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Is public health in India secure?

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Is public health in India secure?

Singapore: The country's national capital is reeling under one of the worst outbreaks of dengue and chikungunya this year. The cases of chikungunya and dengue are soaring and health authorities are scrambling to contain the outbreak. According to a municipal report, at least 6,712 people have been afflicted with chikungunya in the national capital, with 1,473 cases of the vector-borne disease being reported in October. Though doctors have claimed chikungunya to be non-fatal, 20 patients suffering from this disease have reportedly died, and 25 people have died due to dengue. Health experts say the sudden "upsurge" of the disease this year could be a result of "evolution" of the viral strain.

Speaking to BioSpectrum Asia Magazine, Dr Soumya Swaminathan, director general ICMR, elaborates on India's disease outbreak management strategy and the need for a national policy in disease/outbreak management.

Q.**India is reeling under one of the worst outbreaks of chikungunya and dengue this year. In your opinion what could be the reasons?**

A: India has been facing recurrent outbreaks of dengue almost every year. A major dengue outbreak was experienced last year as well (2015). In the current year, both dengue and chikungunya cases have been reported from many parts of the country. Intermittent rain with warm temperature and high humidity are the ideal conditions for mosquito breeding. Further, lot of construction activity and urban water storage provides breeding grounds for mosquitoes.

Every year new cohorts of people, not previously exposed to dengue/chikungunya leads to an available pool of susceptible individuals with no pre-existing immunity. When such pool of people crosses a certain threshold, outbreak occurs. Chikungunya virus has only one serotype, whereas dengue has four different serotypes which do not cross protect against each other. In viewof this a person who has previously had dengue due to one serotype is susceptible to get infected by other serotypes and manifest as a full blown disease. However, after a major chikungunya outbreak, the population develops enough immunity, so we do not see another outbreak for 8-10 years.

Q.What are the steps/measures taken by the government to attend to this crisis?

A. Govt. has increased the availability of bed in various Govt. hospitals all across the country. Testing facilities have been increased significantly and the vector control measures have been intensified. The availability of platelets and blood products in various blood banks has been scaled up. IEC campaigns are being conducted through TV, radio, posters, newspaper etc., to create awareness among people towards the prevention and control of dengue. The situation is also being reviewed by high level Committees/Expert Groups, constituted by MoH&FW, on a regular basis. ICMR's NIV, Pune has devised cost-effective multiplex Dengue & Chikungunya RTPCR kits for early & accurate diagnosis of both the infections. The kits are currently under review and approval at ICMR/NIV. Currently, the IgM MAC ELISA kits being used by NVBDCP for confirmation of dengue and chikungunya are provided by NIV, Pune.

Q.In your opinion what are the key measures needed, to curb this outbreak and prevent further spread?

A: All the stakeholders like NVBDCP, Min. of Health, Municipal Corporations, Min. of Urban Development, Min. of Drinking water & Sanitation, ICMR, NCDC etc. need to come together and work in a coherent way to bring in effective vector control interventions. Data sharing among various Govt. and Private Hospitals is also essential.

Since there is no effective drug or vaccine for dengue and chikungunya, these diseases can only be prevented by implementing effective vector control interventions. Since Aedes aegypti breeds mainly in households, community awareness is the key to reduction in breeding sources. In addition, suboptimal solid waste management leads to increase in sources of vector breeding in times of monsoon. Lack of piped water supply in many parts of the country, leads to people storing gallons of water in their houses. This in turn leads to vector breeding and spread of dengue and chikungunya. Vector control interventions need to be implemented by multiple stakeholders.

Community awareness towards prevention of vector breeding needs to be intensified. Involvement of school children in a major way may help significantly. All these steps need to be taken before the beginning of high transmission season.

Q.Dengue and chikungunya is a continuing problem in India. What is India's policy in preventing and controlling the spread of vectorborne diseases?

A: The Govt. of India has established the Directorate of National Vector Borne Disease Control Programme (NVBDCP), which is the central nodal agency for prevention and control of vector borne diseases i.e. Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis and Chikungunya in India. The NVBDCP has formulated National guidelines for prevention and control of Dengue, Chikungunya, Lymphatic Filariasis etc. These guidelines are disseminated to all States through various workshops and trainings organised by NVBDCP. Dengue has also been made a notifiable disease in many parts of India, though this needs to be reinforced in a stricter way.

Q.With scary viruses daunting the globe, an epidemic threat looms over India. Is India prepared to handle an epidemic outbreak?

A: Yes, India has been prepared to handle viral epidemics occurring all over the globe. During the 2009 H1N1 Influenza pandemic, the Min. of Health as well as ICMR had put in place several measures to combat the disease, which was appreciated all across the world. An Influenza surveillance network comprising of 11 geographically well distributed sites was set up. These sites worked under supervision of NIV, Pune and generated data on prevalent Influenza strains and suggested Influenza vaccine composition that would be ideal for India. The network is still in place and has been expanded. In addition, indigenous Influenza vaccines (by Serum Institute and Lupin Labs) were given fast track approvals and marketing permissions. Indigenous rapid Influenza diagnostic kits were also developed.

In 2014, when India was facing a threat of Ebola viral disease, the ICMR's NIV, Pune had trained 13ICMR/non-ICMR BSL III laboratories all across the country for the diagnosis of Ebola virus infections. All labs were given reagents, kits and personal protective suits after the training. The Min. of Health had linked all these labs to the nearest airports for testing samples of all Ebola suspect individuals detected at various airports. ICMR has also trained 10 labs for Zika virus testing, at NIV, Pune. All these labs have been provided reagents and primers and are regularly screening for Zika infection in dengue and Chikungunya negative patients. Entomological surveillance for Zika virus in Aedes mosquito has also been initiated by ICMR Institutes in some southern States as well as Delhi.

Q. What is India's outbreak management strategy?

A: The Govt. of India/DGHS has established the Integrated Disease Surveillance Project (IDSP), managed by NCDC. The mandate of IDSP is to conduct district wise surveillance of all bacterial and viral diseases which have a potential to cause outbreaks. The IDSP raises an alarm for the public health authorities to act, whenever there is clustering of cases/deaths in any particular areas. Besides, DHR/ICMR has set up a network of 45 Viral Research & Diagnostic Laboratories in almost all States of the country to test and diagnose viral infections prevailing in various States. All the labs have been linked with NIV, Pune for training and QA/QC purpose. The DHR has a target to set up 160 such labs in India.The VRDLs have capacity to test for almost 30 -35 viruses including the ones known to cause major outbreaks.

Q.Is it time to have a national policy for drug development and epidemic outbreak?

A: The WHO has recently (May 2016) laid down a blue print for epidemic prone diseases. This delineates strategies for rapid activation of research and development activities for better understanding of an epidemic-prone disease, development of life-saving drugs, vaccines and diagnostics for prevention of such epidemics. ICMR is planning to deliberate on this soon.

Q. How does government encourage new drug research for new and rare organisms?

A: Several Govt. agencies like ICMR, CSIR, DST, DBT fund research on new drug development. CSIR's Central Drug Research Institute specifically works on new drug development.

Q. Is it time to have a collaborative approach and establish more PPP models to encourage research of rare viruses and bacteria to develop effective medical interventions?

A: Yes, definitely Public Private Partnerships are welcome. The Govt. alone cannot do everything; the private companies can financially and logistically support many programmes as a CSR initiative. ICMR has recently signed MoU with Sun Pharma for Malaria free India. The Malaria free project is soon being launched by ICMR's National Institute for Research in Tribal Health (NIRTH) in Mandla district of Madhya Pradesh. ICMR is also engaging with SunPharma to strengthen capacity on clinical trials in ICMR Institutes. We look forward to such partnerships in future too.

Q. Please outline some efforts taken by ICMR in reducing disease burden in the country and promoting well-being.

A: ICMR has several contributions in strengthening the public health system of the country and reduction of burden of several diseases. The key contributions of ICMR are:
The Enterovirus Research centre at Mumbai has served as a backbone to the Polio elimination programme inthe country. The Centre evaluated immunogenicity of monovalent, bi-valent and trivalent OPV for introduction of new polio vaccines for polio eradication. The various trails conducted at EVRC provided data to the programme for strategic introduction of various Polio vaccinesat different time points. In addition, The Centre is a pioneer in setting up sewage surveillance for Polio viruses in Mumbai. The programme has now been expanded to many States.The Rajendra Memorial Research Institute of Medical Sciences at Patna has contributed significantly in operational research providing effective tools for surveillance, diagnosis, treatment and vector control under national kala-azar elimination programme.National Institute of Virology at Pune has partnered with Bharat Biotech International ltd. to develop an indigenous vaccine for Japanese encephalitis. The vaccine is available in the market.The National Institute for Research on Tuberculosis has undertaken landmark research in several areas including the effectiveness of domiciliary treatment for TB,the need for supervising treatment, the efficacy of intermittent short-course chemotherapy regimens, and the protective efficacy of BCG vaccine.