

Role of Virus Laboratory in the Prevention and Control of Severe Infectious Diseases: Thailand Experience

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Infectious diseases, either emerging infectious diseases (EID), re-emerging infectious diseases (re-EID) or diseases endemic locally in any locality are leading causes of illnesses and deaths throughout the world. The enormous diversity of microbial agents combined with their ability to evolve and adapt to changing populations, environment, daily practices and technologies creates threat to human health and continually our efforts to prevent and control infectious diseases which are spreading in a rapid pattern such as EVD and MERS in the present situation. Now we designated a term of *DISEASES WITHOUT BORDERS*

The strategies in prevention and control of those infectious diseases comprise of at least three elements namely: **Strong public health foundation, High-impact intervention and Appropriate health policies.**

- **Strong public health foundation** including knowledge and understanding on EID and rEID infectious diseases which will leading to disease surveillance and immediate response and laboratory capacity for rapid detection and confirmation.
- **High impact intervention** including disease surveillance, epidemic investigations, contact tracings and quarantine.
- **Appropriate health policies**

For laboratory capacity especially complicated and sophisticated laboratory methods for viral diseases are of special concern.. Effort to prevent and control high burden infectious diseases can be achieved dramatic results within a short time-frame, reducing diseases burden and health inequities while saving lives, reducing public panic and financial and economical losses.

After WHO officially reported epidemics of MERS in the Middle East in September 1955 and epidemics of EVD in West Africa in March 1955 respectively, Thailand has begun to strengthen the alert and awareness of public health personnel throughout the country by organizing seminars and workshops on knowledge and understanding of EID and rEID in several provinces to facilitate the HCW to participate untroublesome in those events which leading to their *preparedness*.

Increase laboratory capacity by organizing the laboratory networking and organizing laboratory workshops.

Establishing a national guideline for diseases surveillance, contact tracings and quarantine.

Development of clinical practice guideline for patient management and also organizing seminars for the infectious control nurses in hospital-settings (ICN) throughout the country, distributing books on EID and rEID, phamlets , posters and related educational materials for the public.

- Appropriate health policies concerning to immediate response of public health authorities to counteract on every level of the outbreaks in a timely manner could be performed effectively after a *laboratory confirmation*.

Thailand Experience

On June 15, 2015, an Omani male, 75 years old, with 3 accompanying persons arrived Suvarnabhumi airport, Bangkok for seeking of cardiac condition treatment in a private hospital in Bangkok. The patient was afebrile but coughing and showing weakness. Primary investigations showed lesions by chest radiography. Owing to the patient originated from a Middle East country, physician in charge immediately transferred him into an isolation room with negative pressure and collected respiratory specimens sending to three different laboratories for MERS-CoV testings. Finally, MERS was confirmed, the patient and accompanying persons were transferred to Bamrasnaradura Infectious Institute for further treatment and quarantine. Contact tracing measures were started from the airplane passengers, air crews, taxi drivers and hospital personnel. The patient recovered uneventful with MERS-CoV negative results on several occasions, as well as the accompanying persons were also virus-free. They were discharged from the Institute. All returned safely to OMAN by the evening flight of OMAN AIR on July 3, 2015.

No Thai subjects contracted MERS-CoV infection at all. Then Thailand announced MERS-CoV-free country on July 3, 2015.

From Thailand experience, we could report the final results of 3 different viral diagnostic laboraorties *within 5 hours* after appropriate specimens arrival at the laboratories. Appropriate prevention and control activities are in place and MERS-CoV could be contained accordingly.

This event is a good example to show the role of Viral laboratory as an essential component in the prevention and control of fatal infectious diseases.

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