

1. Report of the Technical Advisory Committee on Plague, 1995, p. 79.
2. Sharif, M., *Bull. WHO*, 1951, 4, 75-109.
3. Saxena, V. K., D Sc. Thesis, University of Kanpur, 1992.
4. Saxena, V. K., *J. Commun. Dis.*, 1987, 19, 310-316.

ACKNOWLEDGEMENTS. V. K. S. thanks Dr K. K. Datta, Director, NICD, Delhi for providing the opportunity to investigate the Surat episode. We are also thankful to Prof. V. Ramalingaswami for encouragement and useful suggestions during the course of this study.

Epilogue – What next?

V. Ramalingaswami

All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

The good news is, accepting the recommendation of TAC, the Government of India (vide their order no. T-21011/8/94-PH (Pt. 1) dated 24 April 1996) established a National Apical Advisory Committee (NAAC) for National Disease Surveillance and Response System. The Committee would have the responsibility of playing an advisory role in the establishment of a National Disease Surveillance and Response System.

The terms of reference of the Committee would be as follows:

1. The Committee would give advice and suggest mechanisms for setting up of a National Disease Surveillance and Response System.
2. The Committee would review the progress periodically regarding implementation of the National Disease Surveillance Programme.
3. The Committee would examine the epidemic preparedness of health care providers.
4. The Committee would assist and advise in the development of an early warning signal mechanism.
5. The Committee would review various programmes, guidelines and mechanisms available for prevention and control of communicable diseases with special reference to new, emerging and re-emerging pathogens and epidemic-prone diseases.

There is growing realization today that as new microbial threats are appearing, well-known illnesses thought to have been controlled are resurging¹⁻³. The Acquired Immuno-deficiency Syndrome (AIDS) is a good example of the former while malaria, kala-azar and plague are notable examples of the latter. Emerging or re-emerging, bacterial resistance to drugs is an increasingly serious problem. Population growth and consequent population movements from the hinterland into urban areas and into forest regions, changes in human behaviour, poverty and overcrowding, changes in ecology and climate, floods

and earthquakes, increased tourism, trading and traveling, the evolution and adaptation of microbes and the inadequacy and breakdown of health infrastructures are some of the factors behind the ever-changing scenario of infectious diseases^{2,4}. As far as plague is concerned, the importance of earthquakes, floods and local changes in ecology affecting microbe-carrying rodents and acting as triggering factors is well brought out in the preceding pages. While the canvas of NAAC's operations has been kept very wide covering all diseases, which is to be welcomed, it is to be hoped that Surveillance and Response Mechanisms for Plague and other Infectious Disease would receive the most urgent attention of NAAC for, after all, plague was the agent provocateur.

The essential task before NAAC is to advise the Government on national capability building related to preparedness, early detection and control of emerging and re-emerging infectious diseases and to establish proper disease reporting systems. Establishing the aetiological diagnosis, understanding the sources and modes of transmission of the infectious agents, identifying high risk groups, investigating antibiotic sensitivity of isolated microorganisms and facilitating the development and production of readily available reagents for diagnostic purposes are some of the elements of capacity building. Clinical samples and microbial isolates need to be referred expeditiously to designated laboratories in the country for further study and, at times, they may be referred to centres abroad and the WHO could be a useful ally in such tasks. While national networks of laboratories and scientists would need to be developed on a disease basis, it is equally important to participate in the establishment of a global disease surveillance and response network. The need for this is amply borne out by the fruitful interaction that took place between Indian scientists and scientists located in the WHO Reference Centres on Plague at CDC, Fort Collins (USA), Paris and Stavropol (Russia) in the plague outbreaks of 1994.

To meet the challenges posed by emerging and re-emerging diseases, a strong research and training effort in laboratory and field work is needed on a continuing basis. A cadre of well-trained microbiologists, epidemiologists, clinical scientists, behavioural scientists, entomologists, mammologists and public health professionals has to be built. The knowledge base generated by the research and training effort would enable the public health specialists to design appropriate control strategies and to provide the needed preventive and therapeutic tools. NAAC would need to work in close collaboration with the national research agencies (ICMR, CSIR, DBT, DST and others) and their laboratories in developing an integrated approach to national disease surveillance and response system and to ensure that the talent available in the country is fully utilized.

In the course of this work, TAC has realized the necessity of setting up appropriate containment facilities for handling hazardous microbes in the country. There is also an urgent need to establish laboratory facilities for collection, storage and maintenance of microbial strains isolated from various infectious disease outbreaks. The importance of this facility was brought home to TAC when it realized that despite many plague outbreaks in India, there are only a few old strains from these years that have survived in any of the national and world collections to compare with, thus severely limiting a consideration of the relationship of the strains isolated in the plague outbreaks of 1994 with pre-existing strains in the country and with strains elsewhere. In any national in-

fectious disease surveillance system, it is of the utmost importance to determine the origin of the infection and its relationship to earlier pre-existing strains of the infectious agents in a given area. The Department of Biotechnology is now coordinating an inter-agency initiative to address this issue.

NAAC's establishment represents a landmark in the story of India's struggle against tropical infectious diseases. Disease surveillance for disease prevention is a responsibility of the State and the resources needed must be found. Giving the Aryabhata lecture at the Indian National Science Academy on 4 October, 1994 (ref. 3), I said: 'Finally, attention was drawn to the need for increasing resources for sustainable health development and to the fact that securing the health of the people is a pre-requisite for maximizing wealth creation. Surat is a supreme illustration of the health rationale of development and of the futility of creating wealth without securing the health of those that toil for wealth creation'.

-
1. Lederberg, J., Shope, R. E. and Oaks, S. C., *Emerging Infections*, Institute of Medicine, National Academy Press, Washington DC, 1992.
 2. *Infectious Diseases - A Global Threat*, Report of the National Science and Technology Council, Committee on International Science, Engineering, and Technology working group on 'Emerging and Re-emerging Infectious Diseases', September 1995, p. 55.
 3. Ramalingaswami, V., *Proc. Indian Natl. Sci. Acad.*, 1995, **B61**, 241-248.
 4. Ramalingaswami, V., *Curr. Sci.*, 1996, **70**, 1050-1056.
-