



Regional Field Simulation Exercise for the control of outbreaks of Highly Pathogenic Avian Influenza

29 – 30 September 2009.

Chisamba (Central Province of Zambia)

Summary of Proceedings



Chisamba
(Chibombo district)



Project OSRO/RAF/719/USA

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Abbreviations

AI	Avian Influenza
ALive	Africa Livestock Partnership
AU/IBAR	African Union / Inter-African Bureau for Animal Resources
CDC	Centers for Disease Control and Prevention
CVRI	Central Veterinary Research Institute
DDCC	District Development Co-ordination Committees
ECTAD	Emergency Centre for Transboundary Animal Diseases
EU	European Union
FAO	Food and Agriculture Organisation
GF-TADs	Global Framework for the Progressive Control of Transboundary Animal Diseases
HPAI	Highly Pathogenic Avian Influenza
IBAR	Inter African Bureau for Animal Resources
MACO	Ministry of agriculture and cooperatives
MOH	Ministry of Health
NAIS	National Agricultural Information
NEPPC&MC	National epidemic and preparedness, prevention, control and management committee
NTF	National Task Force
OIE	World Organization for Animal Health
PDCC	Provincial Development Co-ordination Committees
PPE	Protective Personal Equipment
PVO	Provincial Veterinary Officer
RAHC	Regional Animal Health Center for Southern Africa
RRT	Rapid Response Team
SADC	Southern African Development Community
SPINAP – AHI	Support Programme for Integrated National Action Plans for Animal and Human Influenza (AU-IBAR)
STOP-AI	STOP Avian Influenza
UNDP	United Nation Development Program
UNICEF	United Nation’s Children Funds
UN-Vet Medicine	University of Zambia, School of Veterinary Medicine
USAID	United States Agency for International Development
WHO	World Health Organization

Abstract

An HPAI outbreak and emergency response simulation exercise was conducted in Chisamba, Central Province, Zambia. The exercise was part of continued FAO and AU/IBAR support to SADC member countries to enhance their preparedness and response capacity in the event of an outbreak. Activities were coordinated by the Zambian National Task Force for preparedness and response to HPAI. Main objective of the exercise was to test effectiveness of the country's response mechanisms; communication; coordination among various stakeholders and bio-security arrangements at various check-points. The exercise was also a learning opportunity for participants from other countries in the region. Activities were carried out for two consecutive days (29th to 30th September, 2009) and were supported through project OSRO/RAF/719/USA funded by USAID with co-funding by AU-IBAR (SPINAP project).

Scenario for the exercise was a HPAI outbreak resulting from trade of poultry products in the local market. As a result of lack of bio-security measures in the poultry sector, H5N1 virus was introduced in Chisamba market and had spread to poultry farms located in the outskirts of the town. Veterinary services department confirmed HPAI infection and authorised an immediate response. A command centre was set up at the District Veterinary Service, sub-station in Chisamba. Five demonstration groups were organised comprising of veterinary services; health services, security (police) services, communication and bio-security team. Activities mainly concentrated on public awareness; quarantine, sampling, culling, carcasses disposal, disinfection in poultry farms and investigation of human infection.

A total of 142 people participated in the exercise. These were members of Rapid Response Teams (RRT) drawn from 9 Zambian provinces. Also participating were technicians from communication, health and veterinary sectors from seven other countries in the sub region (Angola, Botswana, Democratic Republic of Congo, Malawi, Mozambique, Tanzania and Zimbabwe). Present also were the following international organisations: FAO/ECTAD Gaborone, USAID representations in Zambia and South Africa, OIE, AU/IBAR, SADC and CDC).

The exercise was evaluated as very successful. The setup of the response structure; operations of the command centre; communication and coordination among various stakeholders were very well undertaken. Shortcomings were identified in culling and bio-security, particularly shortage of personnel protective equipment doffing in infected places (market, the farm and at the hospital) and lack of the rapid test and blood sampling in the surveillance zone. The exercise also highlighted challenges related to compensation of poultry owners where culling has been done. A review of the exercise recommended continuous training of technicians both in the field and laboratories; strengthen epidemiological surveillance systems; provide more operational support to rapid response teams; review standard operating procedures (case definition in human); continue public awareness programs on HPAI; review national compensation policies; and ensure availability of protective and sampling equipments at field level.

1.0 Introduction

To date, there has been no confirmed case of HPAI in the Southern Africa region. However, countries within the region have been proactive in preparedness and response planning in an event of an outbreak. Although Zambia is officially free of HPAI it has high potential to be infected due to the ever growing poultry industry, poultry trade within the country and with neighbouring countries and the presence of many humid zones seasonally visited by migratory birds that are potential vectors of the virus.

The government of Zambia set up an Avian Influenza inter-ministerial National Task Force (NTF) and a National AI technical committee in October 2005. In collaboration, these committees have been conducting several activities that include an international desktop simulation exercise in September, 2008 with support from FAO/ECTAD, World Bank and USAID. Subsequently, a field simulation exercise was proposed to test the national response plan and to strengthen the country preparedness. The simulation exercise was expected to promote emergency preparedness and response in Zambia and the sub region. Chisamba in Chibombo district (central province) was identified to host the exercise from 29th to 30th September, 2009.

The field simulation exercise was part of implementation of project “OSRO/RAF/719/USA” led by FAO and funded by the Government of the United States through USAID. AU/IBAR also contributed to the exercise by supporting other countries within the region to participate in the activities in Zambia.

1.1 Objectives

The overall objective of the field simulation exercise was to promote emergency preparedness in Zambia and in the sub region. Specifically the exercise had the following objectives:

- to test the national response plan by ensuring that procedures are understood and realistic, reveal weaknesses and clarify roles and responsibilities of stakeholders
- to build national capacities and giving the opportunity for sharing experiences with neighbouring countries

1.2 Expected outputs

Main expected outputs were:

- The national contingency plan is tested and improved.
- Public awareness on avian influenza is intensified. The confidence of populations towards the commitment of Governments to put under control this important risk with the support of partners is strengthened.
- The disease containment’s measures are experimented and improved as concerns coordination, procedures for disease containment and joining pluri-disciplinary competences.
- Roles and responsibilities of stakeholders are identified and each participant has learned valuable lessons

1.3 Location and demonstration

The exercise was held in Chisamba, a small town located in Chibombo where optimal conditions were available for the implementation of the demonstrations. The town was selected based on easy access, presence of modern poultry farms, existence of live birds in the

local market, presence of a health centre for demonstration of human care and investigation, and presence of a veterinary service where a command centre was set up.

All activities related to reception and storage of equipment, preparation of demonstration teams, recruitment of casual labours, planning of team activities, launch of the simulation were held at the command centre. Resa Poultry Farm was identified as the main demonstration place. It is located about 5km North East of Chisamba town. The farm raises layers for egg production. A live birds market is periodic and is located in the town centre. Periodically, traders converge and sell live poultry beside the main market entrance. Demonstrations of sampling, culling, carcasses disposal and disinfection were carried out at both the farm and the market. The Chisamba health centre was chosen for demonstrations. A special camping hospital was installed in the health centre for demonstrations of testing and treatment of a patient, suspected to be infected with H5N1.

1.4 Participants

The following groups participated in the simulation exercise: the National Task Force members; The Rapid Response Team of the central province; two members from each of the 8 RRTs of the other provinces; three officers from each of the 7 neighbouring countries representing the veterinary, communication and human health services (Angola, Botswana, Democratic Republic of Congo, Malawi, Mozambique, Tanzania, Zambia, and Zimbabwe); International organisations (FAO/ECTAD Gaborone, USAID representations in Zambia and South Africa, OIE; AU/IBAR; SADC and CDC). Other participating major stakeholders were: UTH-Zambia, Min of Tourism, Environment and Natural Resources; Poultry Association of Zambia; Bank of Zambia; University of Zambia; Disaster Management and Mitigation Unit-OVP; Zambia Revenue Authority; Min of Local Government and Housing, Africare (NGO) and the general public in Chisamba.

1.5 The Scenario for the Simulation exercise

Main focus of the exercise was on the risk posed by lack of bio-security in the poultry industry and trading of poultry products. Traders in the central market of Chisamba sell birds of various origins: local chickens from surrounding villages; birds from various markets along the border and spent hens and broilers from commercial farms around the town. HPAI infection suspected to have been introduced by trading activities has spread to a poultry farm located in the outskirts of the town. Veterinary services carried out investigations and H5N1 is confirmed in specimens from affected birds by the central veterinary laboratory. In this district, local veterinary staff, human health, park and wildlife communication and security services have been trained on avian influenza prevention and control. A Rapid Response Team was formed and is implementing rapid response measures under the supervision of the National Task Force. Following is the sequence of events after introduction of the infection:

Event/Day	1	2	3	4	5	6	7
Influx of live birds into Chisamba town market by traders from various sources							
Disease outbreak in main live bird market in Chisamba; traders report to veterinary services							
Veterinary services arrive for clinical investigation, collect samples. Dead and sick birds sent to Central Veterinary Research Institute in Lusaka. Employees from poultry farm on the outskirts of the town bring spent chickens to the market for sale and return with un sold chickens Temporary ban for poultry trading at the market							
Rapid tests at the CVRL positive for influenza virus Type A. New samples forwarded to UNZA laboratory and OIE reference lab ISZ Padova in Italy for confirmation. NTF requests RRT fro response based on preliminary results. Birds stamped out, place disinfected and market closed							
Sudden high mortality among layers in a farm on outskirts of the town. Samples collected from the farm are positive for influenza virus type A. Samples sent to OIE reference laboratory in Padova for confirmation							
Epidemiological investigation at the town hospital on some traders from the market and employees at the farm. Mass public awareness campaign under planning Results from veterinary reference laboratory in Padova and the UNZA confirm H5 influenza virus							
Official notification of results to OIE, Government Authorities and FAO RRT under instructions from the NTF expands investigations and surveillance to the whole province. Mass public awareness campaign underway							

2.0 Organisation and implementation of the Simulation Exercise

2.1 Preparatory phase

Preparatory phase of the simulation exercise involved a desktop exercise conducted from 1st to 28th September, 2009. Main objectives of this exercise were:

- to clarify roles and responsibilities of key stakeholders (Ministries, departments, etc) at various levels (national, provincial, district) during the simulation exercise.
- refresher training for the RRT in Central Province on PPE donning & doffing, sampling, culling methods and disposal of carcasses

Two field visits were made by the RRT to Chisamba for site identification, briefing and consultations with traders, farmers, government institutions and police in the town. A two-day workshop was held to assemble working groups, clarify tasks, demonstration protocols and identification of equipment necessary for the simulation exercise.

2.2 Exercise phase

Overall coordination of the simulation was provided by the Command Centre that was established in the veterinary services premises in Chisamba seven days before the exercise. The centre was composed of members of the NTF and RRT led by the Coordinator of the

NTF. Other members in the command centre were: Secretary; Communications; Briefing and debriefing; Demonstrations; Equipment; and Reception, Transport and Accommodation.

Five demonstration groups were set up: Veterinary services, Health services, Security forces, Communication and Bio-security. Another two-day workshop was held to allow each group develop a program, protocols for the demonstrations and identification of needs in equipment and human resources. Thereafter, all protocols were validated through the command center. Each demonstration group was led by a technical officer responsible for technical coordination and demonstration of protocols and presentation of a group report at the end of the exercise.

The medical centre in Chisamba was selected for demonstration of human investigation while a poultry farm, the central market and one household were designated as infected zones for demonstration of quarantine, sampling, culling, carcasses disposal, disinfection and bio-security. Another household was identified for demonstration of sampling in the surveillance zone. The veterinary service headquarters was designated for the launch of the exercise and public awareness.

Demonstration sites were isolated by safety screens. Check point controls were installed on access roads to Chisamba town, the poultry farm and the market. At these checkpoints, bio-security devices were installed and there were also information points and leaflets on HPAI.

2.3 Technical Support and supervision of the exercise

During the entire exercise, technical support was provided by the consultant, the Principle Veterinary Officer for the central province, FAO ECTAD and a member of the national task force.

3.0 Proceedings of the Simulation Exercise

3.1 Zoning, bio-security and quarantine

In order to contain the infection and decontaminate the point of infection, two approaches were taken. Firstly, the whole Chisamba town was considered at risk due to presence of the H5 virus in the central market. A check point was installed at the entry point into the town. This check point was to control movement in and out of the town as well as disinfection of vehicles leaving the town. Two other check points were established on all entry/exit sides of Chisamba central market. At these check points, information points and bio-security devices were installed. Secondly, an infected zone of 3 km radius was demarcated around Resa farm. Checkpoints with bio-security devices and information notice boards were installed in all access points to the farm. A surveillance zone with a radius of 8km was also established. Footpaths were also installed at entrances to the premises of all demonstrations. Virkon (disinfectant) was used as a disinfectant in the farm. At the market, biosecurity devices were installed on the access road passing in front of the market.

3.2 Culling, carcasses disposal

Demonstrations of sampling, culling, carcasses disposal and disinfection were done at Resa farm and in house 1 located in the infected area. Standard biosafety provisions were applied by the use of foot baths and PPE. Virkon was used as a disinfectant. Chickens used for the demonstrations were provided by the owner of the Resa farm. Birds were contained and culled by suffocation, using plastic bags. Carcasses in closed bags were transported to pits dug at the farm (Resa farm) and at the backyard of house 1. Carcasses were burnt together with PPEs. Premises were disinfected.

The exercise in the market provided a good opportunity to test implementation of such activities in an urban market setup. The entrance of the market place was used for demonstration of sampling, stamping out and disinfection. The entire market was compartmentalized as follows: an area for depositing of equipment and PPE donning; the infected area for sampling and culling birds; the area for disposal of carcasses and the place for PPE doffing. Here also, standard biosafety provisions were applied. Two biosecurity devices for car disinfection were installed on the road passing through the market. Suffocation system with plastic bags was used to cull the birds. Carcasses were disposed by burning in metal drums prepared for this purpose.

3.3 Epidemiological surveillance

Main focus was to demonstrate epidemiological surveillance in the high risk zone, surrounding the infected zone (see map in Annex 2). Activities included: filling of investigation forms; and collecting tracheal and fecal swab samples on domestic poultry. Biosecurity measures for this exercise were limited to wearing lab coats, masks and gloves. Two officers performed this demonstration. One did the investigation the other collected and packaged samples.

3.4 Investigating of exposed persons

This demonstration took place at the health center. At the makeshift campsite hospital, 3 departments were established for storage; reception and investigation of suspect cases and a changing room. One person was transported by ambulance from House 1 (infected zone) to the health center. The demonstrations included (i) evacuation of humans from infected zone; (ii) hospital reception of suspect persons; (iii) isolation; (iv) registration; (v) clinical assessment and examination of the patient. Oral swab sampling (oropharynx) and proper packaging for shipment to the reference laboratory were demonstrated. The demonstration team consisted of doctors, epidemiologists, laboratory technicians and officers in charge of hygiene.

3.5 Public Awareness

Before the exercise, a press pack was prepared and distributed to members of the press. The Minister of Livestock Development and Fisheries held a press conference to explain objectives and expected results of the exercise. Television announcements were made a day before the exercise. Flyers, notice boards and posters were prepared and distributed to the public in advance. During the exercise, flyers and posters were distributed to the public in Chisamba and those passing through the various checkpoints. Notice boards were installed at check points. Public announcements were also broadcasted around the town through a public address system in a vehicle. This helped in avoiding panic and confusion by the general public.

After the simulation exercise, a drama group performed a play, highlighting risks of avian influenza, safety measures to take and the importance of reporting in early warning was made to assembled poultry producers, traders and the general public.

3.6 Evaluation of the exercise

Two approaches were used to evaluate the exercise. First, each demonstration group made its own internal assessment and presented the results to the rest of the group. A plenary was conducted together with representatives from neighboring countries and representatives of international organizations. Secondly, a technical evaluation was done by administering a checklist (see annex 1 for the evaluation form).

About 29.4 percent of the participants scored the exercise as excellent and another 66.6 percent as good. 3.9 and 0.05 percent of the participants rated the exercise average and poor respectively.

Overall, participants were impressed by the multidisciplinary collaboration demonstrated during the exercise and its complexity; coordination among stakeholders and the importance of biosecurity measures and the important role of the security forces in the exercise.

Shortcomings were observed in the culling methodology and biosecurity in infected places particularly at the market, farm and hospital. It was observed that no Rapid Tests were used on suspected birds and that no blood samples were taken in the infected zone. There were also concerns on appropriate doffing of PPE during the operations.

4.0 Conclusions and Recommendations

This exercise strengthened preparedness in the countries of the sub region and particularly Zambia which had the opportunity to test its national response plan of the country. Strengths and weaknesses observed during this exercise provided a good feedback for adjustment of the plan. The exercise provided a good learning process for key stakeholders at different levels (NTF, RRT & district officers & the population of Chisamba). It also provided a glimpse of the complexity of multidisciplinary coordination, management, funding, response design, communication, etc. that would need to be addressed in case of a real outbreak.

The following recommendation are made to further enhance Zambia's preparedness:

- Continue training field staff;
- Implement the epidemiological surveillance system
- Support the RRTs ;
- Review the standard operating procedures (e.g. case definition in human);
- Regularly provide the general public and poultry producers with updated information;
- Establish a compensation policy for H5N1 ;
- Disseminate protective and sampling equipment at field level

Annex 1 : Technical Evaluation of the Simulation Exercise

Number of forms filled: 45

1. Global appreciation of the exercise							
Excellent	26,67%	Good	71,11%	Average	2,22%	Poor	0,00%
2. Scenario of the exercise							
Excellent	37,78%	Good	62,22%	Average	0,00%	Poor	0,00%
3. Response design & the model							
Excellent	28,89%	Good	71,11%	Average	0,00%	Poor	0,00%
4. Demonstrations							
	• Security check points						
Excellent	42,22%	Good	51,11%	Average	6,67%	Poor	0,00%
	• Biosecurity devices at the check points						
Excellent	31,11%	Good	60,00%	Average	8,89%	Poor	0,00%
	• Demonstration at the market						
Excellent	15,56%	Good	55,56%	Average	26,67%	Poor	2,22%
	• Stamping out & decontamination operations in the Farm						
Excellent	22,22%	Good	44,44%	Average	33,33%	Poor	0,00%
	• Stamping out & decontamination operations in the House 1						
Excellent	17,78%	Good	62,22%	Average	20,00%	Poor	0,00%
	• Demonstration in the surveillance zone						

Excellent	22,22%	Good	51,11%	Average	26,67%	Poor	0,00%
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- **Demonstration at the health center**

Excellent	46,67%	Good	46,67%	Average	6,67%	Poor	0,00%
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- **Communication activities**

Excellent	40,00%	Good	53,33%	Average	6,67%	Poor	0,00%
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	Excellent	Good	Average	Poor
Average 1 : (2+3+4)/3	32,13%	62,13%	5,65%	0,09%
Average 2 : (1 + M1)/2	29,40%	66,62%	3,94%	0,05%

Overleaf:

Annex 2: map of locations where simulation exercise took place

