



The Avian Flu School's "Train the Trainer" Courses: An Overview and Assessment

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The Avian Flu School (AFS) was designed to help minimize the health and economic impact of H5N1 highly pathogenic avian influenza (HPAI) by providing the training necessary to improve a community's ability to prevent a HPAI outbreak and to respond to and recover from an outbreak. AFS is a multi-tiered, train-the-trainer program designed to educate animal health, public health, and agricultural extension workers about H5N1 HPAI, enabling them to deliver this information at the community level in developing countries. A pilot program of the four-day course, which consists of four modules and a practical session, was taught at the University of California, Davis; Sokoine University of Agriculture, Morogoro, Tanzania; and Texas A&M University in 2006. A total of 83 teachers, observers, coordinators, and trainees participated in the pilot courses. Course evaluation scores, provided by trainees, improved from four out of five during the first pilot course at UC Davis to over 4.4 out of five for the last pilot course at Texas A&M. Evaluation scores for the individual modules similarly improved. After minor modifications to the content in response to comments received during the pilot courses, additional courses were taught in Tanzania, Kenya, Uganda, Ghana, and Djibouti.

Background

As the current panzootic of H5N1 highly pathogenic avian influenza (HPAI) began to spread from Southeast Asia in 2003, it became evident that the lack of readily accessible information about the disease, especially in rural areas, was hindering efforts to contain its spread. A diversity of species, including humans, wild waterfowl, and domestic poultry, are affected by H5N1 HPAI. This increases the number of professional disciplines whose input is required in prevention and response discussions. Thus, the Avian Flu School (AFS) project assembled a multi disciplinary team to develop a curriculum targeted to the people most affected by the impacts of H5N1 HPAI and those most appropriately involved in prevention and response, such as poultry producers, district level veterinarians, agricultural extension staff, medical doctors, public health workers, wildlife professionals, and those raising poultry at the village level.

The course material was developed using a train-the-trainer model, a common approach for animal health, public health, and agricultural extension. AFS materials are designed in tiers based on the expertise of the intended audiences. In Tier I, professionals and national officials from public health ministries and veterinary service departments are trained. Tier I trainees then conduct Tier II trainings, mainly within their districts or organizations; the intended audiences are zonal

and district veterinarians, agricultural extension staff, wildlife managers and public health workers, who will, at Tier III, reach their respective communities. Tiered training allows information to be delivered at different levels to different audiences, including those that may not normally be included, but which are at the forefront of disease detection and response, such as village poultry keepers.

AFS course materials are designed to be interactive and flexible, so that the course can be customized to the needs of each individual audience. For example, specific modules may be taught to individuals with relevant responsibilities and skipped for other audiences. The material is written and presented in a concise manner to facilitate comprehension and teaching. The course has been translated from its original English into French, Kiswahili, and Spanish.

AFS Curriculum

The AFS curriculum consists of four classroom modules and one practical session:

Module One: Overview. Module One serves as an introduction to the course. Students will be introduced to the various avian flu viruses and taken through the history of H5N1 HPAI. HPAI transmission, the risk of

H5N1 HPAI to humans, and the impacts of avian influenza are also incorporated into the overview. Students will become familiar with surveillance, testing and reporting methods, as well as coordination and management of avian influenza prevention programs and communications planning.

Module Two: Surveillance. Module Two focuses on surveillance of H5N1 HPAI. Students are educated on how to calculate sample size and perform appropriate and effective surveillance in poultry and captive populations, as well as in wild birds.

Module Three: Public Health and Worker Safety. Module Three provides information and methods to students in order to ensure the protection of public health and worker safety. Students are first introduced to general public education and protection and then familiarized with the more specific topics of protection and protocol as they pertain to poultry farm workers, backyard/smallholder owners, live-bird wet market workers, medical workers, public health teams, and first responders.

Module Four: Prevention and Response. Module Four's emphasis is on prevention of and response to avian influenza. In addition to these topics, students will be well-versed in recovery from avian influenza. Scenarios including smallholder poultry operations, wet (live bird) markets, commercial poultry facilities, zoological and aviary collections, and wildlife are utilized to give context to the discussion. Biosecurity planning and response plans are also key topics in this module.

Practical Session. The Practical Session is meant to provide applicable information for the proper prevention of and response to HPAI. Participants work through the packing and shipping of a diagnostic sample, donning and doffing of personal protective equipment, cloacal and oral cavity swabbing for samples, and vaccinating, bleeding, and safe slaughter and cleaning of a chicken.

Major Findings

Participant feedback. The Avian Flu School courses taught to date have been met with an enthusiastic reception. The vast majority of course participants indicated greater understanding of the module topics after taking the course and expressed confidence in imparting this knowledge to others.

Online surveys conducted with trainees after the pilot courses had a 66.1% response rate and showed that:

- 80.6 % are confident they could use the materials to train others;
- 36.1% trained others using the AFS course materials;
- 38.9% implemented behavioral change based on what they learned;
- 52.9% would not modify, add or eliminate any part of the training materials.

Regarding the stated learning objectives:

- 96.8% know the different paths of H5N1 HPAI transmission (54.8% did prior to the course);

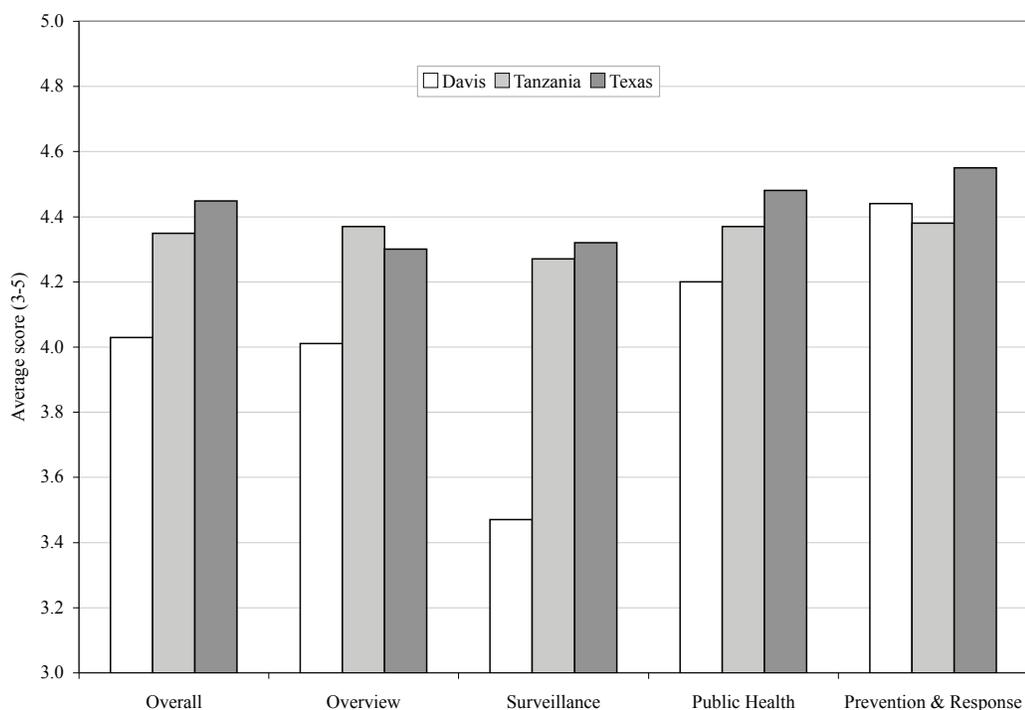
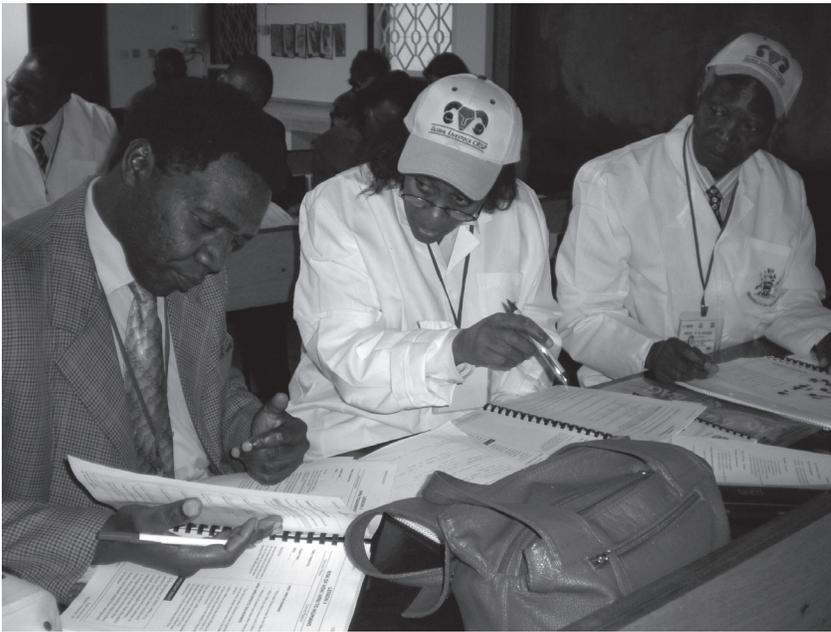


Figure 1. The overall and individual module average scores given by participants in evaluations conducted at each of the three Avian Flu School pilot courses. Average scores were calculated from individual scores, with 5 representing the best possible score, and 1 the worst.



At a national-level AFS training in Kenya in July 2007, animal and human health professionals are trained to be avian flu prevention and response instructors. Photo by David Bunn.

- 87.1% are prepared to communicate to different audiences regarding an avian influenza emergency (12.9% felt prepared before the course);
- 80.6% are prepared to design a surveillance plan and modify it as the disease situation changes (16.1% were before the course);
- 96.8% know how to protect themselves and others from HPAI (38.7% knew how prior to the course);
- 96.8% are prepared to give advice on biosecurity issues in different poultry settings (22.6% were prior to the course);
- 77.4% know the response and recovery steps and procedures (16.1% knew them before the course);
- 93.5% could put on and remove their personal protective equipment following the recommended protocol (16.1% knew how prior to the course).

Since the initial pilot courses, AFS has conducted five Tier I courses in five countries, training 100 AFS instructors. These instructors have conducted seven GL-CRSP-supported Tier II courses, training more than 170 people at the district level in six countries. In addition, AFS instructors have conducted several other Tier II courses through their own organizations. The AFS curriculum has been ordered by numerous international organizations and utilized for workshops in Asia and elsewhere.

Practical Implications

Model for further training. The success of Avian Flu School, as measured by participant surveys, indicates that the model would be useful if adapted for educating trainers

about prevention and response strategies for other diseases in developing countries.

Collaborative effort among participants. One of the unanticipated outcomes of the AFS training courses has been the exchange of ideas and information among participants. In one case, the development of a village Newcastle vaccination project was proposed in collaboration with trainees from the Tanzanian pilot course. During the exercise in the surveillance module (Module Two), two groups of participants proposed a novel strategy to institute a Newcastle disease vaccination program in selected villages, to prevent clinical disease associated with viscerotropic velogenic Newcastle disease (VVND).

VVND is endemic in many parts of the developing world, and is clinically indistinguishable from HPAI. The cost of the laboratory testing needed to differentiate these diseases is prohibitive and thus impractical for adequate surveillance for HPAI in rural areas. The trainees proposed the use of sentinel villages, in which chickens would be vaccinated for Newcastle disease and enrolled in a reporting system for mortality events.

A chicken die-off in Newcastle-vaccinated chickens is much more likely to be caused by HPAI than a mortality event in non-vaccinated chickens. If mortality is reported, veterinarians in the region have been equipped with rapid flu detect kits that can be used to test for influenza type A. This program optimizes the use of influenza tests, which are expensive and in short supply in Tanzania, as they are in many countries.

Further Reading

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Avian Flu School (AFS) was created to address the need for a train-the-trainer program to disseminate the knowledge necessary to minimize the health and economic impacts of H5N1 HPAI by improving the ability of a country, district or community to prevent, respond to, and recover from an outbreak. The project is led by Dr. Carol J. Cardona, University of California, Davis. Email: cjcardona@ucdavis.edu.



The Global Livestock CRSP is comprised of multidisciplinary, collaborative projects focused on human nutrition, economic growth, environment and policy related to animal agriculture and linked by a global theme of risk in a changing environment. The program is active in East and West Africa, Central Asia and Latin America.

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