EMERGING & RE-EMERGING INFECTIOUS DISEASES IN KERALA

R. Sajith Kumar and Edited by Prathiksha

Emerging and reemerging infectious diseases pose a threat to the stability of nations worldwide due to their adverse effects on health and development. Factors for the emergence/re-emergence of infectious diseases are complex and interrelated. These include environmental changes, transformation of ecosystems, ongoing socioeconomic changes and the deterioration of public health systems in many countries. Worldwide explosion of infectious diseases, emerging diseases like the HIV/AIDS pandemic, or the re-emerging diseases such as cholera, tuberculosis, diphtheria, plague, yellow fever, dengue, or malaria are a major threat to several nations. More than 300 new pathogens (Bacteria, Parasites, Virus etc.) have been discovered in the last seventy years.

Kerala is considered as a model State for the health status and health care delivery systems all over the world. The ‘Kerala model’ has been appreciated, studied and analyzed extensively in various fields - scientific, economic, philosophical, historical and social. Even though the state has got a highly educated population with good sanitation conditions, it has been afflicted by a variety of infectious diseases in the form of epidemics in the last two decades. There are persistent issues like Leptospirosis and malaria. A few like dengue fever and Chikungunya are tending to become endemic, emerging disease such as H1N1, SARS typhus fever and Japanese Encephalitis are also becoming a major problem. The constant clusters of water borne illnesses like enteric fever and viral hepatitis pose a threat even to the casual visitors. There are
diseases like HIV and Hepatitis B in the background, lurking as potential killers.

A symposium was organized with a view to take stock of the situation and recommend remedial or corrective measures which may help us to control these infectious diseases. It is a fact that we have a large amount of resource being unutilized. The parallel systems of modern medicine, Ayurveda, Homoeopathy and the backbone of nursing streams are all working at various levels aiming at the control of these epidemics and ensuring a healthier world; but they hardly ever work in tandem.

As the apex academic body, involved with the health sciences institutions in Kerala, KUHS organized this symposium aiming to bring together all disciplines of health sciences on a common platform in an effort to tackle the health issues and problems of the State in a concerted, collaborative and more effective manner.

The symposium first attempted to understand the emerging infectious diseases from a statistical point by taking stock of the present scenario, and then proceeded to critically analyze the origin of these problems. The participants were subsequently divided into four streams viz. Modern Medicine, Ayurveda, Homoeopathy and Nursing in parallel sessions, where each group explored extensively on the ways to combat the problem and generated ideas for sharing with the rest of the groups. The groups later re-assembled and listened to the concise presentations of the discussions from the four groups. Finally the symposium tried to bring about a convergence of these ideas with a view to develop a common academic document with recommendations for future action, which is to be placed before the public.
The current scenario

Our state Kerala has been witnessing an explosion of Emerging and Reemerging diseases in the past decade, particularly last 6 years. Emphasis and the need for a strong surveillance system got a foothold in Kerala with the advent of IDSP Programme in 2005. Setting up of Regional Prevention of Epidemic and Infectious diseases Cell has promoted timely disease reporting by the different Clinical disciplines co-ordinated by Community Medicine departments of all 5 Government Medical colleges has been an important initiative in filling gaps in Disease surveillance activities.

The diseases that poses to be a challenge to the Health system in the Past 5 years are emerging disease like HIV, H1N1, Chickungunya, Dengue fever, scrub typhus and re-emerging diseases like Malaria, Measles, and other vaccine preventable diseases. In Kerala, 2009 and 2010 Disease surveillance reports show that we are under the threat of diseases like Leptospirosis, H1N1, Malaria and Scrub typhus. Rickettsial disease is another area of concern for which the clinicians need to be sensitized. Diphtheria and Tetanus is in the process of a comeback in Malappuram district. Unconfirmed reports of Epidemic Typhus too have appeared from Malappuram district which need to be investigated further. With the increasing interstate migration of labourers Leishmaniasis has also become a concern for the state in the near future. There is ample potential for spread of new disease like Congo Hemorrhagric Fever considering the globetrotting nature of Keralites with their intercontinental, inter-country and interstate migration.
There are various agencies working in the field of infectious diseases management in the state of Kerala. These include:

1. In the modern system, we have the Prevention of Epidemic and Infectious Diseases Units working in all five Govt. medical colleges collecting data on a regular basis. The data that is collected and coordinated by the State Disease Control Monitoring Cell plays a major role in the timely intervention activities across the State. The monthly evaluation systems also try to pick up early signals and act on the same.

2. The Ayurveda hospitals and practitioners who see a large number of patients at different levels diagnose and treat these cases. The promotive effects of Ayurvedic way of living and environmental handling are very effective.

3. The Homoeopathic practitioners also do a lot to cover the epidemic diseases, and are actively involved in organizing camps for the needy.

4. The nursing service that forms the backbone of institutional care also undertakes many community oriented programmes as part of fulfilling their curricular needs. The word of mouth way of spreading awareness is very effectively promoted by many nursing colleges who also adopt communities for interventions and promotive care activities.

5. The other stakeholders like the staff of the animal husbandry department, agriculture, education and local self-governments are also working at different levels/places with varying levels of efficiency. They are important considering the fact that more than 50% of pathogens have a link with fauna and can be classified as zoonosis.
6. The other organized health units like railway health system and the ESI dispensaries and hospitals attached to industrial and housing units also helps in identification and control at various levels.

The data related to the current epidemic burden and the changing trends were discussed in detail. It was realized that the data presented/available were merely the tip of the iceberg as many of the groups involved with infectious disease management are not in the line of communication with the higher surveillance centres.

- Surveillance being the complete collection of data for timely and efficient action, the lack of participation and regular communication adversely affects the efficiency of disease and epidemic management.

- Therefore proper feedback to the reporting units/surveillance centre is essential for effective monitoring and collaboration.

- The lack of coordination between the various units within and between the groups also affects the reality perception.

- A large pool of resources remains unutilized in the State such as those from the teaching institutions under various streams, whose faculty, staff and students are not part of the network.

- There is lack of training in the crucial aspects of surveillance and interventions.
The lack of protocols in the management of patients and in community interventions is causing lack of uniformity in the effectiveness of programmes within the State.

The following infectious diseases were identified as the major threats to the people of the State

1. Leptospirosis
2. Dengue Fever
3. Viral Hepatitis
4. Typhoid fever
5. Respiratory infections (including Influenza)
6. Malaria
7. Chikungunya Fever
8. Japanese Encephalitis
10. Measles
11. Scrub Typhus

Diseases related to HIV (Human Immunodeficiency Virus), Tuberculosis, Leprosy, Sexually Transmitted Diseases, Rabies and Tetanus were not included for discussion.
Challenges

The following challenges were recognized in relation to the diseases mentioned

1. Leptospirosis
2. Exposure related to bread winning activities (farming etc)
3. Late diagnosis and referrals
4. Self-treatment / delay in treatment
5. Absence of confirmation in many cases of Leptospirosis.
6. Need to develop a high index of clinical suspicion among primary care physicians.
7. Future Work
8. Lack of epidemiological studies to explore causal association between various factors contributing to Leptospirosis in our setting.
9. Few serovar studies have been done so far.
10.Lack of inter-sectoral coordination in Leptospirosis research.
11.Dengue fever
12.Absence of timely alert on the basis of vector indices.
13.Ecological mishandling and climate changes
14. Lack of civic sense and environmental awareness/hygiene

15. Mimicking of disease symptoms with other prevalent diseases.

16. Improper/suboptimal treatments

**Future Work**

More studies on virus isolation and epidemiological studies to be done, as very few have been done so far.

1. Disease prediction mechanisms to be designed and put in place.

2. Viral Hepatitis, Typhoid Fever and Diarrheal diseases

3. Poor water quality, (and drinking water scarcity) identified across the State

4. Lack of awareness and lack of hygiene among food handlers

5. Lack of quality control systems for materials and personnel.

6. Increasing trend towards outdoor eating

7. Extensive travel for different purposes

8. Lack of immunization

9. Increasing trend towards education and accommodation in unhealthy surroundings.

10. Increasing habit of alcohol abuse
11. Prevalence of myths and wrong ideas about jaundice

Future Work

1. Health awareness and education programmes on the risk factors mentioned above to be designed.

2. Respiratory Infections (including influenza)

3. Overcrowding in public places

4. High frequency of travel within and outside the country

5. Lack of proper education regarding personal hygiene and sense of civic responsibility

6. Exposure to flora and fauna in unhealthy surroundings

7. Lack of isolation facilities in health institutions

8. Reluctance of children and adults to remain isolated, when sick.

9. Lack of specific treatments

Future Work

Health awareness and education programmes on the risk factors mentioned above to be designed.

Steps to enhance awareness among doctors, which lead to late diagnosis and improper use of medications in hospitals

Design and implement proper diagnostic facilities in treatment centres
Malaria

Increase in indigenous Malaria cases in Kerala

Imported Infections through migrant labourers from States like Tamil Nadu, Rajasthan, Bihar, Orissa and West Bengal

Lack of coordination, ownership and link between the urban health system and district health system in detection, prevention and control activities.

Absence of an efficient disease screening initiative for migrant labourers.

Future Work

Implement steps to rectify the above

Need for regular and systematic vector studies and studies on the efficacy of vector control covering the entire State

Chikungunya Fever and Japanese Encephalitis

Lack of environmental sanitation

Exposure related to bread winning activities (farming, travel)

Inadequate vector control measures

Climate changes

Lack of awareness and co-ordination among health professionals
Self-treatment

Lack of proper diagnostic facilities

Future Work: - Steps to rectify the above, as well as health awareness and education programmes among the people about the risk factors and simple preventive and remedial measures that they could follow

Typhus Fever and Rickettsial Diseases

Lack of awareness about the presence of Rickettsial diseases among health professionals

Delay in treatment.

Self-treatment

Lack of proper diagnostic facilities

Lack of specific treatments.

Future Work

More extensive studies on vector types and vector density to be undertaken in the various districts of the State.

Steps to enhance awareness about the risk factors and to establish proper diagnostic facilities

Measles

Overcrowding, frequent travel etc.
Entity of Partial immunization.

Shift of incidence from childhood to adult stage

Lack of isolation facilities in health institutions

Reluctance of children and adults to remain isolated, when sick

Negative propaganda on immunization

Future Work:-

Steps to enhance awareness about the risk factors and to establish isolation facilities in health institutions

Studies to analyse any fall in immunity after adolescence in those vaccinated with live measles/ MMR vaccine in childhood.

Role of Ayurveda

Ayurveda, the science of life, considers health as a phenomenon which can be maintained by individual and mass effort.

Ayurveda recommends basically three domains of health care in addressing most of the diseases.

1. Preventive domain

2. Curative domain

3. Promotion of Health domain
Preventive Domain: Ayurvedic life style modifications have several effective methods to enhance the natural immunity of the individual, including diet and various regimens. Moreover, some of the time tested methods for water purification, air purification and vector control offer effective means for environmental protection.

Curative Domain: Most of the recently notified infectious diseases, such as Leptospirosis, Dengue fever, H1N1 and Chikungunya, can be effectively treated with Ayurvedic therapeutic preparations. Ayurvedic preparations are particularly effective for post viral fever complications such as arthralgia.

In the promotion of health domain also, Ayurveda has a holistic approach to preserve and promote the health of an individual. Boosting of biological defence mechanism, using natural tools free from side effects, is one of the key methods for this purpose.

Protocols for various individual diseases were discussed in detail in the scientific session.

According to Ayurveda, etiology of diseases may be divided into two.

- Asadharanahetus (Factors pertaining to the individual).
- Sadharanahetus (Factors pertaining to the society)

These are common to all the people in a region and therefore determine the pattern of epidemics.

Continuing education for ayurvedic practitioners and traditional healers has to be intensified. Training to housewives regarding diet, ayurvedic
gardening and environment modifications may be implemented through self-help groups.

**Homoeopathic View**

Homoeopathy- based on law of similar - is effective in treating all natural diseases.

Homoeopathic medicines are able to increase the immunity of our body. A homoeopathic physician makes a homoeopathic prescription through the holistic approach by considering the totality of symptoms manifested in a patient. These include the mental, emotional spiritual and physical peculiarities of a patient and also the uncommon peculiar signs and symptoms of the manifestations of the disease in each patient. A Homoeopathic physician also gets hold of the hidden interior through perceivable expressions like the totality of symptoms of the patient, by looking the patient as a whole.

According to Homoeopathy manifestations will be different in every individual and the management stresses more on the individual rather than the organism. There is no preventive medicine or vaccines in homoeopathy. In any epidemic the specific drug is identified for treatment and these drugs are used for prevention also. They improve the innate immunity and make the individual capable of resisting external infections. They are also less expensive.

More studies are needed in this field. The importance of vector, environment and food control has to be stressed.
Recommendations

Community Level

i. Strict enforcement of laws regarding environmental pollution with stiff penalties for default

ii. Promotion of waste management systems like biogas plants

iii. School Health Programmes with, the active participation of parents, teachers and community leaders, to focus on the importance of Environmental Protection and its relationship to human diseases, and to help create civic sense among the children.

iv. Regional and specific recommendations for farmers and different types of occupation

v. Promotion of early health seeking behavior and avoidance of self-treatment and quacks

vi. Using existing organizations like residential association to sensitize the community regarding the issue.

Institutional Level

i. Creation of diagnostic facilities, particularly for virologic and genetic studies

ii. Ensuring hygienic practices in the hospitals and health settings

iii. Surveillance at the Clinical, Laboratory, Environment and Vector levels.
iv. Development of Protocols for diagnosis and treatment, and manuals for health workers incorporating principles from modern medicine, ayurveda and homoeopathy

v. Sensitisation of medical students, interns and residents.

vi. Regular CME programmes for practitioners in the non-academic service institutions regarding surveillance, early diagnosis, proper & timely referral etc.

vii. Improvement in the infrastructure and staff pattern in all health institutions.

viii. Time bound and result oriented research in the efficacy and proper use of Ayurvedic environmental purification and vector control measures, immune-boosters and other indigenous methods and homoeopathy drugs.

(ix) Adoption of nearby communities by health care educational institutions for taking care of their health needs.

(x) Conducting household surveys: Students under the guidance of the teachers should conduct surveys in the community to assess the incidence and prevalence of the various emerging and re-emerging infectious diseases, environmental hygiene, presence of vectors, lifestyle etc.

(xi) Setting up immunity clinics by Ayurvedic institutions offering season specific services.
Administrative Level

i. Advocacy programmes for social workers

ii. Dissemination of health tips for travelers

iii. Proper registration of migrants.

iv. Health monitoring of workers from other States

v. Research promotion at clinical, laboratory and community levels.

vi. Empowerment of ASHA workers with more information related to the different streams, along with monetary help.

vii. Institution of field health staff and related structured framework in Ayurveda and Homoeopathy systems, similar to the present public health system in modern medicine.

viii. Involvement of the nursing and para-medical institutions, particularly in areas of IEC (Information, Education & Communication) material development and dissemination, school health programs and social research.

ix. Setting up of a regional epidemic management institute which could conduct courses and research, and enable the faculty to conduct research into various aspects of epidemic management, which could be useful even for the neighboring States

x. Regular updates on infectious diseases through internet and newsletters.
Monitoring and Supervision of activities.

Recommendations for strengthening the surveillance system

All affiliated institution of KUHS should be included in the state surveillance network. The State PEID Cell, State Disease Control & Monitoring Cell and the Rapid Action Epidemic Control Cell-Homoeopathy (RAECH) could be linked up with the community medicine/nursing departments for better co-ordination and improved systematic surveillance. Each institution can also involve the non-academic private and public institutions in the process, so that the whole populace of Kerala can be brought under the ambit of this “Save Kerala from IDs” Operation.

ACKNOWLEDGEMENTS: Dr K Mohandas, Vice Chancellor, KUHS, Thrissur, Dr C Retnakaran, Pro Vice Chancellor, KUHS, Thrissur, Dr C Radhakrishnan, Organising Chair, Dean, MOSC Medical College, Kolencherry, Dr R Sajith Kumar, Coordinator, Chief, Infectious Diseases, Govt Medical College, Kottayam, Dr V Ravi: Guest Speaker: Professor & Head, Dept, of Neurovirology, National Institute of Mental Health and Neurosciences, Bangalore.

Resource Persons, Session chairs and Rapporteurs: Dr. Thomas Mathew(Director, SDCMC,Thiruvananthapuram), Dr.SaraVarghese, (Coordinator, State PEID Cell,Thiruvananthapuram), Dr.Sairu Philip(Community Medicine, TD Med College,Alappuzha), Dr.Asma Rahim(Community Medicine, Govt Med College, Kozhikode), Dr. Arun P Nair(Karuna Medical College,Palakkad)’ Dr.Sarasa T P, Govt.Ayurveda College, Tripunnithura, Eranakulam, Dr.S.Gopakumar, Associate
Professor, Govt Ayurveda College, Kannur, Dr R. Janardanan, Padiyar Memorial Homoeo Medical College, Eranakulam, Dr. Abdul Hameed, Govt Homoeo College, Kozhikode, Prof. (Sr.) Gilbert (President, TNAI), San Joe College of Nursing, Pulluvazhy, Dr. Sabeena (Govt. College of Nursing, Kottayam), Ms. Shiny Francis (MOSC Nursing College, Kolencherry),.

Papers presented by: Dr. Abdul Hameed, Govt. Homoeo Med. College, Calicut, Dr. Agnivesh, Nangelil Ayurvedic Medical College, Kothamangalam, Dr. Biju, Sr. Homoeopathic Physician, Kottayam, Dr. Harikrishna Pillai J, Dr. Padiar Mem. Homoeopathic Med. College, Chottanikkara, Dr. Jayan Damodaran, (Associate professor, Govt. Ayurveda College, Tripunithura), Dr. Jolly Jose (Principal, Govt. College of Nursing, Alappuzha), Dr. Mariamma Kuriakose, MOSC Med College, Kolencherry, Dr. Ragee Raghunath (Principal, Amala College of Nursing, Thrissur), Dr. Renjith, Shri Vidyadhi Raja Homoeopathic Medical College, Thiruvananthapuram, Dr. Sheila Shenoy (Vice Principal, SIMET, Palluruthy), Dr. Sohan Lal T, ACME, Pariyaram, Dr. Udaykumar, Gen. Secretary, Ayurvedic Med. Association of India, Angamaly, Dr. Venugopal B, ANSS Homoeopathic Medical College, Kottayam.