THE NEED FOR EPIDEMIOLOGY

Over the past decade, experiences of dealing with avian influenza and other high-impact animal and zoonotic diseases in Asia have demonstrated that national veterinary authorities have often been forced to take difficult decisions about disease prevention and control in their countries without having access to essential epidemiological information. In some instances, before the veterinary services at the central level have conducted any investigations, the local authority has already given instructions for culling and disposing of diseased livestock, resulting in the loss of opportunities for collecting and disseminating epidemiological information to guide evidence-based decision-making. There is a critical need for improved disease intelligence in every country in the region.

Infectious disease intelligence is based on an understanding of epidemic patterns, including animal and zoonotic diseases, and the application of this knowledge to disease control. Disease intelligence is the result of: i) rapid and accurate identification of the disease agent; and ii) a clear understanding of the sample and its epidemiological context (animal, place and time parameters).

Over the past decade, progress has been made in strengthening technical capacity and resources to build more effective epidemiological support and to improve disease intelligence. However, there are still very few qualified epidemiologists available. Without good-quality epidemiological information, it is not possible to determine the protective and risk factors associated with the frequency and distribution of diseases in a population of animals (or humans).

ESTABLISHMENT OF THE FIELD EPIDEMIOLOGY TRAINING PROGRAMME FOR VETERINARIANS

In 2008, the Emergency Centre for Transboundary Animal Disease Operations (ECTAD) at FAO’s Regional Office for Asia and the Pacific (RAP) started to implement a systematic approach to assess and develop epidemiology capacity in the region. Having forged strong partnerships with Thailand’s Department of Livestock Development and Ministry of Public Health, FAO established a regional Field Epidemiology Training Programme for Veterinarians (FETPV). Contributing partners included the United States Agency for International Development (USAID) and other international donors such as the European Union (EU), the United States Centers for Disease Control and Prevention (CDC), the International Epidemiology Consortium, universities and participating countries in the region.

FETPV is now a growing branch of the Field Epidemiology Training Programme (FETP) model run by national public health agencies in 55 countries since 1975.

The FETPV process starts with a consultative needs assessment involving country experts and national and international stakeholders and including a gap analysis of the 34 skills covered by the guidelines of the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET), adapted to veterinary needs. Based on the results of these assessments, curricula and learning objectives are designed for the national and sub-national levels, enabling countries to drive their own harmonized approaches to capacity development. The four main elements of the FETPV curriculum are: i) understanding of basic epidemiological
fields; the Masters programme takes one to two years to complete. At this stage, in line with the principle of learning by providing services, trainees apply their epidemiological knowledge and skills to conduct field research at their home stations, supporting the functions of their respective institutions while under the close supervision of mentors from universities, the FETPV, FAO and the government units for which they work.

IMPACTS AND THE WAY FORWARD

By September 2015, 107 people in 12 Asian countries had benefited from the regional FETPV. In a survey conducted in April 2015, 84 percent of respondents reported that knowledge gained through the FETPV had led to changes in their approaches to epidemiology at work: 90 percent indicated improvements in the implementation of outbreak investigations; 75 percent indicated improvements in the design, implementation and reporting of surveillance; 82 percent had used their new knowledge to inform or mentor colleagues, thereby improving the collection, management and analysis of data; and 23 percent helped them to appreciate and respect each other’s professionalism and ethics. The first two modules, on surveillance and outbreak investigation, take approximately a year and a half to complete. Trainees learn about and apply epidemiology through a curriculum that is 30 percent training workshops and field demonstrations and 70 percent practical fieldwork.

Trainees who complete the first two modules are then eligible for the third module, which is a Masters programme offered jointly by FAO and two universities in Thailand with M.Sc. programmes in epidemiology or related fields; the Masters programme takes one to two years to complete. At this stage, in line with the principle of learning by providing services, trainees apply their epidemiological knowledge and skills to conduct field research at their home stations, supporting the functions of their respective institutions while under the close supervision of mentors from universities, the FETPV, FAO and the government units for which they work.

APPROACH AND CURRICULUM

The FETPV applies the principle of learning by providing services, which makes no distinction between learning about and working in epidemiology. Trainees both serve as they learn and learn as they serve in their respective governments’ core functions related to animal health and production. For example, since its inauguration in 2009, the regional FETPV curriculum has undergone several revisions following rigorous and comprehensive periodic evaluations. Currently the curriculum is divided into three interrelated and sequential modules.

The programme begins with a one-month introductory course on epidemiology, which is organized jointly by the FETPV and the FETP and is based on collaboration between animal and human health. During this introductory course, veterinarians and doctors are trained together, exposing them to the similarities and differences in epidemiological approaches to disease prevention and control and communication of results to technical and non-technical stakeholders.

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An FETPV trainee collects samples and field data as part of an outbreak investigation
Epidemiology capacity conducted in 2014–2015 estimated that national epidemiologists spent a maximum of 20 percent of their work time performing technical epidemiology duties directly related to their training. The return on training investment so far remains limited and requires additional institutional prioritization, accommodation and change. Each country needs a plan for linking the training to the post-training environment to obtain maximum benefits from the training of individual epidemiologists. Enhancing both the number of trained individuals and the quality of the training will be necessary to improve the targeting of investments and optimize outputs.

There is growing realization among countries in the region of the value of the FETPV as national programmes continue to develop. At this early stage, it is important to demonstrate the proof of concept, to facilitate high-level commitment from national authorities.

The mentorship programme requires dedicated technical support from trainers and mentors with a good technical background in epidemiology, practical field experience, familiarity with government functions and the skills to nurture the valuable national human resources assigned to the programme. Building a critical mass of mentors is a key to success, so it is important to continue strengthening FETPV graduates – as potential future mentors – to ensure that they have opportunities to apply their acquired skills at work and to support their fellow trainees. In the 2015 survey, between 9 and 47 percent of regional FETPV graduates reported various institutional challenges when applying their epidemiological knowledge at work. Institutional change is challenging but necessary to build, maintain and foster the development of a functional epidemiology capacity in the region.

One of the most difficult challenges in developing this applied epidemiology training programme was in building institutional safeguards to enable trained individuals to apply their skills when they return to their workplaces.