers for Disease Control and Prevention (CDC) in 2011 to establish GDD India centre under a cooperative agreement. As part of this agreement, an India Epidemic Intelligence Service training programme was established in NCDC in 2012. During the training period, EIS Officers carry out public health response including outbreak investigations, evaluation of health programmes and surveillance systems.

*Quality of the training is assured by extensive real-time mentorship during these public health responses.*

The India EIS 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”. 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 the 2 years. Selection is through a highly competitive process by a committee of experts.
Trainees are assigned to a single placement for the two years to learn competencies in field epidemiology through the process of service provision under the guidance of a mentor. During this period they are required to 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, both 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 as short contact programmes. 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.

At present there are 12 vacancies for state sponsored candidates and 3 vacancies for self-sponsored candidates. The training will be scaled up as the number of assignments with trained and qualified mentors grows. Presently two cohorts of India EIS trainees are undergoing training in NCDC.

**Way forward:** NCDC being an apex teaching and training institute for Public health will continue its efforts in capacity building of the manpower in this field. The institute plans to undertake more such trainings in ‘Field Epidemiology’ and also revive the trainings on Entomology and Malariology, in the years to come. It is being envisaged that the trainings in upcoming areas such as disaster management, GIS, Global Food Surveillance will be undertaken and more participation will be invited from other states like north-eastern states.

(Contributed by Drs Ananya Ray Laskar, Tanzin Dikid, Arti Bahl, CS Aggarwal with inputs from Dr J P Narain, former Director CDS, WHO SEARO)
Epidemiological investigation of Mumps Outbreak, Jaisalmer, Rajasthan - 2016

**Background:** Mumps is an acute viral disease characterized by fever, swelling and tenderness of one or more salivary glands – usually parotid and some time sublingual or submaxillary glands. Parotitis may be unilateral or bilateral and typically lasts for 7 to 10 days in unvaccinated individual. Prodromal symptoms are non specific consisting of myalgia, anoraxia, malaise, headache and low grade fever. Incidence ranges from 100 to 1000 cases per one lakh unimmunized population. No outbreak of mumps has been reported from Jaisalmer district in previous five year as per district IDSP reports. On 19 August, 2016, the Central surveillance Unit (CSU), NCDC, Delhi received information of 110 suspected cases of mumps from village chandhan block Jaisalmer of Jaiselmar district of Rajasthan state. We investigated to describe the epidemiology of mumps outbreak and to provide recommendations for control and prevention.

**Methodology:** Case finding: We define a suspected case as “swelling in parotid region (unilateral or bilateral) in a person from block Jaisalmer from 23 June 2016 to 10 September 2016” and confirmed case as “suspect case with positive IgM ELISA for mumps” Active surveillance was carried by house-to-house search in affected village and hamlets by ANM and passive surveillance through health facilities in block. The team interviewed Chief Medical Officer, District Epidemiologist, Health staffs of PHC Chandhan, parents of affected children, 4 school principals, reviewed available data and line list at district surveillance unit and PHC Chandhan. The team visited the affected village and observed the environment of school and classes. The team used a structured questionnaire in local language to capture demographic detail, onset of illness, clinical profile, immunization status and travel history. A line list was created and time, place, person analysis was done using MS-Excel.

**Lab investigation:** A total 18 blood samples were collected from suspected cases of a public school and a primary school on 23 and 24 August 2016. Samples were sent to SMS Medical College, Jaipur to test for IgM ELISA for mumps.

**Results:** A total 162 (151 suspected and 11 confirmed) cases were identified by field survey in the affected villages with median age of 9.4 years (7 months-38 years). Male were 97(60%) and 118 (73%) were school going children. Vaccination against mumps was nil.

![Figure 1. Distribution of mumps cases in Block Jaisalmer, District Jaisalmer, Rajasthan from July - September, 2016. Time distribution of the cases shown in figure 1 indicates that the outbreak started on 5th of July 2016. Maximum numbers of cases occurred on 20th August followed by gradual decline.](image-url)
Table 1: Distribution of cases as per their village.

<table>
<thead>
<tr>
<th>Village and Hamlet</th>
<th>Cases</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sujiyo Ki Dhani (Hamlet of village Chandhan)</td>
<td>84(52)</td>
<td></td>
</tr>
<tr>
<td>Chandhan</td>
<td>32(20)</td>
<td></td>
</tr>
<tr>
<td>Mangliyo/Chanesar Ki Dhani (Hamlet of Chandhan)</td>
<td>23(14)</td>
<td></td>
</tr>
<tr>
<td>Jhabra</td>
<td>9(5)</td>
<td></td>
</tr>
<tr>
<td>Sodhakor</td>
<td>8(5)</td>
<td></td>
</tr>
<tr>
<td>Bamru Ki Dhani (Hamlet of village Bhagu)</td>
<td>6(4)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>162(100)</td>
<td></td>
</tr>
</tbody>
</table>

Highest number of cases occurred in hamlet Sujio ke dhani (52%) and adjacent hamlet Manglio/Chanesar ke dhani (14%) of village Chandhan (20%). Other villages which were affected were Sodhakor, Jhabra & Bhamru.

Figure 2: Spot Map showing distribution of mumps cases
Table 2: Distribution of cases by educational institute (N 118).

<table>
<thead>
<tr>
<th>School</th>
<th>Number of cases</th>
<th>% of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Govt. School, Sujio ke dhani</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>Govt. School, Chandhan 1</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>Govt. School, Chandhan 2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Pvt School, Chandhan 1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pvt School, Chandhan 2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pvt School, Jhabra</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Govt. School Bhojiya</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pvt School, Chandhan 3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pvt School, Chandhan 4</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>Govt. School, Bhaguka gaon</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>118</td>
<td>100</td>
</tr>
</tbody>
</table>

Out of 162 cases, 118 cases attended school, 2 cases attended Anganwadi Center and rest 44 cases are non school childrens (30) and adult working parents (14).

Field Observation: During the visit to school the team observed that few classes were overcrowded and the rooms were not properly ventilated leading to spread of infection. No school staff was affected with mumps. Out of 18 samples tested at SMS Medical College, Jaipur. 11(61%) samples were tested positive for IgM antibodies against Mumps.

All villages from where students were going to study at schools in affected villages were not surveyed due to logistic constrain and confirmative test (RT PCR) could not be done.

Conclusions and recommendations: Based on epidemiological and laboratory finding we confirmed mumps outbreak in Chandhan village and its hamlets and nearby villages of Jaisalmer block. School going children were mostly affected and low population immunity against mumps led to high morbidity.

The team recommended to continue ongoing surveillance for mumps in the Jaisalmer block and to advise affected children not to attend school for two weeks after onset of swelling in neck.

(Contributed by Drs CS Moghe- EIS Officer, Meera Dhuria, CS Aggrawal- NCDC)

Cholera outbreak in District Mandla, Madhya Pradesh ,2016

Background
Cholera is a severe acute diarrheal illness that can lead to death. Every year there are an estimated 1-4 million cases and 0.1 million deaths from cholera worldwide. India has 1% of the world’s cholera burden with average 3631 cholera cases annually. Madhay Pradesh was cholera endemic until 1997 and continued to report cholera cases in each alternate year until 2006. Mandla district had not reported any cholera outbreak since 2004. On 18 August 2016, Principle Secretary Health, Govt. of Madhya Pradesh reported a suspected outbreak of cholera in Ghughri Block of Mandla District and requested for central assistance to investigate. Ministry of Health & Family Welfare constituted a central team which joined the district team on 19 August to confirm the outbreak, describe the epidemiological characteristics and determine risk factors, to guide control and prevention measures.

Methods
Outbreak confirmation: We analysed the IDSP acute diarrheal disease (ADD) data from June to August for last three years (2013-16) to confirm the outbreak.
**Case finding:** We defined a case as acute watery diarrhea (3 or more episodes in 24 hours) or death from acute watery diarrhoea in any resident of Ghuguri block, Mandla, Madhya Pradesh between 20 July-19 August 2016.

We conducted enhanced passive surveillance by searching the out-patient and in-patient register of Community Health Centre (CHC) Ghughri. We did active surveillance by house to house visit in 28 villages of the Ghuguri block where there was clusturing of cases. We visited villages where deaths were reported and interviewed next available relatives and also interviewed ADD cases around the death cases for signs, symptoms, hygienic practices, treatment history, etc. We conducted medical review of the patients admitted to the CHC Ghughri on the days of visit and also interviewed the treating physicians of CHC Ghuguri about symptoms.

**Case control study:** We conducted an unmatched case control study to identify the risk factors associated with the outbreak. Based on 95% confidence interval (CI), 80% power, estimated 50% exposure of risk among controls, odds ratio (OR) of 3, we calculated a sample size of 50 cases and 100 controls. Cases were selected randomly from the linelist and controls were selected from the nearest neighbours of cases enrolled. One control per household was selected. A structured questionnare in local language was used by the healthworkers for interview of the cases and controls.

**Data analysis:** Data analysis was done using Microsoft Excel (2010) and Epi Info 7.1.

**Laboratory investigation:** A total of 18 stool and 16 rectal swab samples from 34 patients were collected during 15-23 August 2016 from the admitted ADD patients at Ghuguri CHC for culture of common gram negative entero- pathogens like *Shigella, Salmonella, Vibrio cholerae* followed by antibiotic susceptibility analysis.

**Environmental investigation:** From 15 August to 23 August we tested 25 water samples from drinking water sources (9 samples from hand pump, 8 from well and 8 from jhiriyas near paddy field) for residual chlorine by orthotoludine test and fecal contamination by culture. We also evaluated accessibility to safe water and toilet facilities.

**Results**

**Outbreak confirmation:** There was 50% increase in ADD cases of diarrhoea in July and August 2016 compared with the same period of previous years (2013-2016) confirming the ADD outbreak in Ghuguri, Mandla, Madhya Pradesh.

**Descriptive epidemiology:** We identified 628 cases with median age of 27 years (range: 1 month – 76 years). Females (61%) were more affected than males (39%) shown in table 1. There were 14 deaths during the period with female predominance (86%) and median age of 39 years (range: 6 – 65 years) shown in table 2. The outbreak started on 30 July 2016 with peak around 8 August 2016 (Figure 1). Cases were reported from 139 villages out of 244 villages covering all geographical area of the block. We interviewed 42 case-patients (14 cases from 6 villages and 28 cases at CHC) and family members of 14 deceased case-patients. All 56 (100%) presented with acute onset watery diarrhoea without fever. Among the 28 case patients at CHC, 21 (75%) had mild to moderate dehydration and 7 (25%) cases had severe dehydration. Fourteen cases died before receiving any medical assistance; all were residing in remote, hard to reach tolas (10-30 kms away from from nearest medical facility). Among 14 deceased, 10 (71%) had the history of working around the paddy field and the rest 4 (29%) were close relatives in the same household.

Among 614 patients treated at CHC (355 in outpatient department and 259 in inpatient department), 100% presented with acute watery diarrhoea, 273 (44%) with vomiting, 60 (10%) with fever and 5 (1%) with abdominal pain. All 259 inpatients were treated by IV
fluids and antibiotics (doxycycline, ceftriaxone and metronidazole), and all 355 outpatients were treated with oral rehydration solution (ORS) and doxycycline as per treatment protocol developed by the district. All 614 (100%) cases treated at CHC recovered.

**Case control study:** Among 50 cases and 100 controls, illness was significantly associated with being female [exposure rate 74%, OR 6.6 (95% CI 3.1 – 14.2)], drinking water flowing near paddy field [exposure rate 64%, OR 4.0 (95% CI 1.4 – 8.0)] and not washing hand with soap after defecation [exposure rate 72%, OR 6.1 (95% CI 1.7 – 21.0)].

**Laboratory investigation:** Among 34 stool and rectal swab samples, 11 were positive for *V. cholerae* O1 Ogawa. All isolates were susceptible to tetracycline, ceftriaxone, meropenem, doxycycline, amikacin and norfloxacin and resistant to co-trimoxazole.

**Environmental investigation:** Among 25 water samples tested, all samples from well (8) and jhiriyas (8) near paddy fields revealed fecal contamination. Among 9 hand pump samples, 4 (44%) had fecal contamination. There was no residual chlorine found in any water sample tested. After chlorination of handpumps by the district on 4th to 6th August and use of those hand pumps by the villagers, cases started decreasing. *Vibrio cholerae* could not be isolated in any water sample. We observed open defecation as a universal practice. None of the houses had a toilet in the 6 villages where we visited. One community toilet present in one village was not in use. People use open unprotected dug wells and Jhiriyas for drinking water source. Paddy field work is predominantly done by women in this season, and they consume water flowing near paddy field (jhiriyas) due to no access to safe drinking water in the vicinity. There was overflowing of drinking water sources due to heavy rain 15 days before the outbreak (122mm in 2016 and 46mm in 2015 between 15 - 30 July).

**Conclusion and recommendations:** This was an outbreak of cholera in Ghughri Block of Mandla District, Madhya Pradesh associated with consumption of contaminated water around the paddy field. The contamination was probably due to the practice of open air defecation combined with mixing of surface water with drinking water sources around the paddy field after heavy rain fall before the outbreak. Poor access to safe drinking water around the working paddy field and to a competent health facility/health care provider resulted in high morbidity and mortality.

We provided the following recommendations:

**Immediate**

1. Refer cases immediately to hospital specifically from hard to reach areas as there is no health care provider nearby.
2. Store of ORS and chlorine tablets (2-3 per day per family) with local volunteer in hard to reach tolas with training on when and how to use.
3. Train local volunteers regarding chlorination of drinking water sources. Educate people regarding safe drinking water practices and risks of drinking contaminated water.
4. Do health education through health worker, ASHA and Anganwadi worker (during Immunization session, Village Health Nutrition Day etc) regarding use of toilet, hand washing with emphasis on carrying safe drinking water to working fields.
5. Chlorinate the drinking water used by the community weekly and check for residual chlorine regularly.

**Long term**

1. Provide hand pumps in villages and fields where people work.
2. Provide toilets and piped water supply in each home.
Figure 1: Acute Diarrhoeal Disease cases Ghuguri, Mandla, Madhya Pradesh, 20 July - 19 Aug, 2016 (N=628)

![Graph showing the distribution of diarrhoeal disease cases by date of reporting, with a peak around 30th July and a noted chlorination started on 20th July.]

Table 1 - Age and sex distribution of ADD cases in Ghuguri, Mandla, Madhya Pradesh, 20 July-19 Aug, 2016 (N=628)

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Case (%)</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 10</td>
<td>130 (21)</td>
<td>66 (27)</td>
<td>64 (17)</td>
</tr>
<tr>
<td>11 - 20</td>
<td>120 (19)</td>
<td>47 (19)</td>
<td>73 (19)</td>
</tr>
<tr>
<td>21 - 30</td>
<td>130 (21)</td>
<td>54 (22)</td>
<td>76 (20)</td>
</tr>
<tr>
<td>31 - 40</td>
<td>102 (16)</td>
<td>24 (10)</td>
<td>78 (20)</td>
</tr>
<tr>
<td>41 - 50</td>
<td>74 (12)</td>
<td>29 (12)</td>
<td>45 (12)</td>
</tr>
<tr>
<td>51 - 60</td>
<td>37 (06)</td>
<td>12 (05)</td>
<td>25 (07)</td>
</tr>
<tr>
<td>61 above</td>
<td>35 (06)</td>
<td>12 (05)</td>
<td>23 (06)</td>
</tr>
<tr>
<td>Total</td>
<td>628</td>
<td>244 (39)</td>
<td>384 (61)</td>
</tr>
</tbody>
</table>

Table 2 - Age and sex distribution of ADD deaths in Ghuguri, Mandla, 20 July – 19 August 2016 (N=14)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Deaths (%)</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20</td>
<td>03 (21)</td>
<td>00 (00)</td>
<td>03 (25)</td>
</tr>
<tr>
<td>21-40</td>
<td>05 (36)</td>
<td>02 (100)</td>
<td>03 (25)</td>
</tr>
<tr>
<td>41-60</td>
<td>05 (36)</td>
<td>00 (00)</td>
<td>05 (42)</td>
</tr>
<tr>
<td>&gt; 61</td>
<td>01 (07)</td>
<td>00 (00)</td>
<td>01 (08)</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>02 (14)</td>
<td>12 (86)</td>
</tr>
</tbody>
</table>
Team members approaching one of the affected village
Jhiriya from which people drink water
Water sample being tested for Residual Chlorine

(Contributed by Drs Nishant Kumar- IDSP, Poorva Sarkate- NCDC, B.P. Dutta EIS officer, Amit Sharma- LHMC, Pradeep Khasnobis - IDSP, S Venkatesh- Director NCDC Delhi)

NCDC News

India EIS Cohort Three Graduates

Eleven EIS Officers of cohort 3 completed their training successfully and were awarded a joint NCDC CDC certificate on their graduation by Special DGHS, Dr B D Athani. So far three batches (28 candidates) have completed the EIS training since the beginning of the training programme in 2012. The EIS Officers of cohort three have participated in various public health responses in NCDC including atleast two outbreak investigations by each EIS Officer covering both descriptive and analytic epidemiology, evaluation of surveillance systems, establishing surveillance during Simhasta Kumbha and evaluation of National Health Programmes.

Speaking on the occasion, Dr B D Athani congratulated the graduating Officers and hoped the Officers will be able to utilize the expertise gained in NCDC towards betterment of public health in India. Director NCDC, Dr S Venkatesh emphasized on the importance of field epidemiology trainings such as India EIS in strengthening and securing our health systems against the vulnerabilities of new emerging diseases. He reposed faith in the graduating officers in using their newly acquired skill sets to serve as change agents in their respective organizations and field of work. Director CDC India, while congratulating the officers also assured technical and financial support to the programme.

(Contributed by Dr Girish Makhija, CS Aggarwal, NCDC)
NCDC Marks World Rabies Day

The World Rabies Day is observed globally on 28 September, which is an initiative of Global Alliance for Rabies Control. This has been initiated with the aim of creating awareness in general community about rabies prevention and to sensitize the stakeholders on the integrated one health approach to address this global menace with a shared vision to eliminate the rabies. The theme of World Rabies Day in 2016 is “Rabies: Educate. Vaccinate. Eliminate”.

National Centre for Disease Control organized a scientific symposium to observe World Rabies Day. The symposium was attended by 150 participants including faculty from NCDC, WHO, health officials from Delhi Government, MCD, Department of animal husbandry, dairying & fisheries and Humane Society International-India.

Director, NCDC inaugurated and chaired the scientific symposium. In his inaugural address he highlighted challenges the country faces in preventing rabies and stressed on the objective to create awareness in general community about rabies prevention and to sensitize the stakeholders on the integrated “One Health Approach”. Experts addressed various aspects and burning issues in the area of rabies control during the symposium.

Dr. Mala Chabbra, Additional Director & Head, Zoonosis Division delivered a talk about National Rabies Control Programme (NRCP) for Human Health Component. It was informed that under the aegis of NRCP mass media campaign has been launched through newspaper advertisements –“DO’s and Don’t’s of animal bite management” in Hindi, English and regional languages published in leading dailies country vide.

Dr. G. Sampath, IPM Hyderabad delivered a talk on implementation of intradermal route of inoculation of anti-rabies vaccine-need of the hour. Dr. G.N. Gongal, zoonosis focal point, WHO, SEARO delivered a talk on one health approach for rabies elimination-global perspective. He stressed on strategic approach, timeline and indicators of rabies elimination.

Dr H. R Khanna, Assistant Commissioner, Livestock Health, Department of Animal Husbandry, Ministry of Agriculture delivered a talk on status of rabies in animals and control of rabies in dogs. He also shared the data on incidence of rabies in animals in India and the National Animal Disease Reporting System for surveillance and monitoring of animal diseases.

Dr. Piyush Patel, Project Manager, HSII presented achievements of the implementation of the animal health component of NRCP in Haryana including activities of dog census, dog
population management and mass dog vaccination carried out in Hisar Division. Dr. Simmi Tiwari, Assistant Director, Zoonosis Division, NCDC delivered a talk on rabies prevention and role of IEC. She spoke about communication strategies for specified target audience to promote positive behaviors in community. Dr. Anurag Aggarwal, Assistant Professor, MAMC delivered a talk on the status of rabies control in Delhi. The deliberations and discussions led to a series of questions by the audience. The symposium ended with vote of thanks to the chair.

(Contributed by Drs Simmi, Naveen Gupta, Mala Chhabra- NCDC)

National Training Workshop on Use of WHONET for Strengthening Antimicrobial Resistance Surveillance in India

Establishing an effective surveillance system for antimicrobial resistance is an essential pre-requisite for tackling antimicrobial resistance, especially for evidence-informed policy making. It is important to have AMR data collation and analysis from participating laboratories to establish and strengthen AMR surveillance in India. AMR data collation and analysis is important to establish and strengthen AMR surveillance in India. WHONET – a WHO endorsed software tool – can generate and analyze AMR data to produce antibiograms from individual as well as laboratory network.

WHO Representative to India, Dr Henk Bekedam, gave the welcome address in the inaugural session and stressed on the importance of doing AMR surveillance and its follow up actions. Dr Sunil Gupta, representing the National Centre for Disease Control, enumerated the Government of India’s initiatives on AMR containment, focussing on the role of NCDC in coordinating the national programme for containment of AMR. Dr Jagdish Prasad, Director General of Health Services, Ministry of Health and Family Welfare gave a bird’s eye perspective on the antimicrobial resistance scenario in India and emphasised the role of education in tackling this. Dr Soumya Swaminathan, Secretary Department of Health Research and Director General, Indian Council of Medical Research (ICMR), highlighted the problem of AMR that has to be tackled in collaboration with inputs from the medical, veterinary and food industry, in the keynote address.
WHONET capabilities were demonstrated and hands-on training provided to 50 participants from the AMR surveillance network members of NCDC and ICMR networks, some animal and food laboratories and observers from FAO and CDC.

The main facilitator for the workshop was Dr John Stelling, co-director of the WHO collaborating centre on AMR surveillance in Boston. Dr John Stelling provided a brief history about the origins of the WHONET software, its various features, installation and configuration, and a brief overview of analysis of AMR data. Extraction of AST data from automated systems (Vitek and Phoenix) was demonstrated with tutorials on Bac Link and its utility to migrate data from automated systems. Quality of antimicrobial susceptibility testing was stressed and various tools available to establish and monitor quality of AST and AMR data were discussed. The participants were introduced to different WHO tools to improve laboratory quality, and data validation/verification was also discussed briefly.

The other facilitators – Dr Sangeeta Joshi, Dr Pallab Ray and Dr Vikas Manchanda – facilitated the hands-on sessions and shared their experiences of using WHONET highlighting the usefulness of the software, its strength in data analysis, challenges faced and how they were overcome. Participants were also shown the use of filters to obtain specific AMR information. The use of WHONET shall translate into better AMR data sharing, analysis and collation at local, sub-national (city, state, and region) and at the national level. Future WHONET workshops if held in various regions of India would lead to greater awareness and may facilitate implementation of AMR surveillance.

(Contributed by Drs Sarika Jain & Sunil Gupta, NCDC)

BRICS Workshop on Health Surveillance

The experts’ meeting on BRICS Workshop on Health Surveillance: System and Best Practices was held on 1-2 August, 2016 in Bengaluru. The meeting was organized by MOHFW through NCDC, State IDSP, RD office Bengaluru.

During the 3rd meeting of BRICS Health Ministers held in Cape Town in November 2013, one of the key discussion items was the framework for collaboration on strategic projects in the BRICS. India is the lead country for the thematic area “Strengthening Health Surveillance System”. India had offered to organize a workshop of focal points of BRICS countries and other key stakeholders to discuss mechanisms of surveillance system in different countries, best practices and their strength and weakness.

The meeting was attended by experts from China (3 experts), South Africa (2 experts) and India. Indian delegation was led by Dr. N S Dharmshaktu, Principal Advisor, Ministry of Health and Family Welfare, Govt. of India. Chinese delegation was led by Ms. Rongrong Wang, Deputy Consultant Bureau of Disease Prevention and Control, National Health and Family Planning Commission of the People’s Republic of China and South African delegation by Dr Gail Verah Andrews, Chief Operating
Officer, Department of Health, Republic of South Africa.

During the meeting the delegates agreed that there should be a plan of collaboration with respect to specific areas or activities and a mechanism for institutionalization and collaboration on the communicable and non-communicable disease surveillance systems existing across various BRICS countries. The approved minutes was shared with the participants.

(Contributed by Dr Pradeep Khasnobis, IDSP)

NCDC Celebrates Institute Day

NCDC celebrated its 107th Institute Day on 29 July, 2016. A scientific symposium on the topic “Arboviral Diseases: India’s Preparedness & Response” was organized. Speaking on the occasion, Director NCDC expressed his satisfaction with the progress of the institute and urged faculty, staff and students to work hard to take the institute to newer heights. He informed that currently the institute is running five National programmes on communicable diseases and disease surveillance besides being at the forefront of public health response to emerging health challenges such as Zika virus disease, Ebola, MERS Coronavirus. The institute has also developed new centers of Non-Communicable Diseases, and Environmental and Occupational Health and a division of Climate Change & Health. It has provided the Secretariat for the High-Powered Inter-ministerial Committee on Climate Change & Health. Chief Guest for the occasion Dr B D Athani, Special DGHS, Govt. of India stated that the institute has successfully established itself as a public health institute of excellence catering for countrywide surveillance of epidemic-prone communicable diseases; epidemic or outbreak investigation and containment; referral diagnostic support services; training & manpower development. The scientific symposium generated discussions around the one health approach and the increasing importance of mounting a coordinated response with both human health and animal health at the centre-stage.

The day came to an end with a lively cultural programme enjoyed by the faculty, staff and students of NCDC.

Regional Field Epidemiology Training Programme commences in NCDC

The National Centre for Disease Control (NCDC), Delhi is a WHO Collaborating Centre for Epidemiology and Training. The three month Regional Field Epidemiology Training Programme (FETP) for senior health personnel of the countries of the South East Asia Region was started in 1996 with the objective to
provide the knowledge and skills for the field application of Epidemiology in the prevention and control of communicable diseases. This is one of the prestigious courses of the Region. Nineteen courses have been conducted so far and 272 participants from Bangladesh, Bhutan, DPR Korea, India, Indonesia, Myanmar, Maldives, Nepal, Sri Lanka, Thailand, Timor Leste and Papua New Guinea have been trained. The present Regional Field Epidemiology Training Programme course is being conducted from 1st August to 29th October 2016. A total of 6 participants from Nepal (3) and India (3) are attending the course.

The curriculum of this training programme included five-week of modular classroom teaching, followed by six-week of field posting for “learning by doing”, and two week report writing and evaluation upon return to the institute. The standard training material developed for this training is being used. The training programme covers the concept of field epidemiology, epidemiological tools, bio-statistical applications, principles of outbreak investigations, disease surveillance, and management of disease control programs, role of laboratory in disease control, communication and use of computer in epidemiology were covered during the course. Senior faculty of the NCDC, WHO/SEARO, and WHO country office participate in the Programme. The methodology of FETP involves a variety of teaching/learning approaches such as lectures, discussions, modular exercises, demonstration and fieldwork. The trainees acquired basic skills for use of computers and EPI INFO at computer workstations in the computer laboratory. During the field posting, all the participants have been posted at Bangalore branch of NCDC under supervision of the Branch officer in-charge of the NCDC branch to conduct projects on Evaluation of Integrated Disease Surveillance System, Secondary data analysis, Community Survey and Outbreak Investigation.

(Contributed by Drs Arti Bahl, CS Aggarwal- NCDC)

Research Corner

NCDs risk factors assessment among faculty and staff of NCDC

NCDs are posing a great threat to health and health system in India, contributed to >60% of all deaths in 2014. Early identification and management of the individuals those are at a risk of developing NCDs is one of the foremost and important strategies in dealing with rising burden of NCDs. Considering this Centre for NCD, NCDC organized a screening activity (1-14 Sept. 2015) on the occasion of World Heart Day to screen its officers/officials for NCD/risk factors, i.e. tobacco & alcohol consumption, physical inactivity, unhealthy diet, BMI and raised blood pressure. Later on in Sept. 2016 as a follow up activity the blood biochemical profile of the participants (blood sugar both fasting and post prandial and lipid profile) and repeat blood pressure and BMI were assessed.

The results of the screening activity are as follows:

Demography:

A total of 215 individuals participated in the screening activity. Age of participants varied from 20-64 years. Out of 215 individuals, 44% (94) were < 40 years. Majority of the subjects were married (177; 82.3%) followed by unmarried (29; 13.5%) and widow, widower (one percent each). Almost (98%) of the participants were literate. Sixty
two percent (133) of the participants were having at least graduation degree in any discipline.

Behavioral risk factors

Tobacco use
Among the participants 43 (20%) were current smokers, out of them 33 (81.4%) were smoking on daily basis. Mean age for initiating smoking among the participants was 21.7 years ranging from 12 to 42 years. Mean years of duration of smoking were 22.5, ranging from 3 to 45 years depending on the age of the participants. Only six percent of the participants were currently using any form of smokeless tobacco. Exposure to second hand smoke was 5% and 8% at home and workplace respectively.

Alcohol use
Out of 215 participants, 66 (30.7%) had ever consumed alcohol in their life time and most of them 61 (92.4%) had consumed alcohol in past 12 month.

Physical activity
Out of all participants only 25 (11.6%) were engaged in vigorous activity at work. 63 (29.3%) individuals were engaged in moderate activity at work but only 29 doing moderate activity as per WHO recommendations, i.e., 150 minutes of moderate physical activity per week. More than half 120 (55.8%) of the participants walk and do cycling at least for 10 minutes in one stretch. On average participants were spending 6.4 hours (ranging from 1-14 hours) in sitting or reclining either at home or at office.

Diet
On average participants consumed fruits 4 days in a week and mean number of servings per day were 1.24 and 41.2% (89) were consuming on daily basis. Vegetable consumed on almost all the days in a week and mean number of servings per day were 1.77 and majority of them 70.4% (152) were eating vegetables on the daily basis. Hence mean number of fruit and vegetable serving were 3 per person per day

History of Raised Blood pressure and blood sugar

Out of 215 participants 140 (65.1%) responded that their BP has been checked earlier also by the health professional. Among those who got their blood pressure checked, 39 (27.9%) had raised blood pressure and only 24 (60%) were receiving the treatment for hypertension. While receiving treatment for hypertension, 22 (55%) had been advised for reducing salt intake; 10 (25%) to stop smoking; 20 (50%) to increase exercise; 18 (45%) to reduce weight respectively. Among those found be hypertensive five participants (12.5%) had seen traditional healer and four (10%) were seeking treatment from traditional healers. Among participants 112(52.1%) had got their blood sugar checked earlier by the health professionals out of them 20(17.9%) were informed about the raised blood sugar. Among those who had raised blood sugar 12(57.1%) were receiving treatments for it, out of them 3 (14.5%) were receiving treatment from traditional healers. While receiving the treatment for raised blood sugar, few 2(9.5%) had received advice on smoking cessation; 7 (33.3%) on increasing exercise and 5 (23.8%) on weight reduction respectively.
BMI Measurements

Among participants only 51 (24.1%) were having normal BMI (18.5-22.9 kg/m²), rest (161; 75.9%) were either overweight or obese. Results show that more female (82.6%) were overweight or obese as compared to male (74.1%) but the difference didn’t reach the significance level (p value =0.159).

Optimal blood pressure was found in only 71 (33.3%) participants rests 140 (66.7%) were having the raised blood pressure. By screening 120 more individuals were identified as hypertensive and were advised on the healthy eating, increased exercise, reduction in salt intake and stop smoking/tobacco use and alcohol and On analysis it was found that more females (59.6%) are likely to have optimal blood pressure (SBP<120 mm Hg; DBP< 80 mm Hg) as compared to male (25.9%) and the difference was found statistically significant (p value <.0001).

Almost fifty percent of individuals of age < 30 years didn’t have optimal blood pressure and normal BMI (Table 1. and Table 2. respectively) Age showed a significant relationship with high BMI and raised blood pressure. A significant direct relationship has been found between age (>30 years) and high BMI (p value<0.0001); high BP (p value <0.006).

| Table 1: Relationship of blood pressure with age among the participants |
|-------------------------|-----------------|-----------------|------------------|
| Age (Years) | Optimal BP N(%) | Raised BP N(%) | Total |
| < 30 | 20(52.6) | 18(47.4) | 38(100) |
| >30 | 51(29.3) | 123(70.7) | 174(100) |
| Total | 71(33.5) | 141(66.5) | 212(100) |

Chi square value=7.615; P value=.006

| Table 2: Relationship of weight with age among the participants |
|-------------------------|-----------------|------------------|
| Age (Years) | Normal weight N (%) | Overweight/obese N (%) | Total |
| <30 | 18(47.4) | 20(52.6) | 38(100) |
| >30 | 33(19.1) | 140(80.9) | 173(100) |
| Total | 51(24.2) | 160(75.8) | 211(100) |

Chi square=13.608; p value<.000

| Table 3: Relationship of the blood pressure with weight among the participants |
|-------------------------|-----------------|------------------|
| Weight | Optimal BP N (%) | Raised BP N (%) | Total |
| Normal | 21(42) | 29(58) | 50(100) |
| Overweight/obese | 49(30.6) | 111(69.4) | 160(100) |
| Total | 70(33.3) | 140(66.7) | 210(100) |

Chi square value=2.218; p value=.098
Biochemical investigation

Biochemical investigations which included (i) blood sugar level both fasting and post prandial, (ii) total cholesterol, (iii) S. triglycerides (iv) LDL and (v) HDL were estimated in screened individual in Sept 2016 and are currently going on. Presently the results are available only for 100 individuals including 22 females. Among the participated individuals almost 20 % have deranged blood sugar level either fasting (>110 mg/dl) or post prandial (>140 mg/dl); 33% have blood cholesterol level more than desirable (>200 mg/dl), including 7% high (> 240 mg/dl) cholesterol; 37% have Tgl level higher than normal (Tgl> 150 mg/dl); HDL level were low (< 40 mg/dl ) in 30% of the participated individuals; LDL levels were borderline high (> 130 mg/dl) in 30 % of the individuals including almost 15% with high and very LDL high level.

As we can use WHO/ISH risk prediction charts only for individuals > 40 years hence information on the above variable was available only for 48 individuals. Out of 48 individuals among 80% (38) individuals, 10 years risk of fatal or nonfatal cardiovascular events was <10% while for the rest it was > 10% including two individuals having the CVD risk >40%.

Conclusion

NCDC officers and staff are living in midst of risk factors for Non communicable Diseases as 20-66% of individuals were having behavioural risk factors (smoking, alcohol, and physical inactivity ) and 20-30% individuals were having metabolic risk factors (raised blood sugar, blood pressure, cholesterol and obesity). Screening at early age for NCD risk factors for identifying the people at risk and putting them under the umbrella of prevention and care is one of the appropriate strategies to deal with NCDs. At Centre for NCDs all those who were at high risk for occurrence of CVD or with deranged blood investigation were counselled for healthy diet, physical activity cessation of smoking and alcohol and reduction of body weight through face to face interaction at interpersonal level.

(Contributed by Drs Rinku Sharma & Sonia Gupta, NCDC)
Trend of Chikungunya fever in India

Chikungunya fever was first reported in India during 1963 in Kolkata city. After quiescence of three decades, Chikungunya appeared in unprecedented magnitude in many parts of the country again in early 2006, with 1.39 million suspected cases reported from 16 states. Thereafter, cases were reported every year but gradually declined till 2014. However, the disease showed an upward trend in recent years due to the report of increased number of cases from some States viz., Karnataka in 2015 and Delhi and nearby States in 2016. Presently, Chikungunya is endemic in 30 States/UTs in the country.

From the clinical perspective, the disease resembles clinical manifestations of dengue fever. Residual arthritis with disabling morning stiffness, swelling and pain on movement may persist for weeks or months after recovery. It is rarely life-threatening. However, in some co-morbid conditions particularly in elderly patients may lead to more clinical complications.

National Vector Disease Control Programme is the National nodal agency for implementation of Programme for prevention and control of Chikungunya along with other vector borne diseases. Disease surveillance is facilitated through a network of 542 Sentinel Surveillance Hospitals (SSHs) with laboratory support for confirmation of the disease by IgM ELISA provided through National Institute of Virology, Pune; these SSHs are linked with 15 Apex Referral laboratories (ARLs) with advanced diagnostic facilities for back up support across the country. Rapid response by the concerned health authorities has been envisaged on report of any suspected case to prevent further spread of the disease. As there is no vaccine or specific medicine for the disease, vector management is the mainstay which primarily depends upon the convergence of different sectors. Behaviour change communication remains the integral component and effective community participation is crucial for successful implementation of the Programme.

(Contributed by Drs K. Baruah, A Katewa, PK Sen and AC Dhariwal NVBDCP)