

**Emergency Disease Investigation Team
(EDIT) for**

**Highly Pathogenic Avian Influenza In
Nepal**

**Department of Livestock Services
Hariharbhawan, Lalitpur
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Emergency Disease Investigation Team (EDIT) for HPAI

Introduction

It is crucial that suspect incidents of highly increased morbidity and mortality in poultry and ducks are thoroughly investigated for HPAI. These incidents are potentially related to an HPAI outbreak and all information for the reporting and decision making must be collected in the field. In consequence, this will allow a prompt and appropriate response to the incident.

For the disease investigation, Emergency Disease Investigation Teams shall be formed and recruited by the DLS and trained by international and national experts. At present, at the central level 1 team has been formed and other regional team shall be formed as per the requirement in other development region in order to guarantee an immediate response. The formation of additional teams in other regions shall come in force once they receive the proper training or exposure in this field.

Need for Emergency Disease Investigation Team

The investigation, reporting and follow up of ongoing surveillance activities are carried out by the DLSO at district level. Furthermore, the culling of birds and the cleaning/disinfection of infected premises also lay within the responsibility of the districts.

The EDIT operates under the responsibility of the central/regional level. The decision to send the “emergency disease investigation team” to a particular incident is under the responsibility of:

Central Emergency Disease Investigation Team”: Director of Animal Health directorate
Regional Emergency Disease Investigation Team: Regional director

The intervention of the Emergency Disease Investigation Team” is required when there is only sparse information on the incident. Therefore, an immediate clarification is needed. Technical support to the district level is necessary.

The following incidents can be given as example:

1. Extremely high morbidity and mortality in commercial poultry holding(s) with suspicion of an unknown infectious disease
2. Suspicion of multiple clinical symptoms resembling to HPAI in commercial / backyard holdings / live markets in a given district
3. Confirmed HPAI case by national laboratory with sparse epidemiological information
4. HPAI detected close to the border

The Emergency Disease Investigation Team must be available for a field mission within 24 hour of time.

Task of the Emergency Disease Investigation Team

The Emergency Disease Investigation operates under the general guidance of the Department of Livestock Services and the direct responsibility of the director of the Directorate of Animal Health.

The Emergency Disease Investigation has the objectives listed below relative to highly pathogenic avian influenza (HPAI):

1. Disease investigation (collection of all epidemiological information that allow a trace back - trace forward of the incident)
2. Clinical examination of birds and pathological examination of carcasses
3. Sampling of appropriate material for further diagnosis
4. Immediate reporting of information of incident to the regional / central office
5. Provision of technical assistance to the district to implement the required containment measures as described in the SOPs.

Technical Expertise

The Emergency Disease Investigation Team is a trained and experienced team covering multiple technical expertises needed to assess an incident

1. Disease control
 - a. Expertise on efficient measures to prevention and control HPAI
 - b. Knowledge and practical experience on the national strategy to prevent and control HPAI in Nepal
 - c. Practical experience on the SOPs derived from the national strategy
 - d. Practical experience with the logistics for the containment of HPAI.
2. Epidemiology
 - a. Epidemiological expertise on poultry disease transmission.
 - b. Expertise on risk factors contributing to the spread of HPAI among birds.
 - c. Knowledge on the national and international HPAI disease status
 - d. Knowledge on collection, analysis and interpretation of epidemiological data.
3. Poultry disease (Clinical / Pathology)
 - a. Expertise and practical experience on important poultry diseases
 - b. Expertise on clinical examination of poultry / ducks
 - c. Expertise on pathological appreciation of bird carcasses
4. Sampling for laboratory diagnostics
 - a. Expertise on sampling live birds and carcasses for virological and bacteriological diagnostics
 - b. Practical experience with sampling devices and transport of diagnostic material.

5. Logistics
 - a. Practical experience with the logistics for the containment of HPAI

6. Communication
 - a. Expertise to assist the district officer in the containment of the incident.
 - b. Communication skill to hold briefings with the district rapid response team (RRT).

Formation of Emergency Disease Investigation Team

The expertise as described above has to be present within the Emergency Disease Investigation. The expertise can be split in a minimum number of 3 people - or maximum number of 4 people.

In addition to the technical expertise, the logistics for the team have to be assured. A vehicle with a driver has to be attributed to each mission of the emergency disease investigation team.

It is important that each member of the team carries out its objectives based on Terms of reference. Thereafter, terms of reference are given for an “emergency disease investigation team” composed of three experts:

1. Disease control officer
2. Epidemiological officer
3. Poultry pathologist/ disease investigation officer

The EDIT shall work under the coordination and guideline of directorate of animal health.

Terms of Reference–Central Emergency Disease Investigation

Disease control Officer

This Team member will support the achievement of the following mission objectives:

1. Assessment of the necessary containment measures adapted to the disease incidence.
2. Provision of technical assistance to the district to implement the required containment measures as described in the SOPs.
3. Provision of technical assistance to logistical aspects.

The scope of work for this Team member will be to:

1. Assess the incident with regard to the necessary measures to be taken according to the national strategy to prevent and control HPAI (including SOPs).
2. Assess the district capability and resources of the district to ensure an effective control of the incident.
3. Provide technical assistance to the district rapid response team (RRT) to implement the containment measures according to the SOPs.
4. Arrange and attend briefing meetings with local partners in the district involved in HPAI related operations.
5. Identify areas of cooperation with ongoing HPAI related control operations in the region / district.
6. Ensure that sufficient resources (within or from an outside source) are available to respond to the outbreak and control its spread.
7. Ensure availability of transportation for the disease investigation team.
8. Ensure the necessary items such as laptop, phones, GPS etc. will be in place
9. Ensure TADA and other expenses for disease investigation team
10. Prioritize and delegate the activities to disease investigation team members
11. Lead meetings with disease investigation team members. During the meeting review the epidemiology of the disease, measures for completing investigation forms, specimen collection procedures, priority of investigations, and county regulations pertinent to the disease and situation with all investigation team members.
12. Facilitate communication with other involved institutions/organizations
13. Perform other related duties as requested.

Epidemiologist

Team member will support the achievement of the following mission objectives:

1. Collection, analysis and interpretation of all relevant epidemiological information linked to the incident.
2. Investigation of potential source of infection (trace back) – investigation of potential spread of infection (trace forward)
3. Provision of technical assistance to the district to implement the required surveillance measures as described in the SOPs.

The scope of work for this Team member will be to:

1. Collect all relevant epidemiological information on the incident according the investigation form with regard to the national strategy to prevent and control HPAI (including SOPs).
2. Assess the district capability and resources of the district to ensure an effective prevention to further spread of the incident.
3. Determine appropriate sampling frame based on epidemiological information.
4. Provide technical assistance to the district rapid response team (RRT) to implement the surveillance measures according the SOPs.
5. Arrange and attend meetings with stakeholders in the district involved in HPAI related operations.
6. Identify areas of cooperation with ongoing HPAI related surveillance operations in the region / district.
7. Provide education and awareness to stakeholders about the disease under investigation
8. Formulate a case definition; classify cases into suspect, probable, confirmed or ruled-out
9. Maintain a current line listing of cases, an epidemic curve and number of suspect cases pending investigation.
10. Maintain a timeline of events in consultation with the team leader
Include dates and names on initial report, initial and subsequent contact with different agencies, meeting/conference calls, and decisions pertaining to the outbreak
11. Submit the completed investigation forms and ensure a final written report of the outbreak is submitted within 30 days (to DLS/DAH) from the end of the outbreak.
12. Serve as HPAI epidemiologist for DLS/DAH
13. Perform other related duties as requested

Poultry Disease Investigation Officers

Under the general guidance of the Department of Livestock Services, the direct responsibility of the director of the Animal Health Directorate, and in close collaboration with the regional and district officers, this team member will be responsible for assisting the DLS with the objectives listed below relative to highly pathogenic avian influenza (HPAI).

Team member will support the achievement of the following mission objectives:

1. Clinical examination of live birds and pathological appreciation of carcasses
2. Sampling of material for further diagnostics, if appropriate
3. Provision of technical assistance to the district to implement the required containment measures as described in the SOPs.

The scope of work for this Team member will be to:

1. Collect all relevant clinical information on the incident.
2. Conduct a clinical examination of healthy and sick birds focussing on important poultry diseases, including HPAI.
3. Conduct a pathological examination of bird carcasses focussing on important poultry diseases, including HPAI.
4. Collect biological samples for further laboratory diagnostics, including HPAI and organise transport of diagnostic material to the laboratory.
5. Assess the district capability and resources of the district to ensure the effective clinical and pathological investigation, including sampling.
6. Provide technical assistance to the district rapid response team (RRT) to implement the clinical examination and sampling procedures according the SOPs.
7. Arrange and attend meetings with stakeholders in the district involved in HPAI related operations.
8. Identify areas of cooperation with ongoing HPAI related sampling operations in the region / district.
9. Provide technical assistance on sampling live birds and carcasses for HPAI diagnostics
10. Follow the biological samples for further laboratory diagnostics and submit the diagnostic report disease investigation team
11. Educate the local staff for control and biosecurity measures as described in SOPs
12. Serve as Poultry Disease Experts for DLS/GON
13. Perform other related duties as requested

List of Equipment for “Emergency Disease Investigation Team”

The team needs to be well equipped and trained. This relies on sufficient funding. The following equipment seems appropriate:

1. Active disinfectant solution in spray container
2. Blood tubes (R.T. or other sterile tubes)
3. Brush and bucket
4. Cardboard container
5. Cool pack-1
6. Disinfectant solution in a sprayer/nebuliser
7. Disposable caps and face masks (N- 95 or better respirator rating)
8. Disposable shoe-covers/plastic bags 5 pairs
9. Disposable suits (2)
10. Electric torch
11. Forceps (6 pairs)
12. Gumboots (5 pairs)
13. Heavy-duty rubber gloves (5 pairs)
14. Icepacks- frozen (5)
15. Insulated container (One)
16. Knife (One)
17. Labels and pens
18. Latex gloves- a Pack
19. Leak-proof and water-resistant plastic (garbage or biohazard) bags-5
20. Leak-proof containers-10
21. Notepad and pens (including 2 felt tip pens)
22. Paper tissues
23. Plastic waste bags-black (or biohazard)-10
24. Plastic bags- thin, small (Whirl-Pak or Zip-Lok)-100
25. Portable Phone/GPS/Camera
26. Poultry shears (2 pairs)
27. Sharps container (disposable)
28. Splash goggles or face shield
29. Sterile Swabs (Dacron/polyester)-100
30. Surgical scissors
31. Surgical scissors (2 pairs)
32. Syringes with needle- 2.5mls- 200
33. Tyvek suits (5 disposable)
34. Tape- Adhesive
35. Virus transport media (50 test tubes (5-6 ml))

Case/ID #: _____ **Investigation Form for Avian Mortality¹**
 (Complete all fields, shaded parts are only relevant for large poultry units)

Date (day/month/year): _____

Investigator² #: _____

Location of farm:

Zone/Region: _____

District: _____

Village: _____

Farm name: _____

Farm code or ID#:

Name of owner or farm manager: _____

Address: _____

Telephone/Fax: _____

Long/lat (GIS):³ _____

Flock Details

(check all that apply, record flock size)

- | | | | |
|--------------------------|---------|----|--|
| <input type="checkbox"/> | Chicken | #: | |
| <input type="checkbox"/> | Turkey | #: | <input type="checkbox"/> Other (e.g., wild birds, wild pigeon ne
etc.): |
| <input type="checkbox"/> | Ducks | #: | |
| <input type="checkbox"/> | Pigeons | #: | |
| <input type="checkbox"/> | Geese | #: | |

Production details

Type of farm (Check one)

- Backyard or village household (<50)
- Commercial small scale (50-500)
- Commercial medium scale (500-5000)
- Commercial large scale (>5000)

Production Type/Intended Use (Check all that apply)

- Egg layer (eggs for consumption)
- Meat-type (meat consumption)
- Breeder (eggs for hatching)
- Other (specify): _____
- Indoor (totally confined)
- Outdoor (totally outside)
- Indoor-outdoor (semi-confined with access to both indoors and outdoors)

¹ The information should be collected for the entire herd. For outbreak investigations of livestock diseases a different form is available

² Please provide also contact details for investigator if not provided earlier

³ Record coordinates at the entrance to the farm at the farm gate

Other: _____

Age(s) or range of age of birds (days/weeks/months): _____

Number of barns/buildings _____

Number of birds per barn/building _____

Clinical Information

Species affected (when, how many sick, how many dead)

	# sick ⁴	# dead ⁴	Total # before disease	Average age	Start of signs (date)
Chicken					
Turkey					
Ducks					
Pigeons					
Geese					
Other:					

Clinical signs	Yes	No
Depression	<input type="checkbox"/>	<input type="checkbox"/>
Respiratory signs	<input type="checkbox"/>	<input type="checkbox"/>
Edema of the head	<input type="checkbox"/>	<input type="checkbox"/>
Sinusitis and sneezing	<input type="checkbox"/>	<input type="checkbox"/>
Cyanosis of combs and wattles	<input type="checkbox"/>	<input type="checkbox"/>
Inappetance	<input type="checkbox"/>	<input type="checkbox"/>
Decline- water consumption	<input type="checkbox"/>	<input type="checkbox"/>
Decline- egg production	<input type="checkbox"/>	<input type="checkbox"/>
Diarrhea	<input type="checkbox"/>	<input type="checkbox"/>
Neurologic Disease	<input type="checkbox"/>	<input type="checkbox"/>

⁴ If flock size is not recorded, indicate also what proportion of the flock is sick or dead

Management

Hygiene	Yes	No
Disinfection procedure on entering?	<input type="checkbox"/>	<input type="checkbox"/>
	Describe: <input style="width: 100%;" type="text"/>	
Cleaning of poultry housing (dry cleaning) before this flock?	<input type="checkbox"/>	<input type="checkbox"/>
High pressure washing before this flock?	<input type="checkbox"/>	<input type="checkbox"/>
Cleaning and disinfection before this flock?	<input type="checkbox"/>	<input type="checkbox"/>
Bird-proof netting?	<input type="checkbox"/>	<input type="checkbox"/>
Rodent control?	<input type="checkbox"/>	<input type="checkbox"/>
	Describe: <input style="width: 100%;" type="text"/>	
Restocking - All in-all out?	<input type="checkbox"/>	<input type="checkbox"/>
Partial restocking (Partial load-out)?	<input type="checkbox"/>	<input type="checkbox"/>

Last time new birds were introduced in the flock? Date (day/month/year): _____

Manure Handling:

Use and storage of litter/manure on-premise currently (e.g., fertilizer)?

Proximity of manure spread to other farms?

Dead Bird disposal:

Storage of dead birds (where, how long?)

Disposal of dead birds (e.g., incinerated, buried, rendered, consumed, manure pit, compost)?

Feeding: (Check all that apply)

- Feeds all produced/grown on farm
- Scavenging leftovers
- Feeds purchased, brought onto farm
→ Delivery Information:
When was the last feed truck in? ID #?

Drinking Water: (Check all that apply)

- Municipal Supply
- Pond or lake
- River or canal
- Well or bore
- Sharing of water source with wild birds
- On farm water treatment (e.g., chlorination)

Epidemiological Information

Recent Contact Information:	Yes	No
Contact with wild birds (e.g., ducks, pigeons, migratory)?	<input type="checkbox"/>	<input type="checkbox"/>
	Specify species: <input style="width: 100%;" type="text"/>	
Pigs on Farm?	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle and/or equipment	<input type="checkbox"/>	<input type="checkbox"/>
	Describe: <input style="width: 100%;" type="text"/>	
Dealer/Buyer?	<input type="checkbox"/>	<input type="checkbox"/>
Visitors, including:		
Other farmers?	<input type="checkbox"/>	<input type="checkbox"/>
Family members?	<input type="checkbox"/>	<input type="checkbox"/>
	Specify: <input style="width: 100%;" type="text"/>	
Neighbors?	<input type="checkbox"/>	<input type="checkbox"/>
Animal health staff/veterinarian?	<input type="checkbox"/>	<input type="checkbox"/>
Vaccine crew?	<input type="checkbox"/>	<input type="checkbox"/>
Beak trimming crew?	<input type="checkbox"/>	<input type="checkbox"/>
Other?	<input type="checkbox"/>	<input type="checkbox"/>

Distance to next farm with poultry? <input type="checkbox"/> less than 1 km <input type="checkbox"/> 1-2 km <input type="checkbox"/> more than 2 km
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Destination (within the last month)

Eggs Sold (how many, where)?

Live chickens sold (when, where)?

Last on farm slaughtering (including for private/home consumption, when)?

Other products sold or moved (e.g., manure, feathers, bones, offal, carcasses)?

Where is birds' manure going?

Where is the equipment used in the flock (cages, shovels etc.) going?

Personnel movement (other locations personnel worked)?

Movement of poultry within company or within the farm (date, location)?

<input type="text"/>	<input type="text"/>
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Backward tracing (within the last month)

Source of birds/eggs (include date)?

Introduction of new birds (when, from where)?

Other outbreaks close to the farm (when, where)?

Lakes or ponds nearby (include distance)?

Other contamination source (e.g., other manure, other dead birds, equipment)?

Vaccinations

	Yes/No	If yes, date	If yes, source/type	If yes, route administered
Newcastle Disease				
Avian Influenza				
Infectious Laryngotracheitis				
Other:				

Drugs or medications within last 2 weeks?

- Yes (If yes, Specify: _____)
- No

Give below any other comments or a short description of the outbreak (possible contamination source, extent of outbreak, and other premises that are infected, control activities, etc):

Specimens collected

(Collect from at least 6 birds: 3 sick, 3 recently dead, if no sick/dead birds 15 blood samples are required)

Bird ID	Sick (S) or Dead (D)	Cloacal (CS), tracheal (TS), or oropharyngeal (OS) swab	Fecal sample (Yes/No)	Lung (L), Trachea (T), Brain (B), Spleen (S), or Pancreas (P)	Blood or serum (Yes/No)

Avian influenza cannot be clinically differentiated from Newcastle disease. Samples are essential for laboratory diagnosis.

Swab material into 5 ml of transport media in sterile tubes. Discard swabs. Samples may be pooled 5-10 tube/bottle. Feces in screw capped bottles or tubes. Separate clot from serum. Identify all samples.

Result of “Pen-side” (e.g., Directigen Flu-A) test

- Positive
- Negative
- Uninterpretable
- Not performed

Sample Used:

Postmortem lesions		
	Yes	No
Dehydration	<input type="checkbox"/>	<input type="checkbox"/>
Cyanosis of combs and wattles	<input type="checkbox"/>	<input type="checkbox"/>
Edema of the head	<input type="checkbox"/>	<input type="checkbox"/>
Necrotic foci in organs	<input type="checkbox"/>	<input type="checkbox"/>
Hemorrhage or exudates in trachea	<input type="checkbox"/>	<input type="checkbox"/>
Pancreatitis	<input type="checkbox"/>	<input type="checkbox"/>
Hemorrhage in alimentary tract	<input type="checkbox"/>	<input type="checkbox"/>
Hemorrhage/congested shanks	<input type="checkbox"/>	<input type="checkbox"/>
Diarrhea	<input type="checkbox"/>	<input type="checkbox"/>
Neurologic Disease	<input type="checkbox"/>	<input type="checkbox"/>

Other lesions:

External Appearance:

Head and Neck:

Alimentary Tract:

Respiratory Tract:

Heart and Circulatory System:

Urinary Tract:

Muscle, Bones and Joints:

Tentative Diagnosis:

Signature _____ **Signature of**
investigator/submitter)