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Thai vaccine institute: Our nation needs robust vaccine alliances

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According to the WHO, Thailand has nearly 520,000 people (aged 5-to-49) living with HIV and AIDS and the country has the highest adult HIV prevalence in South East Asia region. Public health ministry of Thailand has reported that more than 70,000 people were infected with dengue virus in 2012 and spread of tropical disease is suspected to go higher in 2013. Thailand is on the radar of high prevalence of influenza virus as well. Amidst the high risk of disease outbreak in the country, Thailand is making efforts to develop a robust immunization program as a tool to handle any forthcoming pandemic.

Its national vaccine committee aims to protect the country against preventable diseases by planning and recommending need for building human resources, infrastructure development and domestic production of vaccines for dengue, diphtheria, tetanus, pertussis, mumps, measles, encephalitis, polio, hepatitis B, and tuberculosis. However, the road to achieve self-sufficiency for vaccine development has been full of challenges and the country imports almost 80 percent of its vaccines from foreign players.

In his recent visit to Singapore during the 7th World Vaccine Congress, Mr Charung Muengchana, director, National Vaccine Institute, Ministry of Public Health, Thailand, shared with *BioSpectrum* the challenges in vaccine development in the country and a possible roadmap for disease prevention in Thailand.

What is Thailand's major concern with respect to public health and disease control?

Thailand is stressing more on the preventive healthcare system as compared to the curative system in order to keep the burden off for future public health management. While curative approach demands immediate actions and steps, preventive healthcare calls for long term planning and strategies. Due to the current prevalence of diseases, preventive healthcare may not appear as an immediate strategy to sustain a disease free environment for future, but in the long run it eases off the burden from the government. However, most of the healthcare budget is directed toward handling immediate disease control and thus plans for diseases prevention takes a back stage. Thailand has a national health security scheme that ensures universal health coverage but most of its focus is on controlling immediate disease burden.

How serious is Thailand about its vaccination programs? Has the country progressed to become self-reliant in vaccines?

Vaccination is one of the most cost effective health interventions for disease control and has made possible some of the greatest public health successes of the past century. However, developing countries like Thailand have miles to go in order to become self-reliant and self-sufficient in vaccine development. For the global benefit of vaccination, it is essential to ensure accessibility of vaccines to the developing countries, where the disease burden is often the greatest. For instance, Thailand has a serious burden of infectious and non-infectious diseases and others like HIV, dengue, tuberculosis and diarrhoea create a huge stress on the economy and public health management system.

What is the regulatory scenario for a vaccine approval in Thailand?

Vaccines in Thailand are approved through Thailand FDA and it goes through a process of risk and benefit assessment and clinical trial verification that takes almost 200 days for approval. The entire vaccine approval process thus takes around a year to enter into the market.

What challenges do Thai researchers face while developing vaccines?

Thailand has a well-structured education system and universities are in place for researchers to pursue career in drug R&D. There are over 50 organizations that are mostly doing research, but scientists in Thailand do not have much experience in vaccine production. Thailand lacks expertise and resources to take up production of locally developed vaccines and this is de-motivating for scientists to have no commercial benefits for their R&D efforts. Also, budget constraints act as a hurdle for vaccine development. Human vaccine production in domestic market has decreased over time and vaccines developed belong mostly to the pre-clinical and clinical phase. Thailand still needs to implement a national vaccine development plan. Thailand is highly dependent on foreign players, who take keen interest in vaccine development in the country.

International initiatives in vaccine development are crucial for a consistent supply of vaccines, accessible to developing countries. Even the global vaccine industry is not yet sufficient to meet the full need during emergence of a pandemic disease. For instance, during the H1N1 pandemic in 2009, countries faced shortage of traditional vaccine supply and new vaccines were unaffordable. We experienced difficulties and suffered stock out situation, unable to finalize procurement quantities of vaccines needed at the right time.

How can you fill the gap in vaccine production during the time of an emergency?

Asian countries like China, India and Japan have numerous local R&D-based players that boast of a strong pipeline. Their innovative vaccines and local production lines boost market supply of cheaper vaccines. However, vaccines that are imported from these countries come at high price due to inadequate competition. Asia needs a solution that goes beyond traditional structure, models and pathways to meet the essential vaccine supply for public health and stronger partnership between international players, local research institutes and government policy makers is the way to achieve a better health ecosystem. Low income countries and their small to mid-size enterprises face difficulty in being self-sufficient and self-reliant and international cooperation, support and public-private partnership through technological transfer and advice could be a possibility for sustainable ways for vaccine developments in the region.

What are some of the international alliances doing vaccine development in Thailand?

Global Alliance for Vaccines and Immunization (GAVI), launched in 2000, is one of the most crucial public-private global health partnership focused on Thailand. Governments in industrialized and developing countries, vaccine manufacturers, UNICEF, WHO, World Bank, Bill & Melinda Gates Foundation, non-governmental organizations, and public health and research institutions are working as partners to improve availability of vaccines in countries like Thailand. Furthermore, Sanofi Pasteur is doing clinical trials of a dengue vaccine in Thailand and is also producing vaccines for encephalitis, hepatitis B, rabies and influenza.