



Dr Maurice Ope is a medical doctor trained in Kenya with postgraduate specialization in Public Health and Epidemiology at Universite Libre de Bruxelles in Belgium and Jomo Kenyatta University of Agriculture and Technology (JKUAT) in Kenya respectively. He is also pursuing a PhD in epidemiology at JKUAT. Dr Ope is currently the medical epidemiologist at the East African Community Secretariat in Arusha, Tanzania.

He is currently involved in prevention and control of communicable and non-communicable diseases at the regional level in all the five East African Countries of Burundi, Kenya, Rwanda, United Republic of Tanzania, and Uganda. These include among others disease prevention and control in the cross-border regions; harmonization of surveillance protocols; disease prevention and control guidelines; evaluation of outbreak preparedness; disease outbreak investigation and response; designing and evaluating surveillance systems and strengthening of laboratory capacity in East Africa.

Dr Ope's recent publications include "Regional initiatives in support of surveillance in East Africa: The EAIDSNet Experience" in Emerging Health Threats of 2012, and "Risk factors for hospitalized seasonal influenza in rural western Kenya" in PLoS ONE of 2011. He has also co-authored recent publications including among others "The population-based burden of influenza-associated hospitalization in rural Western Kenya" in the Bulletin of the World Health Organization of 2012, "What are the most sensitive and specific sign and symptom combinations for influenza in patients hospitalized with acute respiratory illness? Results from Western Kenya, January 2007-July 2010" in Epidemiol. Infect. of 2012, "The global burden of respiratory infections due to seasonal influenza in young children: a systematic review and meta analysis" in the Lancet of 2011 and "High mortality in a cholera outbreak in western Kenya after post-election violence in 2008" in the American Journal of Tropical Medicine and Hygiene of 2009. Dr Ope has also written a book chapter on "Implementation of Biological Weapons Convention in Kenya" in the book Implementation of the Biological Weapons Convention: The 2007-2010 intercessional Process of 2011.

## **MAURICE OPE**

Medical Epidemiologist

*East African Community  
(East Africa Integrated  
Disease Surveillance  
Network-EAIDSNet)  
Tanzania*

# ADVANCES IN FIELD SIMULATION EXERCISES:

Highly Pathogenic Avian Influenza Control  
(Simulated between Kenya and Uganda)

## **Maurice OPE**

East African Community

(East African Integrated Disease Surveillance Network-EAIDSNet), Tanzania

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**H**ere we describe the experience of a simulation exercise conducted in 2010 to test the Kenyan and Ugandan national highly pathogenic avian influenza (HPAI) preparedness and response plans. The simulation exercise demonstrated EAIDSNet's role in facilitating multi-country joint testing of both national and regional preparedness plans for pandemic influenza; and highlighted areas for improvement.

First detected in Hong Kong in 1997, highly pathogenic avian influenza (HPAI) has been detected in over 22 countries. Approximately 566 cases and 332 deaths have been reported in 15 countries. In addition to its high case fatality rate (60 percent), HPAI has been associated with a high economic burden amounting to an estimated loss of USD 20 billion primarily due to the culling of several millions of birds. While international efforts have led to widespread control of HPAI, the disease persists in several countries, including Egypt and Indonesia, and continues to pose a threat to animal and human health. Although the East African Community (EAC) has not experienced any documented cases of HPAI, the region is vulnerable because of its location in the migratory pathway of birds, its shared borders with high-risk countries,

and continued importation of poultry products that may carry the virus.

EAIDSNet conducted one of the first field simulation exercises (FSXs) designed to test the effectiveness and efficiency of EAC partner state national HPAI preparedness and response plans. The focus of the exercise was on Kenya and Uganda. The FSX was conducted in Busia, a metropolitan border town between Kenya and Uganda. Busia lies within the migratory pathway of birds, has a thriving informal cross-border live bird market, and is home to many poultry farms. The exercise involved assessing the investigation and response of both countries to an imaginary scenario of a zoonotic public health emergency. Specific objectives of the FSX were to determine whether procedures were realistic and understood by all stakeholders; to reveal weaknesses and gaps; and to clarify roles and responsibilities of all key stakeholders.

The scenario for the simulation exercise was developed by experts from Food and Agriculture organization with the participation of EAIDSNet and it involved a report of bird mortality in a fish farm, followed a few days later by reports of significant mortality in a nearby backyard poultry

farm and in a nearby commercial poultry farm. Meanwhile, the backyard poultry farmer had sold some of his chickens in a live bird market in Kenya. Subsequently there was a massive death of caged poultry in the bird market. Two traders from the market complained of fever, cough and sore throat and were treated at a private clinic. A few days later, the traders developed severe chest complications. The district veterinary officer was made aware of the two traders during his routine inspection of the market, after which he informed the clinician in charge of the local health center about the situation and referred the two traders to the health center. An evaluation criterion to determine the success of each operation was developed prior to the simulation exercise.

Several teams composed of staff of various disciplines, from both countries were formed to respond to the situation: veterinary, public health, communication, and security and biosecurity. Each team had specific roles and responsibilities to carry out. The veterinary team conducted investigations among both domestic and wild birds; identified and isolated infected areas; collected fecal, oral and blood samples from suspected birds; and confirmed HPAI at the central laboratory. They subsequently arranged for quarantine of birds at the live bird market, safe and timely disposal of carcasses, installation of footbath devices, provision of personal protective equipment, and disinfection of cages and affected areas.

The public health team conducted investigations and clinical assessments; transported suspected human cases to a designated health facility; set up an appropriate isolation unit and isolated patients; took samples for testing; and disinfected

the ambulance. The communication team was responsible for producing and distributing paper and media communication; preparing and installing notice boards at crossing points; and creating public awareness through fliers, posters, and drama. Finally, the security and biosecurity teams were responsible for controlling traffic at the border and checking to see whether poultry products were being carried on board; closing some routes to the informal live bird market in order to enable thorough inspection of the vehicles; installing car footbaths; and disinfecting vehicles.

The FSX proved to be an effective method of testing regional preparedness and response. It demonstrated that control of border trade is possible in the event of an outbreak; that the synergistic roles of the different teams can be realized if the teams are composed of human and animal experts from both sides of the border; and that it is possible to increase public awareness of the risk of emergence and spread of HPAI and of the identification of areas where appropriate responses are required.

However, the exercise also revealed some weaknesses: overall poor coordination of the response activities, inadequate biosecurity measures, poor communication, and minimal involvement of medical workers in response to the HPAI outbreak. To address these weaknesses, EAIDSNet recommended that each district set up permanent multi-sectoral rapid response teams; communication materials be translated into local languages that can be understood by illiterate communities; and instructions for roadblock operations be included in the preparedness and response plans.