

Action Plan (Revised – 2012)

Introduction

Avian influenza (AI) virus has been circulating worldwide for centuries with four known outbreaks recorded in the last century. The present wave of Highly Pathogenic Avian Influenza (HPAI) emerged in Hong Kong in 1997. India remained free from AI till mid-February 2006 and the first outbreak was notified on 18th February, 2006. Since then, outbreaks have been reported in Maharashtra, Gujarat, Madhya Pradesh, Manipur, West Bengal, Tripura, Assam, Sikkim, Odisha and Meghalaya.

In view of a threat of global outbreak of AI and apprehensions of a human pandemic, the Department of Animal Husbandry, Dairying & Fisheries (DADF), Government of India had prepared an action plan to deal with eventuality, if any. After subsequent outbreaks of AI in 2008 and 2009, new experiences were gained and gaps identified. The present action plan has been prepared taking into account the new experiences, the lessons learnt from the past and the contemporary scientific information.

The Action Plan is comprised of four chapters. Chapter I, advises the states on preparedness against AI outbreaks. Chapter II, indicates the actions to be taken if an outbreak of AI is suspected. Chapter III, describes the actions during an outbreak of the disease, and Chapter IV, identifies persons who will handle Notifiable Avian Influenza (NAI) infected poultry and advises on biosafety and biosecurity measures.

A list of species of wildlife and domestic animals affected by HPAI (H5N1) virus, as published by the National Wildlife Health Center, USA is attached at Annexure II.

Chapter: 1. General Preparedness against Avian influenza

I.1 Assessment of Preparedness

- Assessment should be made in routine, irrespective of any outbreak. The check-list for preparedness, control and containment of AI in general at Annexure VI. Immediate points to handle AI, if outbreak is confirmed (Annexure VII) can be assessed. The states can add to the check-list and continually upgrade it as per local requirements.
- Training of the key-persons, who are likely to be involved in the operations, should be taken as part of preparedness, as under:
 - a) All the vets and paravets should be made aware of and trained in the control and containment activities.
 - b) Civil-administration involving Chief Secretary, District Collector (DC), Revenue officers, District Magistrate, Chairman and members of Panchayati Raj Institutions/ Municipality/ Local bodies, Officers of Home Department, Health and other line departments should be familiarized with action plan by organizing workshops.

I.2 Surveillance: It is very important and there is a serious need to remain alert and prepared

Surveillance must include both poultry and migratory birds: Poultry includes chickens and all other domesticated birds viz. ducks, geese, turkeys, guinea fowls, quails etc. India has a poultry population of nearly 650 million, of which about 40% is in the backyard. A large population of migratory birds start arriving in India in September and leave by end of March. Surveillance, therefore, in migratory birds and poultry would include the following components:

I.2.1 Routine Surveillance

* The surveillance should include

- (a) Physical/clinical
- (b) Virological testing of cloacal and tracheal swabs in poultry and wild birds where possible.

The state governments are advised to develop routine surveillance plans by taking a block as a geographical unit, and together with Department of Forest taking into account the following factors:

- i. Population and density of poultry in each block, both in backyard and commercial establishments.
- ii. Flyways of migratory-birds.
- iii. Live-bird markets including wet-markets.
- iv. Existence of wildlife sanctuaries/ national-parks/ water-bodies visited by migratory/ wild birds.
- v. Areas adjacent to international land-borders, especially those affected with AI.
- vi. Interstate borders with the AI affected States.

* All the states should submit their annual surveillance plan by October every year. The Director, Animal Husbandry or equivalent will propose and implement surveillance plans together with the Wild Life wing of the Forest Department. Strong coordination between the two is very essential.

* **Processing of survey samples:** The faecal and/or tracheal swabs collected from the poultry by the officials of the State Department of Animal Husbandry; and from the wild birds by the officials of the State Forests Department should be packed properly and send to HSADL, Bhopal/RDDL, as per Annexure I.

Note: Separate guidelines for targeted serology may be issued by the DADF as and when required.

1.2.2 Arrangements for Immediate reporting of Unusual Sickness and Mortality in Birds

(i) The poultry owners/ integrators/ hatcheries, their consultants, field veterinary institutions and anyone who notices it, must report unusual sickness/ mortality in domestic or wild birds immediately and in any case within 24-hours of its occurrence to the necessary veterinary institution and/or any other government agency.

(ii) The entire machinery of the Animal Husbandry/Veterinary Department in every district should remain in a state of full alertness and preparedness in case of report of unusual sickness and mortality in birds.

(iii) Concerned veterinary staff must make regular visits to high-density poultry units (backyard and commercial). Section 4(2) of the Prevention and Control of Infectious and Contagious Diseases in Animals Act, 2009 also states that the Village Officer, as designated by State Government under this Act, shall visit the area falling within his/her jurisdiction for reporting any outbreak of the disease. All veterinary officers in the district (government, semi-government or private) should report to the CVO/ DAHO on phone/ or fax or e-mail, of any unusual sickness or mortality in poultry and wild birds.

(iv) Similarly, the forest guard/ forester in Forest Department should remain vigilant and report any unusual sickness/ mortality in wild and migratory birds, in sanctuaries and water-bodies etc. to the senior forest officials and or to the nearest veterinarian /CVO/ DAHO of the State Animal Husbandry Department.

(v) Create public-awareness about reporting any unusual sickness and mortality in poultry and wild birds and encourage them to provide informal and supplementary information about any unusual sickness and mortality in avian species in their vicinity. This can be done through regular IEC campaigns for poultry farmers, holding Gram-Sabhas in rural areas and through print and electronic media. However, due care should be taken not to create any panic in the public.

The state governments should ensure capacity-building measures to get mortality reports at the earliest. Establishment of separate Avian influenza Cells and Toll-Free telephones are some of the suggested ways.

*** Co-ordination between State Department of Animal Husbandry and Forests**

The Chief Secretaries should ensure that the Department of Animal Husbandry and of Forestry must undertake coordinated survey programme. As a first step, the Forest Department should prepare details of the areas visited by wild/ migratory birds. Simultaneously, the Department of Animal Husbandry should prepare details of areas of poultry concentration. High density poultry areas visited by the migratory birds, live/wet-markets and international borders porous for poultry and birds are the core and critical areas for targeted surveillance. Prepare lists/maps of such critical areas and circulate to all concerned including the Government of India. This would help the designated diagnostic laboratories to setup priorities for testing the material. Advice on the role of different departments is summarized at Annexure V.

I.3 Guidelines for Collection, Packing and Transportation of Samples

The following guidelines are extremely important. States should adhere to these guidelines:

(i) The States/ UTs must distinguish at their level between unusual sickness/ mortality and normal incidences of sickness and mortality in poultry. Only in case of unusual sickness/ mortality raising suspicion of AI, forward the samples immediately either to respective Regional Disease Diagnostic Laboratory or directly to HSADL, Bhopal through special messengers under intimation to the Joint Secretary (Livestock Health), in the Department of ADF, Government of India.

Contact details of RDDs, HSADL, and DADF are given at annexure-XII.

(ii) Representative/ random sampling may be done from an area/ farm. Samples from four (4) birds consisting of at least one cloacal swab, one tracheal-swab and one serum-sample from affected farm/ backyard poultry/duck units should be collected.

(iii) The tracheal and fecal samples should be collected aseptically in sterile isotonic phosphate buffered saline (PBS), pH 7.0-7.4 containing antibiotics in and dispatched on ice preferably in three layer packing (see Annexure III).

(iv) All the samples from a village should be packed together so that if required, the samples can be pooled and tested. Samples from other villages / areas should be kept separate.

(v) It is imperative that the cold-chain is maintained while dispatching the samples.

(vi) The samples should be accompanied with a prescribed proforma (Annexure IV) for referring to designated laboratories for diagnosis of AI. The details of area from where the samples were collected, place etc. should accompany the samples. The laboratories shall not accept samples without fully filled proforma.

I. 4 Obtaining results of Diagnostic tests.

Periodic information of samples received, tested and pending etc, is posted on the departmental website (www.dahd.nic.in). As per existing protocol, the

designated laboratories are to communicate the results of testing of samples only to the Department of Animal Husbandry, Dairying & Fisheries. The Government of India alone is empowered to notify an outbreak of AI. The state governments should forward their queries regarding the test results of samples to DADF and not directly to the designated laboratories.

I. 5 Role of District Collector/Deputy Commissioner

District Collector/Deputy Commissioner has to play a central and coordinating role to deal with the outbreak of NAI. He /she should ensure proper enforcement of restrictions including movement control, ban on sale of poultry related products, closure of shops, payment of compensation (payment and verification), clean-up and maintenance supply lines for equipment etc. Associated revenue officers should be thoroughly familiarized with the Action Plan to enable them to assume responsibility in case of outbreak. He/she should also define and monitor role of officers from line departments required to be deployed during control and containment operation.

I.6 Legislative Frame Work

The Government of India has enacted an Act namely “The Prevention and Control of Infectious and Contagious Diseases in Animals Act, 2009”. The Act has come into force in all the states/ UTs. The list of notifiable diseases by the states is given in the schedule of the Act. The states have been empowered to take necessary action to appropriately deal with disease situations.

I.7 Stocking and Sourcing of Equipment/ Instruments/ Machinery etc. Required for Conduct of Operations

Equipments/materials such as Personal Protective Equipment (PPE) kits (Annexure-X), slack-lime and quick-lime, sodium-hypochlorite, formalin, sodium phenol barbitol, gunny-bags, plastic-sheets, plastic-bags, spray-pumps suitable for crops, spray-pumps suitable for spraying at height such as on trees etc., fogging-machines, jetting-cum-suction machines, gumboots, JCB-machines, flame-guns, LPG cylinders, fire-wood, kerosene and coal etc. are required for conduct of operations. The states should develop reserves of these items and determine source of supply in case of an emergency, ensure ability of suppliers to provide equipment/ materials throughout an outbreak as-per-requirements and finalise procedural and financial formalities well in advance. Vehicles and machinery may have to be hired in situation of outbreak. An illustrative list of instruments/ equipments/ other materials required in AI operations is at Annexure VIII.

Chapter: II Steps to be Undertaken in Case of Suspicion of Avian influenza Outbreak

II.1 Visit to the site of outbreak (Epicentre)

On report of unusual sickness or mortality of poultry or other birds etc, the CVO/ DAHO/ Disease Investigation Officer (DIO) shall visit that place immediately and ascertain the circumstances, facts and oversee activities as demanded by the situation. While visiting the farm/ village/ affected premises, all precautions including use of PPE etc. should be exercised and proper instructions on biosecurity measures to the owners of the birds including cleanliness/ hygiene, segregation of healthy birds from the sick ones, restriction of movement of birds and human beings within the premises and from outside.

DO NOT OPEN ANY BIRD FOR POST-MORTEM IN THE FIELD

II.2 Kit for Veterinary Officers / DIO and its use

- Each investigation officer should be equipped with a 'kit' (indicated in Annexure IX), so that he/she is in a position to conduct preliminary and clinical investigations as demanded by situation and, if necessary, collect and dispatch samples for laboratory analysis. All investigation officers who are required to visit the suspected/ outbreak areas should wear the PPE (details given at Annexure X). Two or three fogging/ spraying machines and 10 or more sets of essential kits, should be carried to each suspected place. The office of every CVO/ DAHO should have at least five fogging/ spraying machines and fifty sets of protective clothing as per details at Annexure VIII.

It must be ensured that the used PPE are disposed-off by burning prior to departure from suspected site of infection.

- The DIO must wear protective gear in a room designated as changing-room for the convenience of reference before entering the suspected premises. He/she must leave the following items from the kit in the changing room:
 - * Leak-proof and water resistant container;
 - * Thermos container (ice-box) for carrying samples;
 - * Two pairs of latex gloves;
 - * Five autoclavable plastic-bags;
 - * Five black disposal bags;
 - * Disinfecting solution.

The remaining components of a kit must be carried inside the premises to be examined.

II.3 Preliminary and Clinical Investigations to be Done by Disease Investigation Officer (DIO) / Veterinarian etc.

Collect the following information depending on system of poultry rearing:

a) Commercial Farms:

- (i) Preliminary identification and topography (name of owner, village & district) of the production unit and subunits of the farm.
- (ii) Whether commercial farm or village/backyard poultry under suspicion. Number of birds and other animals present in the farm/village.

- (iii) Date-wise morbidity and mortality-rate in each species of birds kept in the farm / village.
- (iv) Identification of staff as well as vehicles directly involved with that unit.
- (v) History about the recent movement of people, equipment, vehicles and animals/ birds in the farm / village.
- (vi) Availability of disinfectants and equipment for disinfecting the premises on (if it is a farm).
- (vii) Weekly market from where the birds are purchased, if any.
- (viii) Anamnestic data - data concerning mortality rate recorded in 6 weeks prior to onset of clinical signs, data relating vaccinations carried out and any untoward reaction, sickness or mortality after vaccination or medication.
- (ix) Presence of ornamental birds for fancy keeping, fighter-cocks for gambling etc. in the village / on the farm etc.
- (x) Information about any cross-border movement of poultry and products in the vicinity of the farm / in the village.

Clinical Investigation :

The DIO should establish clinical situation on the farm including sick and suspected birds. The clinical-investigation must be performed on all susceptible species (chicken, ducks, turkeys, guinea-fowl, goose, quail etc.) present in the farm/ village and it must begin from the most peripheral units.

II.3.3 Epidemiological Inquiry Report

An epidemiological inquiry report must be faxed or e-mailed immediately to the Secretary/ Director of Animal Husbandry of the state/ UT as well as to the Government of India (DADF) as per Annexure XI.

II.3.4 Actions following Clinical Investigations

If AI is not suspected, adequate local publicity should be given for the same so as to reassure the poultry farmers and general public.

If the preliminary investigation further raises suspicion of AI, then the CVO/ DAHO has to ensure that the following steps are taken immediately.

II.4 Collection of samples and dispatch for laboratory tests

II.4.1 Type of Samples to be sent to the Laboratory for Testing / Post-Mortem

- (i) At least 5 birds (either recently died or the birds showing acute signs of disease after sacrificing them) ;
- (ii) Cloacal and tracheal swabs collected from at least 10 healthy birds. Swabs must be collected ensuring that the tracheal swabs are completely wet and at least one gram of faecal material is actually present on the

fecal swab and immersed in virus transport medium (PBS or tissue culture medium);

- (iii) Serum samples from at least 10 birds showing acute signs of disease;
- (iv) In case any duck population is present in the vicinity of mortality, at least 5 serum samples should be sent.

Mortality in Wild Birds : Unusual mortality of wild birds like crows, parrots, egrets, pigeons, migratory-birds etc. in the area, suitable samples on the above lines may also be sent.

II.4.2 Collection and Dispatch of Samples :

Samples must be packaged, wrapped in at least two leak-proof plastic bags to avoid seepage of the infectious-agent and transported inside a polystyrene box (ice-box) containing icepacks (Annexure III). The polystyrene box must be appropriately disinfected before leaving the premises. The samples must be accompanied with an appropriate form (Annexure XI).

A special messenger/ courier should leave for HSADL, Bhopal or to the respective Designated Diagnostic Laboratory within 24 hours from the initial report and reach the laboratory as soon as possible, by air, if necessary. The CVO/ DAHO should inform to the State Secretary/ Director of Animal Husbandry to the respective laboratory in advance of the dispatch and to the DADF, Government of India. The Animal Husbandry Commissioner (AHC) [Dr. A.S. Nanda Tel: 011-23384146 (O) 09999600703 (M)], Joint Secretary (LH), GOI [Shri. R.S. Rana (Tel: 011-23384509 (O) 09868704728 (M) or Joint Commissioner (LHS), GOI, [Dr. K. Vijayakumar Tel: 011-23384190 (O) 09999316148 (M)] may be contacted. HSADL, Bhopal /respective Designated Diagnostic Laboratory should be requested to receive the samples to carry out the tests as soon as the samples reach there (Telephone nos. of HSADL, Bhopal and other Designated Diagnostic Laboratories are at Annexure XII).

Following the collection of samples, the DIO and his assistants should change their protective gear in the designated changing room and burn them off within the premises prior to departure, collect all sterilizable equipments in an autoclavable bag, sealed and inserted into a second bag which is disinfected externally. All single use materials, paper-sheets, disposable gear and shoe-covers should also be burnt.

II.5 Immediate reporting to the Director, Animal Husbandry, the District Collector and others

The CVO/ DAHO shall immediately report by telephone, fax or e-mail the matter to the state Secretary/ Director of Animal Husbandry, District Collector, District Medical Officer and the Revenue Department (Sub Divisional Officer, Tehsildars etc.) The District Administration and state Department of Animal Husbandry will then proceed to take action with regard to enforcement of restrictions indicated below:

II.6 Identification of “alert-zone”

All villages and habitations within 10 km radius from the affected place are identified as “Alert-Zone”. The Panchayat/ Municipal Authorities, Civil, Veterinary and Health Officials in those areas should be alerted about the possibility of AI outbreak and requested to enforce the restrictions mentioned below.

II.7 Restrictions to be Enforced at the Site, and in the “Alert-Zone”, Pending Receipt of Test Results

- **Restrictions and Activities within an “Alert-Zone”**

Pending receipt of the test results, the entire suspected farm or site should be cordoned off and the following restrictions should be immediately brought into effect in the alert zone, by the district administration with the assistance of the Animal Husbandry Department etc:

- (i) No vehicles should be allowed to ply in and out of the affected farm/ site. Personal vehicles should be left outside the farm premises.
- (ii) No movement of poultry, eggs, dead carcasses, manure, used litter, farm machinery, equipment or any such material should be allowed to and from the alert zone
- (iii) The personnel working inside the farm should wear protective clothing all the time inside the farm, including face-masks and gloves, gumboots (or shoes with disposable covers) etc. While leaving the farm, leave the protective clothing etc at the farm and clean themselves thoroughly with suitable disinfectants.
- (iv) Movement of people to and from the suspected farm should be restricted to the barest minimum. No other animals and birds should be allowed in the farm.
- (v) Inter-sectional movements of farm personnel should be banned. They should not visit any other poultry farm, bird-sanctuary or zoo etc.
- (vi) Disinfection procedures (e.g. by using 2% NaOH/ KMnO₄) should be strictly applied at the entrance of the premises.
- (vii) All records of birds present at the farm are to be maintained properly.
- (viii) Before the test results are received, the possibility of closing the markets and shops in the area may be explored by the District Collector/sub-divisional officer/revenue authorities in consultation with the State Animal Husbandry Department, particularly if more farms become suspect during this period.

- (ix) Practices of scavenging of poultry in the open backyard should be prevented and marketing of birds/chicks/eggs through basket-wala should be banned.
- (x) Police force should be deployed for assistance to enforce above measures, if necessary.
- (xi) **Continued Surveillance and collection of Information Pending Receipt of Results:** The DAHO should arrange to record mortality or sickness of birds at the suspected site and in the alert-zone. Also he/she should collect information about the total poultry population (with details of age, breed) with individual poultry farmers, both backyard and commercial within a radius of 1 KM and between 1-10 KM from the suspected site. For this purpose, a scale-map has to be drawn indicating all the villages in 0-1 and 1-10 km radius.
- (xii) **Action by Forest Department in bird sanctuaries etc.:**

In case the suspected site happens to be a bird sanctuary, the actions indicated from (i) to (xi) above paragraphs are to be undertaken by the Forest Department with assistance of the Animal Husbandry Department, wherever required. The Department of A.H and of the forests should assign at least one officer each as the Designated officer to co-ordinate necessary procedures.

II.8 Action to be taken in case laboratory diagnosis is Negative for NAI

Lift the restrictions mentioned above. However, if the above average mortality or disease situation continues, the restriction should continue till the mortality subsides. The lab must test for the associated/suspected disorders like Newcastle diseases, Marek's disease, Infectious bursal disease etc.

Chapter III: Action Plan to deal with Confirmed Outbreak of NAI

III.1 Notification and Information of Outbreak of Notifiable Avian Influenza (NAI)

- The HSADL Bhopal/ Designated Diagnostic Laboratory will confirm NAI to DADF, Government of India, which in turn will inform it to the Chief Secretary of the state concerned, the World Animal Health Organization (OIE) and the other countries. Further control and containment operations will be intensified immediately thereafter. The Government of India will dispatch the Central Observers of Department of Animal Husbandry, Dairying & Fisheries, if situation so warrants or if specifically requested for by a state government. The Central Observer will provide technical assistance and guidance to the state government in the conduct of operations.
- The Chief Secretary/ Secretary Animal Husbandry of the State will notify to the highest authorities of the State Government, all the concerned private and public agencies, of the outbreak along with necessary guidelines/instructions.

- The officials of the Animal Husbandry Department will immediately inform of the NAI outbreak to their counterpart officials in the Human Health Department at District, State and National level.

III.2 Implementation of Contingency Procedures under the Co-ordination of District Collector/ Deputy Commissioner

Once NAI is notified in a particular area, all contingency procedures for its containment and containment should be implemented at once. The responsibility shall rest with the District Collector/ Deputy Commissioner, with technical assistance from the Departments of the Animal Husbandry, the Human Health and the Forest etc. as appropriate. While the CVO/ DAHO will act as the supervisory officer for all technical operations in general, on the concerned forest officer will take charge for containing outbreaks in a zoo/ wildlife sanctuary or other forest area etc.

Following step-wise activities are suggested:

- (i) **Quick start of a Coordination Process:** District Magistrate should hold an emergency meeting with the Senior Superintendent of Police, Chief Medical Officer, Chief Veterinary Officer and officers of other line departments e.g. P.W.D, P.H.E, Heads of Panchayats /Local Bodies and other Government and NGO's and establish the following :
 - (a) Set out the strategy of the whole work of control and containment operation for AI in the shortest possible time;
 - (b) Define the roles and responsibilities of all the departments as per Annexure V;
 - (c) Draw a scale-map of infected and surveillance zone showing all villages to be covered. This will help in calculating the poultry population, number of commercial farms, human population and number of houses etc. in the area.
- (ii) **Establishment of a Control Room:** Set-up a 24-hour Control-Room within the infected area, equipped with telephones, STD-facility, fax-machines, computers with internet access and secretarial-assistance etc. The personnel deployed in the Control-Room should be able to clearly receive and disseminate all comprehensive information. The Control-Room may be contacted by several news agencies/media.
- (iii) **Establishment of Rapid Response Teams (RRT)**

Rapid Response Teams fully equipped with PPE and sanitization materials for disinfection need to be established.

The RRTs will be responsible for operations like culling, disposal of birds, supervising and undertaking clean-up and disinfection of infected premises etc. All the veterinary, para-veterinary and other related personnel of the State Animal Husbandry Departments are trained in the control and containment of Avian influenza by the states. Daily wages untrained/ unskilled laborers/ or personnel, if

engaged on contractual basis, should be trained for their personal safety and quarantine measures, apart from control and containment operations.

The states are advised to check following issues as part of preparedness:

- The RRTs for clean-up and disinfection will function under the overall supervision of veterinarians/paravets and comprise of Class IV employees, labour, etc.
- Total number of RRT's required to be set up based on area, type and concentration of poultry.
- Allot the work and the area to each RRT in a precise manner and keep a record of it. This should be started well in advance. Arrangements for food and refreshments must be a part of this exercise.
- Arrange boarding and lodging for RRTs.
- If need be, Director A.H./Commissioner should mobilize manpower from other districts. Faster mobilization of RRTs to outbreak areas is an important element of planning. Necessary medical check-up of the RRTs should be planned accordingly.

(iv) **Personal Protective Equipment (PPE)**

Prior to start of operations, briefing must be given to all involved on the importance of kit, its use and disposal etc. PPE must be used by RRTs and all persons having direct and active exposure to infected poultry. Workers/ labor force, if engaged for clean-up and disinfection etc. must also be provided with PPE. Operations should not be started without the use of PPE.

The composition of the kit is given at Annexure X. Kits used by the direct handlers i.e. cullers and others having direct exposure to infected poultry must have a face mask with a filter (N-95).

The sequence for wearing the PPE is as under:

- i). Wear shoe-cover
- ii). Wash hands
- iii). Wear 'dangri'
- iv). Put on the face-mask/ mask with filter (N95 standard)
- v). Fix protective glasses over eyes (goggles)
- vi). Fix hood over head
- vii). Put on gloves

The sequence of removing PPE should be followed as below:

- i. Remove shoe-covers
- ii. Remove gloves
- iii. Wash hands
- iv. Remove 'dangri' with attached hood
- v. Remove disposable protective glasses (goggles)

- vi. Remove face masks (for other than direct handlers)/ face mask with hepa- filter, N95 standard (for direct handlers)
- vii. Dispose off all by burning
- viii. Wash hands with disinfectants

(v) **Safety of Personnel Engaged in Control Operations**

Persons engaged in control operations have high chances of exposure to infection. It is therefore, of utmost importance to ensure the safety measures as explained in succeeding paras:

- **Health check up of personnel before start of operations**

The members of the RRTs must be physically and mentally healthy.

- **Use of Antiviral Drug (Oseltamivir):**

Prophylactic medication with the antiviral drug, (Oseltamivir) of the personnel coming in direct contact with poultry is essential. One tablet is to be taken orally daily for 10 days. It can be taken up to six (6) weeks in case of continued exposure. The Deptt. of Public Health, supplies Oseltamivir free of cost to all those engaged in operations including labor.

- All persons exposed to infected chickens or to farms under suspicion should be under close monitoring by local health authorities. Serological surveillance of exposed farm workers and veterinarians is encouraged. Further details can be obtained from the "Contingency Plan for Management of Human Cases of AI" hosted on the website of the Ministry of Health & Family Welfare, Government of India (www.mohfw.nic.in).

- **Personal-Hygiene and cleanliness**

Proper hand-hygiene through regular and proper washing is necessary for the cullers and transporters after each operation. Quarantine of all the personnel engaged in operations of culling/ cleaning operations must be enforced under medical supervision. Arrangements for boarding/ lodging of such personnel during this period and payment of wage for the labor should be ensured. Self-surveillance is strongly advised with quick reference to a health institution, governmental or private, in case of any flu-like symptoms or respiratory complaints etc.

III.3 Demarcation of Surveillance and Infected Areas and Actions to be Taken

The district administration will notify the names of all the villages and habitations within a radius of one km and within 10 kms. The area within one km from the site of confirmed NAI will be designated as "Infected Zone". Rest of the area within 10 km is the "Surveillance Zone". The infected zone should be clearly and prominently displayed in the local language preferably through sign-boards. The Surveillance zone should act as a buffer-zone between the infected area and the disease-free area. The State government, in consultation with the Government of India may change the radii of the

Infected zone by one more km each, maximum up to 3 km., if the foci of infection / mortality are scattered over a larger area. In such a case, the culling zone will be extended to one km radius from the new site of infection without notifying the disease again. Further/more occurrence of NAI, if any, beyond 3 km. radius of this limit will require to be notified as a fresh/new outbreak by the Department as per due procedure.

III.4 Immediate Tasks of the Designated Veterinary Officer

The designated veterinarian must take PPE and antiviral drug (oseltamivir) as indicated above and immediately undertake the following steps:

(i) Assessment of the situation:

- Quickly assess the state and condition of the farm/ premises/ site to determine the nature and scope of operations to be conducted.
- Identify locations where vehicles leaving the farm/ premises/ site can be properly washed and disinfected.
- Activate the disinfection procedures at the point of entrance to/ exit from the infected premises; identify sites where staff may wash and disinfect; and ensure that on leaving the premises, all staff, wash and disinfect exposed body parts and shoes and agree to wash their clothing as soon as they return home and the disposable gear is disposed-off by burning. Ensure that they do not go from one farm to the other.
- Ensure that vehicles are washed and disinfected properly and should leave the infected premises only if absolutely necessary.
- Take necessary steps to ensure that contamination of water-reservoirs is avoided.

(ii) Estimating Requirements of Store and Manpower:

Handling of an NAI outbreak may need the following items / manpower:

- * 100-150 kg of slack lime is required to cover 2m x 2m x 2m burial pit.
- * On an average, one gunny bag can carry 35-40 culled birds.
- * One member of culling team can cull 100-250 birds a day in an organized poultry farm, 18-100 in a backyard poultry depending on the rate of arrival of birds etc.
- * Requirement of PPEs dependent on number of shifts, number of members of RRTs, and number of days required to complete the culling and sensitization operation.

III.5 Absolute Ban on Movement of Poultry

Movement of live birds from and to the infected area should be completely banned by the State Government. Restocking of poultry in that area will commence not before one month after the Sanitization Certificate is issued as per Para III.11 subsequent to the approval of the DADF, Government of India. Police, Local bodies, media and representatives of the farm organizations should be involved with this work. Various types of physical restrictions like Nakabandi, drop-gates on all outgoing roads of the infected area may be imposed by engaging police personnel.

III.6 Closure of Poultry and Egg Markets/ Shops

The States or District administration should immediately announce the closure of all shops and markets dealing with poultry products and eggs within the radius of 10Kms from the infected site. Take the assistance of revenue, municipal and Panchayat authorities. These shall remain closed till completion of culling and sanitization operations. Thereafter, inward trade of eggs and processed poultry / products shall be allowed within the surveillance zone without any outward movement of poultry .

III.7 Restrict Access to Wild and Stray-Birds

All possible steps should be taken to ensure that wild and stray-birds do not have access to the poultry, poultry sheds and water supplies in the infected area.

III.8 Restriction of Movement of Persons & Vehicles

To and fro movement of the number of vehicles and staff in the infected premises should be reduced to the minimum necessary to handle the outbreak as both human beings and vehicles can be instrumental in further spread of infection. The movement of people and equipment from the infected premises should be allowed only when necessary. Staff in the infected premises may leave the farm after a complete change of clothing and disinfection and proper disposal of protective equipments.

The vehicles of the veterinarians and others visiting the infected premises must be left at least 500 meters away from it. If necessary, e.g. JCBs for control and containment operations may be allowed. However, these will be fully washed & disinfected before leaving the farm/ infected premises.

III.6 Depopulation of Birds in the Infected Zone

Stamp out all the live poultry birds within the infected zone. Culling should start from the periphery of the infected zone. It should take place in the presence of designated Veterinary Officer and concerned local authorities such as officials of the Revenue Department, Municipality, Panchayat etc.

III.6.1 Method of Culling/ Depopulation on a Farm

The birds should be sacrificed by a quick twisting of the neck (cervical dislocation), taking care that the process is humane. Depopulation and disposal of infected birds must be done quickly with the doors of the shed/ house closed to prevent entry of wild-birds and other animals.

III.6.2 Culling Strategy for Backyard Poultry

Typically, backyard poultry is let out in the morning for scavenging. Public announcement should be made a day before culling suggesting not to release the birds in the morning. Co-operation of local bodies is necessary for operations in the backyard. A common location was identified for the culling and disposal of the culled birds in consultation with the local bodies.

Depopulation in the backyard poultry is comprised of three steps done over the consecutive days:

- i) Culling Operation: Immediately after notification of outbreak, most of the backyard birds are culled. However, a few may escape.
- ii) Mopping operation: Culling of birds which could not be presented during the culling operation.
- iii) Combing operation: Willfully hidden birds during culling and mopping operations but found during the combing operation are culled without any compensation.

III.7 Disposal of Infected Material

Do not allow transportation of infected birds, dead birds, eggs and other related materials out of the infected site under any circumstances. These must be disposed off as explained below:

III.7.1 Disposal of Dead Birds

Most appropriate is to burn or incinerate the dead / sacrificed birds. Approximately 5 quintals of wood would be required to burn 100 kg of dead birds. However, the most common practice in the recent outbreaks has been to bury in deep pits, cover with calcium hydroxide followed by at least 40 cm layer of soil. More layers of lime and soil can be applied to level the pit. A pit of 2x2x2 meters will accommodate around 1800 birds. Pits must be deep enough to prevent access to rodents or dogs etc. The burial ground is suitably marked and is not opened for at least one year. Top it up with earth and lime if it sinks over time. A certificate of disposal of birds must be obtained from the designated officer. The burial site should be away from the habitat and water logged areas/ ponds/ rivers etc.

Sites for disposal of birds and its management

- i) For proper management, pits should be dug on a common land within the infected zone, in limited numbers.
- ii) All the pits should be well covered with multiple layers of lime and soil.
- iii) Adequate amount of lime should be spread over the pits.
- iv) The pit sites should be fenced with kanta/ bushes.
- v) Permanent warning signboard should be fixed in all the pit sites.
- vi) The pits should be monitored at regular intervals to check any sinking, water accumulation etc. and if necessary, steps be taken as mentioned in Sl. No. i) to iii) above.
- vii) The pits should be located on the farm premises, and in case of backyard, a village common land/ forest land preferably be at a higher level, to avoid accumulation of water during rainy season. Pits should be located away from river/ lake side and residential areas. No crop should be grown further for at least one year on the pit site. During digging of the pits, it should be ensured that no water is oozing out.

All the pits should be dug one day in advance of the culling.

III.7.2 Destruction of Contaminated Materials

Materials likely to be contaminated e.g. meat, eggs, feather, used litter, manure, feed, feed ingredients, gunny bags, curtains, paddy husks and saw dust used for bedding, egg trays, drugs and vaccines must either be buried in a deep pit along with animal carcasses or should be burnt.

III.8 Clean-up and Disinfection

Clean-up and disinfection is the last stage of a control and containment operation. The infected premises are disinfected after the birds and the infected materials have been destroyed. Different protocols may be considered for clean-up and disinfection of commercial and backyard poultry as explained in succeeding paras.

III.8.1 Cleaning and disinfection of Commercial Farms

- Jetting and suction machines should be deployed for cleaning the lower level of the two- tiered poultry sheds. Ensure complete disposal of faecal material and slurry etc. collected on the lower story. The feces slurry and water (collected on the lower story) discharged into pits dug on the same premises. The pits need to be covered properly using netting or layers of earth and lime, replenished periodically
- The infected farm premises/ area should invariably be disinfected by spraying disinfectants like 2% Sodium Hypochlorite or 4% Formalin prior to reduce the virus load.
- Wash and disinfect the walls, floors and ceilings of the sheds in the premises to remove organic material with either or a combination of the followings:
 - 3% calcium-hydroxide solution
 - Sprinkling of bleaching powder and lime on the floors of the sheds
 - White-washing of concrete areas with lime
 - Fumigation of closed chambers and sheds with Potassium-permanganate (KMnO_4) and formalin
 - Treating all the equipment with 2% sodium-hypochlorite solution for 48 hrs
 - Cages and other large metal structures may be decontaminated by heat treatment (flame gun)
 - Feathers spread around the farm or attached to metal net, if any, should be burnt with the flame gun
 - All units and items which are physically or functionally connected to the establishment (e.g. hatchery, egg store rooms, packaging rooms,

egg trolleys and egg product plants etc must also be properly disinfected. Vehicles used for transporting live birds, eggs and feed must also be disinfected

- Water-reservoirs must also be emptied, washed and disinfected
 - Feed tanks (silos) need to be emptied, washed with a hot water-pressure pump and subsequently fumigated
 - After washing and disinfecting, all units must be fumigated twice with at least two weeks between the fumigations
 - Wash hands and feet of farm workers and the visiting officials with soap and disinfectant with approved detergent or rectified spirit
- Use 2% solution of NaOH should be used at the entrance on foot mats to clean the shoes gumboots and other items,
 - Use Quaternary-ammonium salts for the treatment of walls, floors, ceilings and equipment etc,
 - Cresolic-acid 2.2% solution or Synthetic phenols 2% solution for the treatment of floors,
- * Vircon-S[®], D-125[®] and Trilocid concentrate[®] are available.

III.8. Clean-up and disinfection; Backyard poultry

- i) Burn entire litter, baskets, feed, gunny bags, curtains, paddy husks, saw dust, egg trays and temporary cages and garbage in and around all the poultry in the infected zone.
- ii) Spray all the houses in the villages within infected area, irrespective of the presence or absence of poultry, with 2% sodium hypochlorite solution.
- iii) Spray poultry rearing houses in infected area with 2% sodium hypochlorite solution.
- iv) Spray all the damp areas, drains etc. with 4% formalin except in the inhabited dwellings due to its irritant effects. In such areas, sodium hypochlorite or Trilocid concentrate[®], Vircon-S[®] or D-125[®] may be substituted. Thereafter, lime may be sprinkled.
- v) Lime may be applied on the roads, streets etc in all the villages under operation.
- vi) White wash the poultry rearing houses/ cages in the infected area.
- vii) Apply lime and bleaching powder in and around the poultry houses/ cages in the infected area.

- viii) Spray 2% Sodium-hypochlorite solution in poultry houses/ cages kept within the households / verandas and with 4 % formalin if birds were kept far away from the residency.

III.8.3 Poultry Owners to be Responsible for Clean-up and Disinfection

States should ensure clean-up and disinfection of the infected area. However it is the responsibility of poultry owners under direct supervision of veterinarians/ para-veterinarians etc as per prescribed procedure. The poultry owners are responsible to maintain minimum standards of hygiene and must undertake post disease clean-up and disinfection.

III.8.4 Submission of Daily Reports on Control and Containment

Daily reports of control and containment are required to be compiled and sent to Government of India. This includes number of RRTs engaged, birds culled, eggs/ feed destroyed, pits dug, amount of compensation paid, surveillance and sanitization undertaken etc. The report should be sent on a prescribed proforma (Annexure XIII).

III.8.5 Sealing of the Disinfected Premises and Issue of Sanitization Certificate

After the culling and disinfection have been completed, the premises are to be sealed and a sanitization certificate issued by the State Animal Health authorities stating that culling has been carried out and the area has been cleaned and disinfected as per Action Plan and operations have been concluded. Thereafter, Post-operation surveillance will be carried out for three months. The areas where the birds were culled will be repeatedly disinfected by fumigation (Indoors) or sprays (open place) at every 15 days during 3 months of surveillance.

Chapter IV: Post Operation Surveillance and Freedom from Disease

Checklist of the materials, appliances, resources and facilities that may be required in successful conduction of POSP is at Annexure XVI.

Re-induction of Birds:

Farmers may re-start poultry production and marketing 30 days after the release of sanitization certificate. New eggs, chicks and/or birds must only be procured from the areas known to be free from AI.

Ensure that no birds are inducted into the culled and disinfected areas for the specified period of one month.

Any poultry found in the area under surveillance will be culled. No compensation will be paid for culling at this level.

(A) POSP Surveillance Zone:

The "Surveillance Zone" is the area beyond the infected/ operational area (between 1-10 km from the epicenter). Surveillance in this zone will involve collecting samples (serum and cloacal) from poultry both commercial and backyard. Samples collected as per the guidelines should be sent

to the HSADL, Bhopal on fortnightly basis. Information on the dispatch of samples is required to be sent on a proforma (Annexure XIV).

This information should be disseminated to all villages/farms explaining the logic for it, as it is necessary to move towards a disease-free status. People try to bring in birds into the area stealthily should be prevented under all circumstances.

(B) Sample Type Size and Time Frame for POSP:

Poultry Units: Collect samples from two poultry birds in a poultry unit with 50-1000 birds and from 6 birds in the case of bigger units.

Backyard poultry: Collect samples from six birds in 50% villages that fall within the surveillance zone.

Samples will be taken four times in two months, only once from a particular poultry unit/ village and send to HSADL, Bhopal or to Designated Diagnostic Laboratory by a special messenger. The samples should include both serum and cloacal swabs.

DESPATCH OF CLOACAL SAMPLES:

- Send the cloacal swab samples dipped in about 5.0 ml sterile screw capped plastic vials containing 3.0 ml of PBS with 1 % Bovine Serum Albumin (pH 7.2-7.4) Viral Transport Medium containing suitable antibiotic and antifungal agents in appropriate concentration Cloacal swabs must contain minimum 1.0 g faecal material.
- Composition of PBS (0.01 M; pH – 7.2 to 7.4)
 1. Sodium-chloride – 8.0 g
 2. Potassium-chloride -0.2 g
 3. Disodium hydrogen-phosphate, anhydrous -1.15 g
 4. Potassium dihydrogen-phosphate, anhydrous -0.2 g
 5. Distilled-water -1.0 liter
 6. Antibiotics: The following antibiotics combinations can be used:
 - a) Benzyl-penicillin -2X 10 IU /l ,Streptomycin – 200 mg/l & Nystatin – 0.5×10^6 IU/l or
 - b) Polymixin-B – 2x 10 U/l & Nystatin – 0.5×10^6 IU/l or
 - c) Gentamicin-sulphate – 250 mg/l & Nystatin – 0.5×10^6 IU/l

DESPATCH OF SERUM SAMPLES:

- Send at least 0.5 ml serum samples in 1.0 or 2.0 ml sterile screw capped plastic vials.
- Mark each vial properly by laboratory serial number of the dispatching districts with a water proof marker pen before putting it into ice packing.
- There must be sufficient ice packing in the carton containing the samples to avoid decomposition during transportation.
- Container having samples should be clearly marked and labeled for ease of diagnostic laboratory.

- POSP samples should be forwarded with an enclosure (Annexure XV) that contains the details of the samples. Further, the sample dispatching authority should maintain a sufficiently descriptive record for each dispatched samples so as to locate the Poultry Owner, Village, Mouza, G.P., Ward, Municipality, Block, District, type of bird, system of rearing, flock strength of the pen and farm, So as to trace back the source of sample for further necessary action.

(C) Further actions if Samples test positive in the Surveillance Ring:

Control and containment operations will be carried out in accordance with the Action Plan.

(D) Further action in the event of samples testing negative:

If samples collected test negative, repopulation of poultry will be allowed in the affected area after completion of one month from the issue of sanitization certificate.

(E) Surveillance in the Repopulated Poultry Unit / Village:

The repopulated flock in the infected area will be screened periodically. Random clinical, investigations on the repopulated flock are to be carried out at least once every fortnight to the extent of 0.5% of the population introduced as detailed below.

- Poultry Units:** Sampling of 0.5% of the population introduced will be done subject to a minimum of **2 birds** and maximum of **6 birds**. From each poultry bird, the tracheal swab and cloacal swab will be collected.
- Backyard Poultry:** Sampling of 0.5% of the population introduced will be done subject to **2 birds per village**. From each poultry bird, tracheal swab and cloacal swab will be collected. Such sampling shall be done once every fortnight over a period of two months. Samples will be sent to the HSADL, Bhopal for testing. If samples test positive, control and containment operations will be again undertaken as per Action Plan.

Checklist of the materials, appliances, resources and facilities that may be required in successful conduction of POSP is at Annexure XVI.

IV.2 Freedom from Disease

In case no other outbreak takes place in the area or no samples collected from the post operations surveillance test positive for the next 3 months after issue of Sanitization Certificate "Disease Free Status can be declared under intimation to the OIE.

IV.3 Compensation to be paid for forced culling

It is GOI's policy that the farmer must be compensated for the loss of birds during culling. District Collectors should be assigned to expedite payment and to prevent the misuse of the scheme. It will be necessary to collect data on the poultry population in each area before the receipt of test results. The Government of India will share 50 % of the total cost of compensation paid.

The rate of compensation may be reviewed and decided from time to time by GOI in consultation with State Governments. The share of expenditure of Government of India can be charged to the CSS "Assistance to States for Control of Animal Disease (ASCAD)" operational in each State. It is suggested that State Governments should consider following issues as part of operational preparedness:

Compensation should be paid on the spot, immediately after the culling is over or at the time of collecting birds from the owners.

Chapter V: Education Campaign on General Awareness and Biosecurity Measures on Notifiable Avian Influenza Outbreaks

V.1 Share concerns with Industry and Farmers

Following a notification of the disease, the Government (Secretary and Director, Animal Husbandry) should take the poultry industry and small poultry farm owners into confidence and inform them periodically about the measures that are being taken to control NAI. Popular poultry and livestock journals and mass media should be encouraged to disseminate information about the government's initiative on NAI. The support of the industry should be sought for implementing the government's decisions.

V.2 Media briefing by a designated official spokesperson

In order to avoid rumors about the impact of disease on public health and distress selling of poultry, clear and precise briefing of the media should be made regularly only and only by a designated official spokesperson of the state Government.

V.3 Advice to public on handling, processing and consuming poultry product

- Awareness in the general public should be made taking care that no panic is created. It must be emphasized that poultry meat cooked at more than 70⁰ C temperatures for 30 minutes inactivates the virus and it is absolutely safe to consume properly cooked poultry meat and eggs.
- Encourage hygienic way of slaughtering, dressing and packing of chicken meat. Media should be invited to awareness campaigns to report the things in the right perspective.
- The poultry farmers associations, cooperatives, NECC, APEDA, etc. should be actively involved in this process. Expenditure on awareness campaigns can be met from the centrally sponsored scheme of "ASCAD".

V.4 Biosecurity Measures

To control NAI, strict biosecurity measures should be imposed and poultry owners be advised to adopt following measures in all farms, even though they are not currently infected:

Biosecurity Measures in Commercial Farms:

Keep-distance - Only those who take care of the poultry at the farm should be allowed to go close to the birds. Visitors should be strictly restricted from entering the sheds. Inter-mingling of other birds/ animals with poultry should be avoided.

- Disinfect and wash shoes, clothes and hands before and after contact with poultry. If equipment, tools or poultry supplies are borrowed from other farms, always clean and disinfect them before bringing them and before sending them back.

Keep-cleanliness: The bird cages should be cleaned and food and water for birds changed daily.

Do not Introduce New Birds to the Flock :

The new birds should be kept away from the flock for at least 30 days.

Know the signs of AI:

- A close check must be kept on birds mortality. Swelling around the eyes, neck, head, nasal discharge, discolouration of the wattles, combs, legs, drop in egg production, sudden weakness, drooping wings and lack of movement among birds are the warning signs.

Report about sick birds:

- Every unusual sickness or death of birds should be immediately reported to the nearest veterinary centre.

Follow uniform age group policy:

- In poultry farm, uniform age-group policy should be adopted. This is best done by adopting 'all-in-all-out' production system.

Restrict Inter-sectional movements:

- Where necessary to move to other farms, the personnel must clean their shoes and clothes.

Biosecurity Measures in backyard poultry:

- i. Keep the birds indoor. Do not allow wild and neighborer's birds to enter in the premises,
- ii. Keep the yard and surroundings clean and regularly bury/ burn the wastes
- iii. Do not catch and keep any wild or migratory birds
- iv. Report sickness/mortality in birds immediately to the veterinarians.
- v. Bury the dead birds properly. Do not throw them in drains or in open areas.

Biosecurity Measures in markets:

- i. The persons handling and dressing the poultry birds should use gloves and mask.
- ii. There should be regular/ daily sanitization of live markets/wet markets.
- iii. Care to be taken for any unusual sick/dead birds.
- iv. Hygienic dressing of birds, care to be taken for disposal of viscera/ feathers in live/ wet markets. There must be proper drainage and disinfection facility in the market.
- v. Regular cleaning of cages of birds should be undertaken. Foot bath/ spraying/ dusting and hand washing facility should be made available.
- vi. Inspection by Government agency should be undertaken on daily basis.

Other guidelines on bio-security measures are available at departmental web site (www.dahd.nic.in) under heading 'Bio Security Measures' and have also been circulated to the State Governments by letter dated 22nd February, 2006.

V.5 Advice for Persons likely to be in direct Contact with infected poultry

V.5.1 People in areas with confirmed NAI should do as under:

- Avoid contact with chickens, ducks or other poultry as much as possible. Children should not have contact with poultry or any other affected birds.
- Avoid handling (live or dead) chickens, ducks or any other poultry while visiting friends or family, even if the birds appear healthy.
- Avoid visiting poultry farms, duck farms or any farm where birds have been sick or suspected to have bird flu.
- All persons exposed to an infected environment, must wash hands and face properly and change clothes and monitor temperature for 4 days. If he/ she develop a high temperature, immediately consult doctor.
- Persons expected to work with infected birds / farms should take antifu medication (e.g. Oseltamavir-Tamiflu) in consultation with the doctor.

V.5.2: Advice for Persons likely to work with infected poultry

The persons likely to work with infected poultry should follow the guidelines as given in Chapter III.

Collection of Faecal samples from wild and migratory, wild resident, domestic birds:

The following guidelines should be followed for collection of fecal samples from a single bird or from a flock of birds:

- Birds are observed from a distance, using binoculars. All the avian species to be sampled should be first correctly identified. Ensure that birds in the flock are of one species or different species. Your approach towards birds normally causes a group of roosting birds to move or fly away and in the process some individual bird will defecate. Observe the bird species while defecating and collect fecal specimen. If bird species cannot be identified, take the photograph of bird, which will help to identify bird with ornithological expertise later.
- Collect only fresh fecal specimens, ideally those that are still moist, using a sterile swab and place in a pre-labelled vial with viral transport medium (VTM). Transport specimen in VTM to laboratory within 48 hours at + 4°C (with cool packs).

Annexure II

List of animal species known to be affected by Avian Influenza (H5N1)

No	Name	Common Name
I	Order: Anseriformes	
1	Aix sponsa	Wood duck
2	Amazonetta brasiliensis	Brazilian teal
3	Anas acuta	Northern pintail
4	Anas bahamensis	Bahama pintail
5	Anas castanea	Chestnut-breasted teal
6	Anas crecca	Blue-winged teal
7	Anas penelope	Eurasian wigeon
8	Anas platalea	Argentine shoveller
9	Anas platyrhynchos	Domestic duck/Mallard
10	Anas sibilatrix	Chiloe wigeon
11	Anas strepera	Gadwall
12	Anas versicolor	Puna teal
13	Anser albifrons	Greater white-fronted goose
14	Anser anser	Greylag goose
15	Anser anser domesticus	Domestic goose

16	<i>Anser indicus</i>	Bar-headed goose
17	<i>Aythya marila</i>	Greater scaup
18	<i>Aythya americana</i>	Redhead
19	<i>Aythya ferina</i>	Common pochard
20	<i>Aythya fuligula</i>	Tufted duck
21	<i>Branta bernicla</i>	Brent goose
22	<i>Branta canadensis</i>	Canada goose
23	<i>Branta hutchinsii</i>	Cackling goose
24	<i>Branta leucopsis</i>	Barnacle goose
25	<i>Branta ruficollis</i>	Red-breasted goose
26	<i>Cairina moschata</i>	Muscovy duck
27	<i>Callonetta leucophrys</i>	Ringed teal
28	<i>Chenonetta jubata</i>	Manned wood-duck
29	<i>Coscoroba coscoroba</i>	Coscoroba swan
30	<i>Cygnus atratus</i>	Black swan
31	<i>Cygnus buccinator</i>	Trumpeter swan
32	<i>Cygnus cygnus</i>	Whooper Swan
33	<i>Cygnus melanocoryphus</i>	Black-necked swan
34	<i>Cygnus olor</i>	Mute swan
35	<i>Dendrocygna viduata</i>	White-faced whistling-duck
36	<i>Mergus albellus</i>	Smew
37	<i>Mergus merganser</i>	Goosander/Common merganser
38	<i>Nesochen sandvicensis</i>	Hawaiian goose
39	<i>Netta peposaca</i>	Rosybill pochard duck
40	<i>Netta rufina</i>	Red-crested pochard
41	<i>Tadorna ferruginea</i>	Ruddy shelduck
II	Order: Charadriiformes	

1	Larus argentatus	Herring gull
2	Larus atricilla	Laughing gull
3	Larus brunnicephalus	Brown-headed gull
4	Larus ichthyaetus	Great black-headed gull
5	Larus ridibundus	Black-headed gull
6	Larus schistisagus	Slaty-backed gull
7	Tringa ochropus	Green sandpiper
III		
1	Anastomus oscitans	Asian open-billed stork
2	Ardea cinerea	Grey heron
3	Ardea herodias (?)	Great blue heron
4	Ardeola bacchus	Chinese pond heron
5	Ciconia ciconia	White stork
6	Egretta garzetta	Little egret
7	Nycticorax nycticorax	Black-crowned night heron
IV		
1	Columba livia	Feral pigeon
2	Macropygia ruficeps?	Little cuckoo dove
3	Streptopelia tranquebarica	Red-collared dove
V		
1	Accipiter gentilis	Northern goshawk
2	Accipiter trivirgatus	Crested goshawk
3	Buteo buteo	Buzzard
4	Buteo lagopus	Rough-legged buzzard
5	Falco cherrug	Saker falcon
6	Falco peregrinus	Peregrine falcon
7	Falco tinnunculus	Common kestrel

8	Gyps sp?	"wild vulture"
9	Ichthyophaga ichthyaetus	Grey-headed fish-eagle
10	Milvus sp.	Kite
11	Spilornis cheela?	Serpent eagle
12	Spizaetus nipalensis	Crested hawk-eagle
13	Spizaetus nipalensis orientalis	Mountain/Hodgson's hawk eagle
VI		
1	Alectoris chukar	Chukar partridge
2	Colinus virginianus	Bobwhite quail
3	Corurnix coturnix japonicus	Japanese quail
4	Gallus domesticus	Domestic chicken
5	Lophura leucomelanos	Kalij pheasant
6	Meleagris gallopavo	Turkey
7	Numida meleagris	Pearl guineafowl
8	Pavo cristatus	Peacock
9	Pavo cristatus albus	White Indian peafowl
10	Phasianus colchicus	Ring-necked pheasant
VII		
1	Amauronis akool?	Brown (red-legged) crake
2	Fulica atra	Coot
3	Gallinula chloropus	Common moorhen
4	Porphyrio porphyrio	Sultan (Purple swamphen)
VIII		
1	Bos taurus	Cow
2	Canis lupus familiaris	Dog
3	Chrotogale owstoni	Owston's Palm Civet
4	Felis domestica	Domestic cat/feral cat
5	Macaca fascicularis	Cynomolgus macques

6	<i>Martes foina</i>	Stone marten
7	<i>Martes foina</i>	Stone (beech) marten
8	<i>Mus musculus</i>	House mouse
9	<i>Mustela putoris furo</i>	Ferret
10	<i>Oryctolagus cuniculus</i>	New Zealand white rabbit
11	<i>Panthera pardus</i>	Leopard
12	<i>Panthera tigris</i>	Tiger
13	<i>Rattus norvegicus</i>	Rat
14	<i>Sus domesticus</i>	Pig
IX		
1	<i>Acridotheres cristatellus</i>	Crested mynah
2	<i>Carpodacus mexicanus</i>	House finch
3	<i>Copsychus saularis</i>	Oriental magpie robin
4	<i>Corvus cornix</i>	Hooded crow
5	<i>Corvus frugilegu</i>	Rook
6	<i>Corvus macrorhynchos</i>	Jungle or Large billed crow
7	<i>Corvus monedula</i>	Jackdaw
8	<i>Corvus splendens</i>	House crow
9	<i>Dicrurus macrocercus</i>	Black drongo
10	<i>Gracula religiosa</i>	Hill mynah
11	<i>Lanius schach</i>	Long-tailed shrike
12	<i>Leiothrix argentauris</i>	Silver-eared mesia
13	<i>Leiothrix lutea</i>	Red-billed leiothrix
14	<i>Lonchura atricapilla</i>	Chestnut munia
15	<i>Lonchura punctulata</i>	Scaly-breasted munia

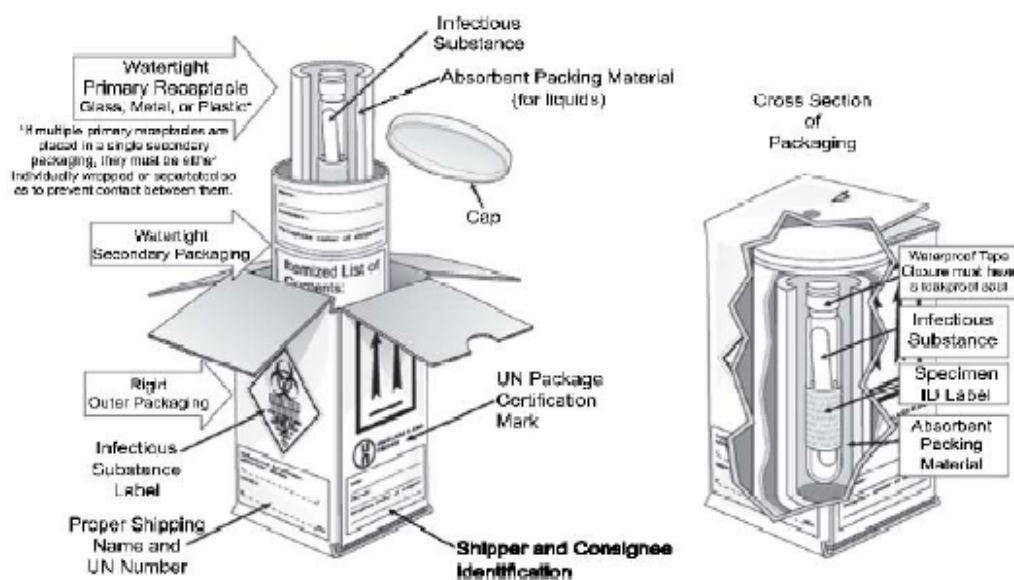
16	Lonchura sp.	Munia
17	Lonchura striata	White-rumped munia
18	Oriolus chinensis chinensis	Black-naped oriole
19	Passer domesticus	House sparrow
20	Passer montanus	Eurasian tree-sparrow
21	Pica pica sericea	Korean magpie
22	Sturnus sericeus	Red-billed starling
23	Sturnus sturninus	Daurian starling
24	Sturnus vulgaris	European starling
25	Taeniopygia guttata	Zebra finch
26	Turdus merula	Blackbird
27	Urocissa erythrorhyncha	Blue magpie
28	Zosterops japonicus	Japanese white-eye
X		
1	Pelicanus sp.	Pelican
2	Phalacrocorax carbo	Great cormorant
3	Phalacrocorax niger	Little cormorant
XI		
1	Phoenicopterus ruber	Greater flamingo
XII		
1	Bubo nipalensis	Spot-bellied eagle-owl
2	Ketupa ketupu	Buffy fish-owl
3	Ketupa zeylonensis	Brown fish-owl
4	Strix uralensis	Spotted wood-owl
XIII		
1	Dromaius novaehollandiae	Emu
2	Struthio camelus	Ostrich
XIX		

1	Melopsittacus undulatus	Budgerigar
XV		
1	Podiceps cristatus	Great crested grebe
2	Podiceps nigricollis	Black-necked Grebe
3	Tachybaptus ruficollis	Little grebe
XVI		
1	Aldrichina grahami	Blow fly
2	Calliphora nigribarbis	Blow fly
3	Culex tritaeniorhynchus	Mosquito

Transport of material for testing Avian Influenza in Three Layer Packing

A CATEGORY A UN STANDARD TRIPLE PACKAGING

Packing and Labeling of Category A Infectious Substances (See Packing Instruction 602)



Reference: <http://www.cdc.gov/od/sap>

PROFORMA FOR REFERRING SAMPLES FOR ROUTINE SURVEILLANCE OF AVIAN INFLUENZA

STATE - _____ DISTRICT - _____

Sl. No.	Lab. Sl. No.	Date of receipt	Date of sample collection	Block	G.P.	Mouza / Village	Corporation/ Municipality	Ward	Backyard poultry						Organized farms			Feecal Samples from water body/Sa nctuary/ Zoos	Total number of samples		
									Duck			Fowl									
									No. of Serum	No. of trachea l swab	No. of cloacal swab	No. of Ser um	No. of trache al swab/ throat swab	No. of cloac al swab	No. of Seru m	No. of trache al swab/ throat swab	No. of cloaca l swab		No. of Ser um	No. of trache al swab/ throat swab	No. of cloac al swab

No. _____ Date.....
Submitted to the _____ for favour of information and necessary action, please.

Signature _____
Name in full in capital letters _____
Designation: _____
Mobile Phone Number _____
Other Phone numbers _____

ROLE OF DIFFERENT DEPARTMENTS

Preparedness and control of AI is a multi departmental activity involving people from all sectors of the society. The Deputy Commissioner / District Magistrate / District Collector holds the highest administrative position in a district and as such the major role of coordinating between different relevant Departments. To monitor preparedness and the measures to counter AI form a district level committee on HPAI under the chairmanship of the Deputy Commissioner/ District Magistrate. It should include district level officers of the departments of Health, Animal Husbandry, Home, Environment, Forest and other allied departments.

Deputy Commissioner/ District Magistrate/ District Collector:-

- To chair and oversee the activities of district level committee on HPAI during day-to-day surveillance for AI.
- To play the central and coordinating role as Chief Executive Officer in different aspects of control and containment operation of AI in the district.
- Augmentation of information sharing between all concerned departments
- Collection of information regarding details of nearest paramilitary units, nearest rail head, nearest airports, helipads with coordinates etc as a part of preparedness plan.
- Imposition and execution of legislative power.
- Implementation of ban on movements of vehicles from epicenter of infection, if any outbreak is suspected.
- Reporting of activities to concerned higher authorities.
- Restriction of movement of persons and vehicles.
- Imposition of movement control of poultry birds, feed, farm supplies, farm personnel, etc.
- Cordoning off the culling and surveillance zone for easy identification and awareness of the villagers.
- Arrangement of manpower, financial, logistical support including vehicles, equipments and quarantine.
- Management for systems of compensation (payment and verification).
- Ban on sale of any poultry products, feed, chicks & any other poultry related items and scavenging of backyard poultry.
- Closure of poultry markets &/or shops.
- Monitoring of cleaning and disinfection procedures (Check posts and /or area under control and containment operation).

- Ban on reintroduction of live bird in the culling zone till freedom from disease is achieved etc.
- Monitoring of restocking of poultry in areas that has achieved freedom from AI status.
- Media briefing.

Implementing Surveillance, Control and Containment Operation:
Specific duties are mentioned point-wise in the following.

(A) Animal Husbandry and Veterinary Services Department (AH & VS):

- Formulation of an effective and appropriate routine surveillance plan of AI.
- Recording of population and density of poultry birds in each Block (Backyard / Commercial) with the help of panchayat functionary.
- Fly way of migratory birds – In coordination with forest department.
- Existence of wild-life sanctuaries / National Parks etc. / Water bodies visited by migratory / wild birds in coordination with forest department.
- Block wise location and number of live bird market (wet market) and their days of operation with particular attention to the markets situated at international borders.
- Areas sharing the international border with the neighbouring countries..
- Interstate borders with the AI affected states.
- Sample collection from backyard and organized poultry farms.
- Sample collection from wild and migratory birds in Coordination with Forest Department.
- Immediate reporting of unusual mortality of poultry birds that raises suspicion of AI to Director of A.H. & V.S.
- Investigation of mortality, morbidity and collection of sample for dispatching to laboratory.
- Procurement of all logistics for Preparedness, Control and Containment, Post Operation Surveillance, etc.
- To supervise and participate in all activities related to culling, cleaning and disinfection, sealing of farm / premises, Post operation surveillance, restocking of poultry etc.
- Keeping records of birds culled, eggs destroyed and feed burnt during control and containment operation.
- Advice about biosecurity measures for both organized and backyard poultry.
- To actively participate and deliver in mass awareness programmes organized by Government Departments / Semi Government Organizations and NGOs.

(B) Forests Department:-

- Formulation of an effective and appropriate routine surveillance plan of AI particularly in the wild/migratory birds for the forest areas.
- To demarcate and identify the area visited by wild / Migratory birds.
- To draw up list of areas of notified water bodies, bird sanctuaries in the state and indicate them on state map for surveillance work of AI.
- Report for unusual mortality of wild and migratory birds to senior forest officials and civil administration with intimation to AH & VS.
- Determination of fly way of migratory birds.
- Recording of route map to notified water bodies, bird sanctuaries in the state regularly visited by wild and migratory birds.
- Recording of nearest veterinary and health institutions with notified water bodies, bird sanctuaries in the state.
- Collection of surveillance samples from wild and migratory birds with the help of ARD personnel.

(C) Health Department:-

- Formation of medical RRTs for regular health check up of RRTs for culling, vaccination, cleaning & disinfection, surveillance etc.
- Medical check up of personal involved in culling operation including testing of paired serum sample.
- Arrangement for boarding and lodging of medical RRT to provide medical facilities to the personnel engaged for control and containment operations for 24 hours.
- Procurement of required logistics for the medical RRTs.
- Arrangement for steady and timely supply of antiviral drugs.
- Quarantine measures towards members of RRTs.
- To involve in cleaning and disinfection works in control and containment operations.
- To actively participate and deliver for mass awareness programme organized by Government Departments / Semi Government Organizations and NGOs.
- Plan for management of human case of AI as posted on the web site of Ministry of Health and Family Welfare, Government of India (www.mohfw.nic.in).

(D) Panchayat and Rural Development Department:-

- To organize meeting involving all related Government Departments, panchayat functionaries and NGOs to plan activity for preparedness to counter AI at block level.
- Implementation of all the prescribed measures as imposed by the Deputy Commissioner / District Magistrate / District Collector for preparedness and control and containment of AI.
- Arrangement for boarding and lodging of RRT personnel.
- Arrangement of logistics and other pre-requisites.
- Payment of compensation and record keeping.
- Payment of wages for the labourers engaged in the control and containment operations.
- Arrangement of manpower involving NGOs, Disaster Management Group, Self Help Group (SHG) and other people having experience of handling poultry for formation of RRTs.
- Ban on reintroduction of live bird in the culling zone till freedom from disease is achieved.
- To arrange for nursing of burial pits as and when necessary.
- Organization of Mass Awareness programme on AI.
- Cordoning off the culling and surveillance zone for easy identification and awareness of the villagers.
- To erect temporary and permanent sign boards for mass awareness indicating culling and surveillance zones and indentify the pit sites.
- Assistance for post operation surveillance programme.

(E) Land and Land Reforms Department:-

- Drawing of scale map for culling and surveillance zone.
- Identification of khas and other lands in the culling zone for burial of culled birds and other related disposal materials.

(F) Public Works Department:-

- To assure availability of different machineries viz. JCB machine, Jetting cum Suction machine, Fogger machine, Spraying Machine etc. for control and containment process of AI.
- To assist in making the scale map of confirmed outbreak area.
- To assist in cordoning off the culling and surveillance zone for easy identification and awareness of the villagers.

(G) Home Department:-

- To enforce the restrictions imposed by the Deputy Commissioner / District Magistrate / District Collector.
- To assist the culling teams as and when necessary during culling, payment of compensation, combing, mopping and Post operation surveillance.
- To maintain law and order for peaceful conduction of the control and containment activity.
- To prevent introduction of birds and related products from bird flu affected neighbouring states and places.

(H) Border Security Force:-

- To prevent illegal movement of birds and other related products from neighboring countries/ States.

**Checklist for Preparedness for Control and Containment of
Avian Influenza**

Sl. No	Point of action	Details of action to be taken by State Government absence of AI outbreak
1	Familiarization with Action Plan	The Action Plan has been translated in local/ vernacular languages, circulated to all concerned and they have been familiarized with the contents. The Action Plan has also been put on the Departmental website (http://dahd.nic.in).
2	Familiarization with guidelines	Government of India guidelines and Action must be perused and studied.(website at http://dahd.nic.in)
3	Familiarize District Magistrate/ Collectors/ Commissioner and other Departments in control and containment of AI	(i) The District Magistrate/ Collectors/ Commissioner have been briefed to assume <u>the</u> Charge of co-ordination of activities related to containment and control in case of outbreak, e.g., quarantine, movement control, closure of markets, ban on sale of related products, culling operations, payment of compensation, administering and developing a vaccination plan, clean-up etc. (ii) All personnel of the Animal Husbandry Department are familiarized. (iii) Concerned departments have been alerted informed about their roles.
4	Rapid Response Teams (RRTs)	Rapid Response Teams for culling have been formed, and also trained. State/UT may determine the number of RRT's required as per size/concentration/type of poultry etc.
	Time required to mobilize RRT's.	- Mobilization has to be immediate after notification of AI - Detailed deployment plan of RRT's i.e. how RRT's will <u>move</u>, begin and conduct operations has to be developed. The first phase will concentrate on culling of poultry etc. and disposal.

5	Personal Protective Equipment (PPE's)	• Sufficient stock of is readily and immediately available both for direct handlers and others. • Staff dealing with NAI must be equipped with PPE without fail. • Two types of kits of PPE, viz for direct handlers and for others are detailed in the Annexure X. • The Hepa-mask is necessary for direct handlers i.e. cullers. • Tie-up for regular supplies during operations Samples of these kits were also sent to the States in November 2005 to facilitate purchase of PPE. Further, the WHO interim guidelines for protection of persons involved in mass slaughter of birds have been conveyed to State Governments by vide letter dated 25th November, 2005 and are available as a direct link from the Departmental website. Large quantities of PPE's have been were used up in operations in Maharashtra and Gujarat. Sufficient stock and continuing continuous supplies are necessary. • Kit has to be changed every time a worker moves from one infected premises to another • Briefing must be given on importance of kit, its use, its disposal, and the need to change the kit on exiting an infected premises. • Kit has to be disposed off by burning.
6	Antiviral drug (Oseltamivir)	Ensured availability of antiviral during (Oseltamivir) for each worker to be involved in operations. Liaison with Health authority is necessary.
7	Availability of other stocks	Sufficient stock of following is should be available: 1. Kit for testing by CVO/DIO as per Action Plan read with read with the letter dated 30th November 2005 of GOI. The letter is on the DADF website. 2 Equipment and drugs for depopulation of poultry as per the Action Plan. 3. Disinfectants, which are active against AI as per the Action Plan. 4. Foggers/spray machines for disinfecting the premises/area.

8	Compensation	- Funds should be available at local level to pay compensation on the spot, at culling of birds. - System of verifying claims must be decided in advance.
9	Information required in case of suspicion of outbreak	The State Animal Husbandry Department should have the following information in a stage about the suspected outbreak: (i) Preliminary identification of the farms/villages involved; (ii) Number of birds and other animals in the suspected area; (iii) Identification of staff as well as vehicles likely to be directly involved with that unit; (iv) Availability on site of disinfectants and equipments for disinfecting the premises; (v) Anamnestic data (data relating to immune response). (vi) Information on any vaccination performed (vii) Record of animal or poultry movements up to 20 days prior to the onset of the first clinical signs; (viii) Record of movement of all people (staff, relatives, servicing personnel, veterinarians etc.) who had access to the farm; (ix) Report of all vehicles, regardless of their contact with animals, which have had access to the unit (in case of farm). (x) In addition, sales of poultry, if any, over recent period may be determined and further information about sale viz. person to whom sold, place to which transported, use to which put, further sales, if any, etc needs to be verified for containment and control. (xi) Record of mortality or sickness of birds at the suspected site and in the alert zone is required. Collect information about the total poultry population and population with individual poultry farmers keeping more than 100 birds in the alert zone (separately within a radius of 1 Kms and between 1-10 Kms from suspected site).
10	Identification of infected zone (1 Kms around infected farm premises) and surveillance zone (1 to 10 Kms around infected farm premises)	Identify the following immediately before confirmation is available: - number of villages in infected zone and surveillance zone - human population in infected zone and surveillance zone - number of households in infected zone and surveillance zone - poultry population in infected zone and surveillance zone - type of poultry in infected zone and surveillance zone viz. backyard and commercial with break up of each in each

		zone
11	General actions/points in case of suspicion of outbreak	• Identify logistics viz: latitude and longitude of closest place where helicopter can land if supplies are to be rushed • Daily report must reach Department of Animal Husbandry, Dairying & Fisheries (DADF), Government of India • 24 hour control room should be functional in the State. Telephone Number be given to Government of India. • Person who will lead operations on from the Animal Husbandry side should be clearly identified • Communication between teams and with control authority should be ensured. Allowing re-imbursement of mobile bills up to a certain amount for the personnel engaged in operations can be considered.
12	Restrictions to be enforced at the site and the alert zone pending receipt of test reports.	<i>Pending receipt of the test results, the entire suspected area should be cordoned off and following restrictions should be immediately brought into effect in the alert zone :</i> • No vehicles should be allowed to ply in and out of the affected premises. • No movement of poultry, eggs, dead carcass, manure, litter, farm machinery, equipment or any such material should be allowed both within the alert zone and from and to outside the zone. • The farm personnel should wear protective clothing all the time inside the farm, including face-masks and gloves, gumboots (or shoes with disposable covers) etc. While leaving the farm premises, farm personnel should leave the protective clothing etc at the farm and clean themselves thoroughly with suitable disinfectants. • Movement of people to and from the suspected premises should be restricted to the barest minimum. No other animals should be allowed in the premises. • Inter-sectional movements of personnel should be banned. They should not visit any other poultry farm, bird sanctuary, zoo etc. • Disinfection procedures should be strictly applied at the entrance of the premises. • Before the test results are received, the possibility of closing the markets and shops in the area may be explored in consultation with the district revenue authorities. Necessary legislative framework should be

		checked in this regard. The restrictions mentioned above should, of course, be abolished if the laboratory diagnosis proves to be negative for NAI.
13	De-population of affected flock	If the test would be positive, the entire poultry and related material will have to be destroyed, or for action plan. Ensure that all preparations are made in advance of the results, i.e. PPEs, RRTs, Bags, disinfectants etc.
14	Disposal of contaminated material and disinfection of premises	• Identify method of disposal of carcasses and infected material. It can be by burning or burial and remain ready, accordingly. • Plastic sheets, bags/sacks, calcium hydroxide etc. is required in sufficient quantities for disposal. • Ensure availability of sufficient disinfectants, and related equipment.
15	Media briefing by official spokesperson	In order to avoid spreading panic both in terms of public health and distress selling by poultry farmers, clear and precise briefing of the media should be made regularly by a designated official spokesperson of the state Government.

Steps to be taken immediately in case an outbreak is confirmed

These should be read in addition to the steps listed for preparedness in Annexure V.

Sl.No.	Activity	Detailed Scheduling
•	General	• District Collector should implement quarantine, closure of shops etc., compensation (payment and verification), maintaining supply lines for equipment etc. • Daily report must reach Department of Animal Husbandry, Dairying & Fisheries (DADF), Government of India. • 24 hour control room should be functional in the State. Number be given to Government of India. • Person who will lead operations on the Animal Husbandry side should be clearly identified • Communication between teams and with control authority should be ensured. Allowing re-imburement of mobile bills up to a certain amount for the personnel engaged in operations can be considered.
•	Declare “Infected Zones” and “Surveillance Zone”	• Closely demarcate 1.0 km radius zone as “Infected Zone”. • 1-10 km radius zone as “Surveillance Zone”.
3.	Rapid Response Teams (RRT's)	• Immediately mobilize already identified RRTs and assign them areas of work with specific targets.
4.	Personal Protective Equipment (PPE's)	Large quantities of PPE's have been used up in operations in Maharashtra and Gujarat. Sufficient stock and continuing supplies are necessary. 2 kits have been recommended by Government of India viz for direct handlers and other than direct handlers. The hepa-mask is necessary for direct handlers i.e. cullers. The PPE is very important in conduct of operations as it provides safety to the cullers and the vaccinators. Workers/labor force will also have to be engaged at some stages of the operation especially for clean-up and

		culling. They will also be provided with kits. No instance of infection in persons involved in control operations has come to light in the affected countries. It has to be ensured that persons are engaged in control and containment only after being provided these kits. Points to observe are as under: • Ensure that every person involved with the outbreak must wear a PPE. • Availability of sufficient stock. • Tie-up for regular supplies during operations. • Kit has to be changed every time a worker moves from one infected premises to another. • Briefing must be given on importance of kit, its use, its disposal, and the need to change the kit on exiting an infected farm premises. • Kit has to be disposed off by burning on exiting a farm premises.
5.	Antiviral drug (oseltamivir)	Each worker/person involved in operations must administered antiviral drug (oseltamivir) by the Health authorities. Liaison with Health Secretary is necessary.
6.	Regulation of access to infected premises/restrictions on movement etc.	• An absolute ban on movement of poultry or its products from and to the infected area is to be imposed. • All poultry and egg markets/shops in a radius of 10 Kms from the infected site immediately got closed. • Movement of people to and from the farm premises to be restricted to requirements related to handling the disease with proper cover and disinfection procedures. • Farm personnel in the infected area should not to be allowed to visit any other poultry farm.
7.	Manner of Culling	• Poultry can be culled by de-capitation as per action plan.
8.	Disposal	• Dispose carcasses and other related material as per Action Plan.
9.	Compensation	• Pay compensation on GOI approved rates, on the spot of culling, and

		keep records.
10.	Clean-up and Disinfection	• As per Action Plan.

Instruments/equipment/other materials required in AI operations

- PPE,
- JCB – By hiring
- Vehicles – Transportation of RRTs – by hiring,
- Jet cum suction machine – by hiring
- Fire gun,
- Foggers,
- LP Gas,
- Vaccine gun,
- Disposable needles/syringes
- Sterilizer,
- Cold cabinet,
- Vaccine carriers,
- Computer,
- Mobile Incinerator.
- Lime brisker/white wash,
- Formalin, Sodium Hypochlorite, other disinfectants
- Lime powder
- Dettol/Dettol soap,
- Napkins,
- Caustic soda,
- Drinking water for RRTs,
- Hygienic food,
- Transport facilities,
- Battery /torch
- Antiviral drug (oseltamivir),
- Spirit.
- Gunny bags,
- Thread for packing gunny bags
- Paint,
- Brush,
- Plates and sticks,
- Raincoat and gumboot if necessary,
- Stationary,
- Telephone STD/Mobile phones/internet,
- Fax/Xerox machine,
- Camera

The above list is illustrative.

KIT for the Veterinary Officer / Disease Investigation Officer

- 1) Paper and pens
- 2) Epidemiological inquiry form
- 3) Equipment necessary for the clinical visit and sampling procedures:
 - (a) PPE Kits as per composition/ specification approved by Government of India and detailed at Annexure VI.
 - (b) paper tissues
 - (c) 5 leak proof containers
 - (d) 5 leak proof and water resistant plastic bags
 - (e) torch
 - (f) active disinfectant solution
 - (g) 2 pens and a notepad
 - (h) 100 syringes 2.5 ml with needle
 - (i) 100 thin, small plastic bags
 - (j) 2 pairs of surgical scissors
 - (k) 2 pairs of forceps
 - (l) tape
 - (m) 2 felt tip pens
 - (n) 1 thermic container (ice box)
 - (o) 5 frozen icepacks
 - (p) sterile swabs
 - (q) 50 test tubes
 - (r) 10 black waste-bags
 - (s) 50 rubber bands
 - (t) cardboard container
- 4) At least 10 of these kits should be carried to all suspected or infected places in case of suspicion of outbreak.

Composition of PPE Kits for use in NAI outbreak**A. Components of Kit for direct handlers**

1.	'Dangri'	Disposable, free size, full sleeves, made up of non woven fabric (spun bonded, poly propylene material not less than 90 GSM), cuff with elastics, zipper in front, hood attached covering sides of face and neck.
2.	House gloves	Disposable, ISI mark, size - 10 no.
3.	Shoe cover	Disposable, made up of polyester woven fabric with protective rubber coating preferably Tetoron, with thick padded foot base and can be used under field condition.
4.	Face Mask	Face Mask with Hepa filter (N95).
5.	Disposable protective Glasses	Disposable, with clear glasses, zero power, eye fitting and elastic band holder

B. Components of Kit for other than direct handlers

1.	'Dangri' with hood attached
2.	House gloves
3.	Shoe covers
4.	Face Mask
5.	Disposable protective glasses

Epidemiological Enquiry Form
(Proforma for referring clinical material to laboratory from birds suspected of AI)

1. Name and address of the farmer/farm: _____

2. Species from which the samples collected: _____

3. Species of birds and livestock in the farm/backyard (Please write the number of animals)

Chicken	Duck	Turkey	Goose	Guinea fowl	Quail	Pig	Other(Pl. Specify)

4. Type of birds (please tick)

Layer

Broiler

5. System of rearing

Backyard

Commercial

6. If commercial:

a. Method of rearing (tick the box)

Caged

Deep litter

All in all out system

Birds of various ages kept together

7. Breed/Line _____

8. Age of the birds: _____ weeks

9. Total no. of birds in the farm: _____

• Vaccination history

Disease	NDVF	NDVK	NDV-Lasota	IBD	IB	FPV	Marek's Disease	Any other (Pl specify)

11. Date of start of the outbreak: _____
12. Date of collection of samples: _____
13. Clinical signs if any: _____
- _____

14. Mortality pattern, if available:

No. of birds dies on day 1 2 3 4 Contd.

15. Morbidity (birds showing clinical signs/total no. of birds)

16. Post mortem findings if any: _____

17. Type and number of samples sent:

- Tissue (Please specify):
Name of the tissue: _____ No.: _____
- Swab (Please strike out which is not applicable):
Tracheal /Cloacal/Oropharyngeal/Nasal No.: _____
- c. Serum: No.: _____
- d. Dead birds No.: _____
- e. Faeces No.: _____
- f. Eggs No.: _____

18. Name of the preservative used, if applicable _____

19. Tentative diagnosis _____

AVIAN INFLUENZA EPIDEMIOLOGICAL INQUIRY FORM

Date :
Dr :
Phone number :
Name and Address of farm :

Phone :
District : State :
Farm code or identification number :
Owner :
Address of the owner :

Phone :
Information provided by :
Farm Veterinarian Dr. :
Present : NO/YES

1. INFORMATION CONCERNING THE FARM

TYPE OF ESTABLISHMENT :
Industrial/Rural/Dealer/Retailer
CATEGORY/PRODUCTION LINE : Table-egg layers/Meat
birds
Type : Grandparents :
Parents :
Pullets :
Meat-type (broiler) :
Layers :

NUMBER OF BIRDS AND SPECIES PRESENT

	<u>No.</u>	<u>Date of placing</u>	<u>Sex</u>
<u>Age</u>			
Chickens Meat	∴		
Breeders	:		
Layers	:		
Other	:		

HATCHERY OF ORIGIN

Company Hatchery : NO/YES

Company:
Address

District : State :
 Phone : Fax :
 Debeaking operations - Date :
 Performed by : Family members/Employed
 staff/External staff/Other
 Remarks

HOUSING SYSTEM

Deep litter : YES NO
 Cage system : YES NO
 Type of ventilation system : Natural/Natural with fans
 /Artificial
 Bird proof nets : YES NO
 Possibility of contact with wild birds : YES NO
 Species :
 Other birds present on site : YES NO
 (captive or free) :
 Species :
 Presence of ponds or lakes : YES NO
 Other water reservoirs : YES (specify)NO
 Presence of pigs ; YES (specify)NO
 Other animals : YES (specify)NO
Remarks

2. INFORMATION CONCERNING MOVEMENTS OF BIRDS

a) Introduction of birds from other establishments/hatcheries/farms
 NO - YES (Twenty days before the onset of the first clinical signs)

Date : No. :
 Species : Farm : Hatchery :
 Name of Farm :
 Address :
 District :

b) Introduction of birds from exhibitions/markets/fairs YES
 NO (Twenty days before the onset of the first clinical signs)

Date : No. : Species :
 Origin : Fair/Market/Exhibition
 District :

c) Exit of birds/eggs to other farms/establishments/hatcheries/abattoirs
(In the time span between 20 days before the onset of the first clinical signs
and the date the farm was put under restriction) YES NO

Date : No :

Destination : Other farm/Hatchery/Abattoir/Other

Name of establishment :

Address :

District : State :

d) Exit of birds/eggs to other fairs/markets/exhibitions YES
NO

(In the time span between 20 days before the onset of the first clinical signs
and the date the farm was put under restriction)

Date : No. :

Destination : Fair Market -Exhibition Other

Address :

District :

3. INFORMATION CONCERNING MOVEMENT OF PEOPLE:

(In the time span between 20 days before the onset of the first clinical signs
and the date the farm was put under restriction)

NO YES

Date :

Veterinarian -Technician -Vaccinating crew -Debeaker -farmer_ Dealer_
Other
(specify)

Address :

District : State :

Phone number :

Previously visited farm : Name :

District :

4. INFORMATION CONCERNING MOVEMENT OF VEHICLES

(A) Transport of animals, (B) Transport of feed, (C) Transport of eggs, (D) Collection of dead animals, (E) Fuel/Gas, (Other) Specify

(In the time span between 20 days before the onset of the first clinical signs and the date the farm was put under restriction)

Date of entry Vehicle : (AIB/C/D /E/other)
Name of company Fax/Phone number :

5a) INDIRECT CONTACTS WITH OTHER POULTRY ESTABLISHMENTS

NO YES

(Sharing of equipment, vehicles, feed, staff, etc. in the time span between 20 days before the onset of the first clinical signs and the date the farm was put under restriction)

Date of contact :
Name of farm or establishment :
District :
shared vehicle -shared feed -shared equipment -shared staff -
collection/recycle of litter - other (specify)

5b) CONTACTS WITH OTHER FARMS OWNED BY THE SAME OWNER

NO -YES-

Name of farm or establishment :
Address :
District :

Species farmed : number : Empty/Full - :

5c) CONTACTS WITH POULTRY FARMS LOCATED NEAR THE OUTBREAK

NO YES

Name of farm or establishment :
Address :

District : Distance in metres
Species farmed : number Empty/Full

ANAMNESTIC DATA

WEEKLY MORTALITY

NB: data concerning mortality rates recorded in the 6 weeks prior to the onset of clinical signs

WEEK : FROM : TO :
NUMBER ANIMALS DEAD :
Remarks :

Date of onset of AI clinical signs:

Clinical signs observed by the farmer:

TOTAL NUMBER OF BIRDS

Farm put under restriction (dead or alive)

Number of ill birds (Farm put under restriction)

Number of dead birds (Farm put under restriction)

Number of birds depopulated

NB: this information must refer to the data collected when the farm has been put under restriction after confirmation of NAI

6. VACCINATION OF BIRDS AND ADMINISTRATION OF DRUGS

Vaccination of birds is practised : NO YES-

Date of vaccination :

Type of vaccine :

Commercial name :

Administration route :

Live or inactivated :

Vaccinating staff :

Family Employees External staff Other

Remarks

Administration of drugs/medicaments

In the last 15 days : NO YES (specify):

Staff who administered the medicament:

Family -Employees -External staff -Other

Remarks

7. CLINICAL INVESTIGATION PER SPECIES

Species :
Depression - :
Respiratory signs : mild/severe
Drop or cessation of egg laying
Oedema, cyanosis or cutaneous haemorrhages
Diarrhoea
Nervous signs
Other

8. GROSS FINDINGS

Rhinitis and sinusitis
Tracheitis catarrhal
haemorrhagic –
Aersacculitis
Haemorrhages epicardium –
endocardium
proventriculus –
ovarian follicles
Enteritis catarrhal
haemorrhagic –
Pancreatitis
Other:

Remarks

Signature

Date:

- Animal / Poultry movements in the last 10 days, if any.

- Movement of people/staff in the last 10 days, if any.
- Number of vehicles that had access to the farm / village etc. and originating destinations.

Annexure XII**Addresses of the Diagnostic Laboratories**

Joint Director, High Security Animal Disease Laboratory, Indian Veterinary Research Institute, Anand Nagar, Bhopal-462021 (MP)	Office: 0755-2759204 Fax: 0755-2758842 scd_11@yahoo.in
Dr. Rishendra Verma Joint Director, Central Disease Diagnostic Laboratory Centre for Animal Disease Research and Development (CADRAD) Indian Veterinary Research Institute (IVRI) Izatnagar-243122 (U.P.) Dr. M.C. Sharma, Director Indian Veterinary Research Institute (IVRI), (Deemed University), Izatnagar-243122 (U.P.)	Tel. (O) 0581-2302188/2310074 (M) 09412288343 jdcadrad@rediffmail.com
Dr. M.D.Venkatesha Joint Director, Regional Disease Diagnostic Laboratory Institute of Animal Health & Veterinary Biological (IAH&VB) Govt. of Karnataka, Hebbal, Bangalore-560024	Office : 080-23515882 Fax : 080-23515882 Mob. 09845196683 mdvenkatesha@gmail.com
Dr. Gaikward, Joint Director, Regional Disease Diagnostic Laboratory Disease Investigation Section Department of Animal Husbandry, Govt. of Maharashtra, Aundh Pune-411007 Dr. S.S. Rautmare Deputy Commissioner	Office : 020-25692135 Fax : 020-25691474 (M) 09922183433 Jcahdis@hotmail.com (M) 09423012499 rautmaresunil@yahoo.com
Dr. Arun Kumar Joint Director, Regional Disease Diagnostic Laboratory Animal Health Institute, Ladowali Road, Jalandhar-144001	Office : 0181-2242335 Fax : 0181-2242335 Mob. 09815170643 sddlz@yahoo.com
Dr. Anil Gupta	09216146627
Dr. Gopal Chakraborty, ERDDL Joint Director, Regional Disease Diagnostic Laboratory Institute of Animal Health & Veterinary Biological (IAH&VB), 37, Belgachia Road, Govt. of West Bengal Kolkata-700037	Office : 033-25328033 Fax : 033-25565476 Mobile: 09433960213

Dr. Dibendranath Dewan Deputy Director, Animal Health Centre, North Eastern Regional Disease Diagnostic Laboratory, Animal Husbandry & Veterinary Department, Khanapara, Guwahati-781022	Office : 0361-2334177 Fax : 0361-2334177 T/F : 0361-2611596 Mob. 09435342436 nerddlguwahati@gmail.com
Dr. Amitava Chakraborty, NERDDL	Mob. 09435106512

Format for daily report of control and containment operation**A) ACTIVITIES CONDUCTED FOR CULLING OPERATION AS ON _____**

Sl. No.	Activities	DISTRICTS/ EPICENTRES		Total
1)	Deployment of RRT			
	a) For Culling			
	b) For Mopping			
	c) For Surveillance			
	d) For Disinfection & Sanitation			
	e) For Supervision			
	TOTAL RRT			
2)	Target of culling of birds			
3)	Culling of birds			
	a) Up to _____			
	b) On _____			
Progressive Total of Birds Culled including Mopping				
4)	No. of eggs destroyed			
	a) Up to _____			
	b) On _____			
Progressive Total of eggs destroyed				
5)	Quantity of Feed destroyed (Kg)			
	a) Up to _____			
	b) On _____			
Progressive Quantity of Feed destroyed (kg)				
6)	Payment of Compensation			
	a) Up to_____ (Rs.)			
	b) On_____ (Rs.)			
Progressive total of compensation (Rs.)				

B) NO OF MORTALITY REPORTED ON _____

C) DETAILS OF EPICENTERS AS ON _____						
Name of Village/Block	Involved Districts	Date of Notification	Period of Culling	Period of Mopping & Disinfection	Date of Sanitization	No. and Date of Sanitization Certificate

SIGNATURE OF THE DESIGNATED OFFICER

Format for reporting progress of activity on POSP (New)**REPORT ON PROGRESS OF POSP AS ON _____**

District	Date of completion of control & containment operation	1st FORTNIGHT						2nd FORTNIGHT					
		Target date of start	Actual date of start	Target of samples	No. of samples collected			Target date of start	Actual date of start	Target of samples	No. of samples collected		
					Serum	Swab	Total				Serum	Swab	Total
Total													

District	Date of completion of control & containment operation	3rd FORTNIGHT						4th FORTNIGHT						Total Target	Total Samples Collected			Remarks
		Target date of start	Actual date of start	Target of samples	No. of samples collected			Target date of start	Actual date of start	Target of samples	No. of samples collected				Serum	Swab	Total	
					Serum	Swab	Total				Serum	Swab	Total					
Total																		

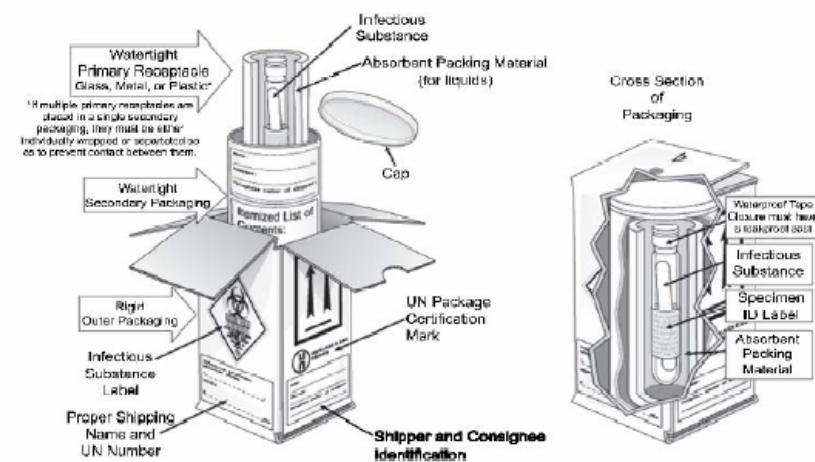
SIGNATURE OF THE DESIGNATED OFFICER

B) Transport of material in three layer packing :

Appendix C

FIGURE 1
A CATEGORY A UN STANDARD TRIPLE PACKAGING

Packing and Labeling of Category A Infectious Substances
(See Packing Instruction 602)



Reference: <http://www.cdc.gov/od/sap>

CHECKLIST OF THE MATERIALS, APPLIANCES, RESOURCES AND FACILITIES THAT MAY BE REQUIRED IN SUCCESSFUL CONDUCTION OF POSP

- Glass Test Tubes, sterile, cotton plugged, 18x150 mm, rimmed/ rimless – for collection of blood.
- Hydrochloric acid – for overnight wetting of the inside of the new test tubes a 3% solution of HCl may be used to neutralize alkalinity.
- Washing Soda – for washing of overnight wetted new test tubes and routine washing of glass wares.
- Plastic bucket with lid – for acid wetting of new glass wares and other routine washing purposes.
- Test tube brush – for washing of test tubes by soda.
- Hot Air Oven – for sterilization of test tubes.
- Non absorbent cotton – for plugging of test tubes.
- Bamboo paper – for packing of washed and plugged test tubes in a lot of 10/15 before sterilization in hot air oven.
- Gas burner with LPG cylinder – for sterile collection of serum in screw capped vials.
- Adhesive sticker – for marking of blood collecting glass test tubes in field condition.
- Glass marking pen (Black or Blue inked) – for marking of samples in laboratory and in field.
- Poly syringe, 2.0 ml, sterile, individually packet – for collection of blood samples.
- Absorbent cotton – for making swabs of spirit during collection of samples.
- Rectified spirit – for making swabs during collection of samples.
- Test tube basket – for carrying sample collecting materials in field and in laboratory.
- Test tube stand – for cataloguing of serum samples before dispensing.
- Cryovial, screw cap, 1.0/ 1.8/ 2.0 ml – for collection of serum samples under strict sterility.
- Rack for cryovial, 1.0/ 1.8/ 2.0/ 4.5/ 5.0 ml – for cataloguing of collected samples.
- Poly packet of different sizes – for packing of collected samples before dispatch.
- Elastic rubber bands – for closing the opening of the poly packets.
- Cryo vial, screw cap, 4.5 / 5.0 ml, filled with 3 ml PBS containing suitable antibiotic – for collection of swab samples maintaining highest possible sterility.
- Swab, sterile, individually packed – for collection of swab samples maintaining highest possible sterility.
- Vaccine carrying box/ Thermocol Box – for dispatch of samples maintaining cold chain, if thermocol box is used, cloured cellotape of 1” diameter will be required for sealing the boxes.

- Ice-bottle/ ice gel packs – for packing of the vaccine carrying box or thermocol box for dispatching the collected samples.
- Refrigerators – for overnight keeping of collected clotted blood samples in vertical direction in test tube baskets for proper elution of serum and for preservation of regularly collected samples under appropriate cataloguing before dispatch. Never put blood samples that have been collected for separation of serum in refrigerators before clotting because this will ultimately result in either elution of some haemolyzed serum or no serum. **It is always preferable to preserve the all types of samples of Avian Influenza at a temperature of below 0°C. further, sufficient numbers of ice-bottles or ice gel packs will be required by the laboratories for sending the samples. For this a deep freezer (-20°C or less) may be used. However in absence of a deep freezer, the freezing chamber of any ordinary refrigerators had to be used.**
- Computer – for accurate proper maintaining maintaince of records of the samples collected and send under particular laboratory serial number. This may be done in a table for each epicenter prepared in Microsoft Excel programme.
- Printer – for printing of reports and documents as and when necessary.
- Computer paper (in accordance with supplied printer) – for printing of documents.
- Note book – for proper maintaining records of the samples collected and send under particular laboratory serial number in conjunction with the records maintained in computer.
- Copy of format for forwarding of samples.
- Advanced Planning – for advanced intimation to the respective authorities for assisting the persons so deployed for collection of samples in a predetermined a village/ mouza/ organized farm.
- Public Awareness – for easy access of the team for collection of samples to the areas of Surveillance Ring under definite planning.
- Vehicle – for easy movement of different teams to different areas in a same day under proper planning.
- Human Resources-
 - o For sample collection:
- Trained Veterinary Professional – 01
- Group D Employee – 01
- o For Laboratory:
- Trained Veterinary Professional – 02 (at least 01 Veterinary Professional should have knowledge to operate Microsoft Word and Excel Programme).
- Laboratory Attendants - 06

Important points at the start of control and containment operation

- Meeting as stated in the second para of III.2 is must to decide all the aspects and strategy of the operation.
- Scale map is to be drawn for infected and surveillance zone at the beginning of the operation.
- Cordoned off the 3/5 kmKm and 10 kmKm radius boundary as per notificaton.
- Before starting the operation, meeting to be arranged in all GPs in the village level (without village level meeting and convincing the people for culling the output will be very less, time consuming) involving the villagers to get higher response during operation as well as culling in the camp (not door to door at initial stages; door to door will be during mopping). While main culling will be in the camp, some mobile teams can be sent door to door. However, strategy of door to door culling can be adopted depending upon the situation.
- Announcement through PA system in the previous evening in the areas where the operation will take place in the next morning.
- In backyard the culling operation to be started in the morning by 7.00 AM.
- During culling motivators to be taken from the respective local areas for smooth operation.
- The compensation to be paid in the camp.
- A separate list of commercial farms may be prepared GP wise and all the owners may be asked individually to clean their sheds while completing the culling operation, so that as soon as the culling is completed the final cleaning and disinfection can be completed by the RRTs.
- Farm birds to be buried in the farm premises.
- Strength of drop gates and physical surveillance to be in order in the infected and surveillance zone to prevent any infiltration of poultry and poultry products in to the infected zone as well as any outward movement from the infected and surveillance zone.
- All the commercial farms where the birds have been culled by the RRTs during operation to be sorted out and to be cleaned, disinfected and sealed. Any other farms where there were no birds at the time of culling operation also to be identified and cleaned and disinfected.
- After the cleaning and disinfection of all commercial farms the same has to be disinfected in every 15 days and again to be sealed.
- *The RRT members to be briefed thoroughly for clear understanding of cleaning and disinfection before starting the procedure.*

Frequently Asked Questions

- **What is avian influenza?**

AI, or “bird flu”, is a contagious disease of animals caused by viruses that normally infect only birds and, less commonly, pigs. AI viruses are highly species-specific, but have, on rare occasions, crossed the species barrier to infect humans.

In domestic poultry, infection with AI viruses causes two main forms of disease, distinguished by low and high extremes of virulence. The so-called “low pathogenic” form commonly causes only mild symptoms (ruffled feathers, a drop in egg production) and may easily go undetected. The highly pathogenic form is far more dramatic. It spreads very rapidly through poultry flocks, causes disease affecting multiple internal organs, and has a mortality that can approach 100%, often within 48 hours.

- **Which viruses cause highly pathogenic disease?**

Influenza A viruses¹ have 16 H subtypes and 9 N subtypes². Only viruses of the H5 and H7 subtypes are known to cause the highly pathogenic form of the disease. However, not all viruses of the H5 and H7 subtypes are highly pathogenic and not all will cause severe disease in poultry.

On present understanding, H5 and H7 viruses are introduced to poultry flocks in their low pathogenic form. When allowed to circulate in poultry populations, the viruses can mutate, usually within a few months, into the highly pathogenic form. This is why the presence of an H5 or H7 virus in poultry is always cause for concern, even when the initial signs of infection are mild.

- **Do migratory birds spread highly pathogenic avian influenza viruses?**

The role of migratory birds in the spread of highly pathogenic AI is not fully understood. Wild waterfowl are considered the natural reservoir of all influenza A viruses. They have probably carried influenza viruses, with no apparent harm, for centuries. They are known to carry viruses of the H5 and H7 subtypes, but usually in the low pathogenic form. Considerable circumstantial evidence suggests that migratory birds can introduce low pathogenic H5 and H7 viruses to poultry flocks, which then mutate to the highly pathogenic form.

In the past, highly pathogenic viruses have been isolated from migratory birds on very rare occasions involving a few birds, usually found dead within the flight range of a poultry outbreak. This finding

long suggested that wild waterfowl are not agents for the onward transmission of these viruses.

Recent events make it likely that some migratory birds are now directly spreading the H5N1 virus in its highly pathogenic form. Further spread to new areas is expected.

- **How do people become infected?**

Direct contact with infected poultry, or surfaces and objects contaminated by their faeces, is presently considered the main route of human infection. To date, most human cases have occurred in rural or periurban areas where many households keep small poultry flocks, which often roam freely, sometimes entering homes or sharing outdoor areas where children play. As infected birds shed large quantities of virus in their faeces, opportunities for exposure to infected droppings or to environments contaminated by the virus are abundant under such conditions. Moreover, because many households in Asia depend on poultry for income and food, many families sell or slaughter and consume birds when signs of illness appear in a flock, and this practice has proved difficult to change. Exposure is considered most likely during slaughter, defeathering, butchering, and preparation of poultry for cooking.

- **Is it safe to eat poultry and poultry products?**

Yes, though certain precautions should be followed in countries currently experiencing outbreaks. In areas free of the disease, poultry and poultry products can be prepared and consumed as usual ([following good hygienic practices and proper cooking](#)), with no fear of acquiring infection with the H5N1 virus.

In areas experiencing outbreaks, poultry and poultry products can also be safely consumed provided these items are properly cooked and [properly handled during food preparation](#). The H5N1 virus is sensitive to heat. Normal temperatures used for cooking (70°C in all parts of the food) will kill the virus. Consumers need to be sure that all parts of the poultry are fully cooked (no “pink” parts) and that eggs, too, are properly cooked (no “runny” yolks).

Consumers should also be aware of the risk of cross-contamination. Juices from raw poultry and poultry products should never be allowed, during food preparation, to touch or mix with items eaten raw. When handling raw poultry or raw poultry products, persons involved in food preparation should wash their hands thoroughly and clean and disinfect surfaces in contact with the poultry products. Soap and hot water are sufficient for this purpose.

In areas experiencing outbreaks in poultry, raw eggs should not be used in foods that will not be further heat-treated as, for example by cooking or baking.

AI is not transmitted through cooked food. To date, no evidence indicates that anyone has become infected following the consumption of properly cooked poultry or poultry products, even when these foods were contaminated with the H5N1 virus.

- **Does the virus spread easily from birds to humans?**

No. Though more than 100 human cases have occurred in the current outbreak, this is a small number compared with the huge number of birds affected and the numerous associated opportunities for human exposure, especially in areas where backyard flocks are common. It is not presently understood why some people, and not others, become infected following similar exposures.

Source : WHO website

http://www.who.int/csr/disease/Avian_influenza/avian_faqs/en/

- *Why our domestic birds only are being culled? What about the crows and other birds? Can not they carry the virus?*

Yes, other birds can also carry the virus but since the domesticated poultry and ducks are present in close proximity with the keepers/ household members, the chances of transmission of the virus is high.

- *Why our neighboring villages are spared?*
- *Is the virus so educated that it will not go across the 3/5 Km radius the Government has marked as eradication zone?*

Normally the virus cannot travel distances on their own. They are either may be carried through birds and through contaminated clothing, equipment, vehicle etc. carried by humans. Based on scientific study the area of 3 to 5 Km area has been found to be most probable distance that the virus can be carried and pose high risk.

- *There are no mortalities in this village. Then why is culling required?*

Even if there are no mortalities in the village but if the village comes in the risk/ culling zone, chances are high that the infection may arrive. It is better to depopulate the village of all poultry other wise infection can pose human risk.

- *Our ducks appear healthy and not a single case of mortality or for that matter they are not even sick. Why should we give them up?*

Domestic ducks move around in virus-contaminated water bodies and can excrete large quantities of highly pathogenic virus without showing signs of illness, and are now acting as a “silent” reservoir of the virus, perpetuating transmission to other birds. This adds yet another layer of complexity to control efforts and removes the warning signal for humans to avoid risky behaviors.

- *Can the virus not carry through air and cannot flies and mosquitoes carry them?*

Virus cannot be carried through air unless it is carried by some fomite like feather/ faeces particle etc.

- *When can I start keeping birds? Who will give me the birds after the three months?*

The birds can be restocked after completion of POSP and no sample found positive in it. Normally, it takes three months for completion of POSP. After declaration of freedom by GOI, one can purchase DOC from government / private hatcheries as per choice.

- *Can we eat the birds/ eggs after proper cooking/ boiling?*

Cooking and boiling destroys the virus. However, preparation of chicken / eggs etc requires handling of dressed chicken or sometimes contaminated eggs where virus may be present. Hence, one should not eat the birds/ eggs in the affected zone. All of these should be destroyed.

- *So far how many people have died from bird flu? More people die of other reasons here. Then why is it so dangerous?*

Even if the number of persons presently affected/died is a few hundred, would we like wait until it kills a few thousands or millions. The virus has the capability of causing worldwide havoc.

The widespread persistence of H5N1 in poultry populations poses two main risks for human health.

The first is the risk of direct infection when the virus passes from poultry to humans, resulting in very severe disease. Of the few AI viruses that have crossed the species barrier to infect humans, H5N1 has caused the largest number of cases of severe disease and death in humans.

A second risk, of even greater concern, is that the virus – if given enough opportunities – will change into a form that is highly infectious for humans and spreads easily from person to person. Such a change could mark the start of a global outbreak (a pandemic).

- *Why big farms are spared and their products are sold (elsewhere) whereas our birds are culled?*

Policy for control and containment procedures are followed as per a defined Action Plan irrespective of whether it is a big farm or small / backyard farm and procedures of various operations may vary to ensure complete depopulation, sanitation and disinfection as per the type/ system of farm/ farming.

- *Is it safe to take the drug (Tamiflu) for so long?*

It is recommended that the tamiflu Tamiflu can be taken continuously for six weeks. All the RRT members are briefed & cautioned about the ill effects of Tamiflu and they should report the same immediately to Medical Officers.(To be answered better by Human Health)

- *Why cannot I go out for work during the quarantine period?*

*Quarantine is done to ensure that the virus, if at all carried by you may not be transmitted to other places and your family and friends are protected. So also immediate medical help can be extended in case you became sick.
(To be answered better by Human Health)*

- *Is not there any other way (humane) to kill the birds?*

There are some other ways but in the present condition, the neck dislocation method adopted is suited best for humane as well as speedy depopulation.