Report from the field

The National Academy of Vectors and Vector Borne Diseases in India: two decades of progress

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ABSTRACT

The National Academy of Vector Borne Diseases (NAVBD) was founded at Bhubaneswar in 1994, by Dr AP Dash, along with 15 like-minded scientists from all over India. NAVBD is a non-profit academic organization in India, dedicated to advancing and promoting knowledge on vectors and vector-borne diseases, and encouraging scientists and members of the academy to conduct research on vectors and vector-borne diseases. NAVBD convenes national and international seminars, symposia and workshops to exchange knowledge on recent advances in the field of vectors and vector-borne diseases and raise public awareness. Plans are under way to expand the Academy's activities to the rest of the South-East Asia Region.

Key words: India, National Academy of Vector Borne Diseases, vector-borne diseases, vectors

BACKGROUND

Vectors are organisms that transmit pathogens and parasites from one infected person (or animal) to another, causing serious diseases in human populations. These diseases are commonly found in tropical and subtropical regions. Vector-borne diseases (VBDs) account for 17% of the estimated global burden of all infectious diseases.[1] Mosquito-borne diseases threaten the lives and livelihoods of millions of people worldwide.[2]

Vector-borne diseases have not only adversely affected the health of the people in the region but also impeded overall socioeconomic development.[3–5] At the same time, developmental activities without adequate environmental concerns have increased the scope and scale of transmission of these diseases. VBDs such as malaria, dengue fever, chikungunya, Japanese encephalitis, kala-azar and lymphatic filariasis have emerged as serious public health problems in India. Many of these, particularly dengue and chikungunya fever, Japanese encephalitis and malaria, occur in epidemic forms, causing considerable morbidity and mortality. Dengue is spreading rapidly to newer areas, with outbreaks occurring more frequently and explosively. Over the past five decades, the incidence of dengue has increased 30-fold globally, resulting in 20 000 deaths annually.[6] Chikungunya has re-emerged in India after a gap of more than three decades, affecting many states of India, such as Andhra Pradesh, Andaman and Nicobar Islands, Delhi, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu and Odisha .[7] Currently, around 3.4 billion people live at risk of malaria globally; during 2012 at least 207 million people were affected and, of these, 627 000 died as a result of malaria,[8] while India reported more than one million cases of malaria in 2012 and more than 40% of the global burden of lymphatic filariasis.[9]

The National Academy of Vector Borne Diseases

Considering the importance of these diseases, the National Academy of Vector Borne Diseases (NAVBD) was founded at Bhubaneswar in 1994, by Dr AP Dash, along with 15 like-minded scientists from all over India; this site was chosen in view of its strategic location in the country in relation to vector-borne diseases, as it is highly endemic for malaria, lymphatic filarisis, dengue and chikungunya.

NAVBD is a non-profit academic organization in India, dedicated to:

- advance and promote knowledge on vectors and VBDs;

- encourage scientists and members of the academy doing research on vectors and vector-borne diseases, and assist them whenever possible;
- hold national and international seminars/symposia/ workshops to exchange knowledge on recent advances in the field of vectors and vector-borne diseases, and create awareness of vectors and vector-borne diseases among the general public.

The academy is governed by an elected executive committee, which consists of a president, vice- presidents, secretary-general and other members. Dr VP Sharma and Professor AP Dash were the founder president and secretary-general, respectively. The academy was registered under the Society of Registration Act, Government of India (1880). The membership of the Academy has now increased to more than 300.

Symposia

The First International Symposium on Vectors and Vector Borne Diseases was held in November 1994 at the Regional Medical Research Centre, Bhubaneswar. Dr C Silvera, then Union Minister of Health and Family Welfare, Government of India, inaugurated the symposium. At least 150 scientists of repute from India and abroad participated and engaged in discussion on all aspects of the prevalent vector-borne diseases. The recommendations of the symposium were forwarded to the Government of India and Indian Council of Medical Research (ICMR).

Since then, the academy has made steady progress and further symposia were organized in different cities in India, including Goa, Gwalior, Jabalpur, Madurai, Patiala and Udaipur. These symposia provided excellent opportunities to reflect on the recent advances made in research on vector-borne diseases. They also helped in scaling-up of elimination/prevention of vector-borne diseases to alleviate suffering and bring about social growth and development. The World Health Organization (WHO) Regional Office for South-East Asia has supported the NAVBD symposia since 2008.

The academy has so far organized 12 international symposia, the last one being in Udaipur, Rajasthan, which was inaugurated by Dr VM Katoch, Secretary for Health Research and Director-General of ICMR, while Dr Leonard I Ortega, Regional Adviser, WHO South-East Asia Regional Office, New Delhi, attended as the guest of honour. The symposium was organized with support from ICMR and the WHO regional office, with further support from industries as a part of public–private partnership.

Awards and recognition

To encourage scientists working on vector-borne diseases, the academy has instituted various awards for outstanding contributions on: environmental management of vector-borne diseases; molecular biological aspects of vector-borne diseases; and clinical aspects of vector-borne diseases.

In addition, at each symposium, the academy makes the following awards, on a competitive basis:

- **Vestergaard Frandsen Award for Vector Control**: this is a cash award of INR (Indian rupees) 200 000 , sponsored by Vestergaard Frandsen Ltd since 2008, and is given to active researchers who are nationals of any member country of the South Asian Association for Regional Cooperation and have contributed significantly in the fields of understanding the mechanism of insecticide resistance, vector bionomics and control. The cost of travel and other expenses of the recipient, and the medallion, are borne by Vestergaard Frandsen;
- **Biotech International Award**: this cash award of INR 100 000 is sponsored by Biotech International Ltd, since 2008 and is to be given to a scientist who has working experience in India and has made outstanding contributions in the field of biological control of vectors;
- **Bayer Environmental Science Award**: this cash award for INR 100 000 has been sponsored by Bayer India Ltd since 2008, and is given to a scientist who has working experience in India and has made an outstanding contribution in any field of vector-borne diseases, preferably in the aspect of vector/disease management. In exceptional cases, Indian nationals working abroad, or foreign scientists, may also be considered for the award, provided their work has made a significant contribution to the understanding and control of vector-borne disease in India. The cost of travel and other expenses of the recipient, and the medallion, are borne by Bayer Environmental Science;
- **Godrej Sara Lee Award**: Godrej Sara Lee Ltd declared this award for 2009, which was to be presented during the tenth annual international/national symposium organized by the academy, for excellence in research on personal protection from mosquitoes. The award includes a cash prize of INR 100 000.

So far, the recipients of these awards include Dr VS Chauhan, Director, Dr Chetan Chitnis and Dr Deepak Gaur, scientists of the International Centre for Genetic Engineering and Biotechnology, New Delhi respectively; Dr Shovna Sharma, Tata Institute of Fundamental Research, Mumbai; Dr Sarla K Subbarao and Dr NeenaValecha, both Directors of the National Institute of Malaria Research; Dr YD Sharma, Professor and Head of Biotechnology, All India Institute of Medical Sciences, New Delhi; Dr BK Das, Professor of Medicine, SCB Medical College, Cuttack; Dr Neeru Singh, Director, Regional Medical Research Centre for Tribals, Jabalpur; Dr P Jambulingam, Director, Vector Control Research Centre, Pondicherry; Dr DT Mourya, Director, National Institute of Virology, Pune; and Dr MM Parida, senior scientist, Defence Research and Development Establishment, Gwalior. Two scientists from Sri Lanka have also been honoured.

Since 2008, the academy has also encouraged young scientists by giving six Best Poster Presentation Awards.

Awareness campaign

In the field of raising awareness, Dr Ashwani Kumar, a member of NAVBD's executive committee, in collaboration with Professor D Deobagkar, the President of the academy, made a cartoon educational film for children, called *Mosquito control: I can do it*, which is available on YouTube. This animated film highlights how mosquitoes cause serious diseases. On the advice of a doctor, both a girl and her mother take upon themselves to first acquire knowledge about mosquitoes and the diseases transmitted by them, and then spread the knowledge by involving their friends in tackling them. *"Bholu"* the monkey, who is friendly with the children, bestows upon them magical powers to enter the world of mosquitoes, where they are able to listen to mosquitoes talking to each other and come to know about their nefarious designs. Children hear mosquitoes and malaria parasites boasting about their powers in bringing about sickness and destruction of many human civilizations in the past, and the havoc they continue to create even today in the world.

Hearing this, the children feel greatly concerned and angry. They then take a pledge to destroy mosquitoes with the help of friends and parents, and the children start taking various actions to eliminate mosquito breeding. They mosquito-proof their homes by screening windows and doors, introduce fish in wells and ponds, mosquito-proof overhead tanks, safely store containers and sleep under a mosquito net. After conquering the mosquitoes, children sing a song to conclude the film.

The film lasts 20 minutes and is ideal to show in the classroom. It is currently available in English, and will soon be dubbed in Hindi and various regional Indian languages.

Publications

The abstracts of the papers presented at all international and national symposia have been published. In addition, the academy has published two proceedings of the International Symposia on Vectors And Vector-Borne Diseases held in 1995 and 1997. The academy so far has published eight volumes of *News Letters*, which have been circulated to all life members, as well as other important persons working/interested in the field of vectors and vector-borne diseases.

Other activities

Besides international and national conferences, the academy organizes seminars and conferences in different academic institutions, for students and young faculty members of universities and postgraduate colleges. As a part of this activity, on 13 February 2009, a day-long national seminar on "Challenges of mosquito borne diseases in Indian perspectives" was organized by NAVBD at Asutosh College (University of Calcutta), Kolkata, in collaboration with the Foundation of Academic Excellence and Access (FAEA). Professor Subir Kumar Dutta, Medical Secretary, The Asiatic Society, Kolkata was the chief guest. Professor AK Hati, former Director of Calcutta School of Tropical Medicine, delivered the keynote address. At least 150 scientists, research scholars, doctors, and postgraduate students attended and presented papers.

On 6 February 2010, a day-long national seminar on "Climate change and vector borne diseases" was organized by NAVBD, in collaboration with The Asiatic Society, at the Asiatic Society, Kolkata. Professor Dhrubojyoti Chattopadhyay, Pro-Vice Chancellor, University of Calcutta and Biological Science Secretary, The Asiatic Society, Kolkata, inaugurated the seminar. Professor Biswanath Banerjee, President of the Asiatic Society, delivered the keynote address. At least 110 scientists, research scholars, doctors and postgraduate students attended and presented papers.

On 19 and 20 November 2010, a national conference on "Environment degradation and its impact on mankind" was organized by NAVBD at Punjabi University, Patiala, in collaboration with the Punjabi University Environment Society, Patiala. Dr Jaspal Singh, Vice Chancellor of the Patiala University inaugurated the conference. Around 120 postgraduate students, researchers and academicians attended and discussed topics such as health issues related to genetically modified food and non-food crops; bio-ecology of malaria vectors in India; ecology and biodiversity of the Himalayan region; and an integrated model of vermin biotechnology and *Spirulina* biotechnology as an effective tool for environmental conservation.

Future plans

It is planned to expand the academy to a broader sphere in the South-East Asia Region in the near future. Bearing in mind the World Health Day 2014 theme of vector-borne diseases, it is proposed to organize a global meeting on vector-borne diseases in 2015, which will address recent advances in vector-borne diseases research and control, and consider future courses of action.

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