Avian Influenza Surveillance in Humans

Surveillance is continuous and systematic process of collection, analysis, interpretation and dissemination of descriptive information for monitoring health problems.

"Surveillance is the continuing scrutiny of all aspects of occurrence and spread of a disease that are pertinent for its effective control." In simpler language, it means keeping a close watch on the disease".

Surveillance is a key component in the emergency preparedness against this exotic disease, and plays a major role in an early warning system in case of its introduction to Bhutan.

Rationale/Purpose:

- The installation of an early detection/early warning system for influenza/AI..
- To strengthen capacity in research in avian influenza in preparation for potential outbreaks of avian influenza and influenza.
- To develop disease prevention and control systems to prevent wide spread of the disease and rapidly contain the outbreak.

Existing surveillance provision in Bhutan

The statutory provisions and the health structure for AI surveillance in Bhutan
Comprises the following:

- AI is a notifiable disease in Bhutan. All the health facilities in the country are mandated to report all cases of ARI to DOPH through respective DHO using standard reporting format on weekly basis.
- Ministry of Health has a formal system of detecting the disease through a network of one National Referral Hospital, two Regional Referral Hospitals, 26 General Hospitals, 176 Basic Health Units and one National Public Health Laboratory.
- Public Health Laboratory in Thimphu is in the process of establishing PCR diagnostic capability. Currently, the samples are being referred to AFFIRMS for advance diagnosis.
- Surveillance and investigation data on influenza are maintained at national level at Health Management Information System (HMIS).

Scope:

This document provides a framework and approach for the Ministry of Health officials at all levels to plan for and conduct surveillance of human influenza cases; H5N1 or other novel influenza viruses of pandemic potential.

User/Target:

- Medical doctors, paramedicals, public health officials and laboratory professionals.

Surveillance Team composition:

- Medical Epidemiologist/ Public Health Officers from DoPH.
- Medical Officers
- HA/ACOs
- Laboratory personnel.

Materials and Equipment

- Questionnaires/ survey forms
- Note pad and pen
- Mobility
- Communication facilities-mobile and hand set
- Sampling kits – swabs, needle, syringes, permanent marker pen, sample submission forms, Eppendrof tubes, transport media, cotton, antiseptics, face mask, gloves, soap, apron.
- Diagnostic kits – rapid antigen diagnostic kits, HA/HI test kits and other advance diagnostic test kits.
- GPS
- Village and geog coordinates.
- Human population figures.
- Laptop with relevant statistical packages.
- Extension gears – tent, sleeping gears, rain coat./ umbrella, cap, torch, walking boot etc.
- Fund
- Guidelines and SOPs

Surveillance strategies:

1. **Surveillance during the prevention phase**

Surveillance during preventive phase comprises of clinical and laboratory surveillance in all the Dzongkhags. Any patient meeting the case definition for Avian Influenza like should be sampled for the purpose of laboratory surveillance.

1.1 Clinical surveillance

All the Health Care facilities in the country should submit weekly Acute Respiratory Infection (ARI) reports to AI Focal Person of DoPH using the standard format given in annex 1. The DOPH should see the trend of ARI on monthly basis and if there is sudden increase in trend, the outbreak investigation team should be deployed for field investigation if deemed necessary.

Case definition for ARI

Patient presenting with fever or history of fever with sore throat, cough, generalized body pain and headache.(Dr. lungten to relook)

1.2 Laboratory surveillance:

There is a need to expand the current laboratory based ILI surveillance system for continued monitoring to identify any change in the virus characteristics.

Any patient meeting the case definition for ARI should be sampled as per the SOP given in annex…. The samples collected should be sent to the laboratory for analysis. All the tests should be conducted in the respective laboratories as per the SOPs for respective tests. The detail on laboratory surveillance can be referred to "Sentinel Human surveillance for influenza in Bhutan (version1, date 17 February 2009) given in annex 2.

2. Surveillance during outbreak

In addition to routine surveillance the health workers should carry out enhanced surveillance in at risk population such as poultry farmers, veterinary professionals and those individuals involved directly or indirectly with the infected birds. Besides, target surveillance needs to be carried out in family members of the case and those individuals involved directly or indirectly with the confirmed human AI patient.

2.1 Targeted surveillance (enhanced surveillance during the HPAI outbreak in birds)

Surveillance team should undertake enhanced surveillance of the community, cullers, veterinary personnel involved directly or indirectly with the infected poultry; and those taking care of any suspected human case of avian influenza in the outbreak areas

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The following activities need to be undertaken:

- House-to-house surveillance on a daily/regular basis.
- Active surveillance of the groups that may be at a higher occupational risk of exposure viz. poultry workers, animal health workers, cullers and their family members etc.
- Active surveillance of communities in the infected and surveillance zones declared by veterinary disease investigation team.
- Daily monitoring of any suspected or confirmed case of avian influenza
- Active surveillance in hospitals, particularly targeting patients having flu-like illness attending OPD and emergency departments in the outbreak areas.
- Any suspected case of avian influenza, if observed should be investigated and reported

2.2 Surveillance following confirmed human AI cases

Surveillance team should also undertake enhanced surveillance of the community, family members and those individuals who had direct and indirect exposure to the AI case.

- House to house surveillance on regular basis with various communication means

- Active surveillance of family members and individuals who are involved in taking care of suspected human cases.
- Active surveillance of the groups that may be at a higher occupational risk of exposure viz. poultry workers, health care workers, cullers and their family members etc.
- Active surveillance in hospitals, particularly targeting patients having flu-like illness attending OPD and emergency departments in the outbreak areas.
- Daily monitoring of any suspected or confirmed case of avian influenza or seasonal influenza.

3. Surveillance during rapid containment (RC operation).

Containment and surveillance zone (buffer zone) should be declared by the disease investigation team from index cluster based on epidemiological risk assessment and geographical settings. Intensive surveillance should be carried out to rapidly contain the disease and to prevent further spread of the disease from the index cluster.

3.1 Surveillance in the Containment Zone

Surveillance in the Containment Zone is needed to identify suspect cases of pandemic influenza. This information will be critical to 1) laboratory confirm or exclude persons as cases of pandemic influenza; 2) monitor the evolution of the outbreak; 3) evaluate the effectiveness of the containment operation; and 4) help guide decisions to modify, continue or end the containment operation.

A surveillance system that actively seeks potential cases is strongly preferable to one that is passive. To achieve as complete ascertainment of cases as possible, surveillance should be instituted in hospitals (including patients and health-care workers), formal outpatient health care structures (e.g. physician practices, outpatient clinics, pharmacies, laboratories, and other pre-existing health networks) and informal community-based networks such as NGOs, traditional healers, telephone hotlines, radio networks or rumour registries. Death registries should be reviewed as well. If the number of influenza-like illness cases becomes overwhelming, it may be necessary to use a combination of active and passive surveillance approaches. After antiviral prophylaxis in the Containment Zone has ended, active surveillance should be continued to achieve complete case ascertainment. Laboratory testing will be necessary to detect and confirm any possible remaining cases.

Laboratory testing of all suspect cases is preferable, but may not be possible if there are large numbers of persons with an influenza-like illness. As patient numbers increase, it may be necessary to develop a sampling scheme. For example, every “nth ” hospitalized patient with suspect influenza could be tested with consideration for geographical, gender and age representative ness.

3.2 Surveillance in the buffer zone

In the buffer zone complete and active surveillance should be carried out which will help us to detect new cases of AI that are likely to appear if the RC operation is not effective, modify the boundaries of the zones .

3.3 Contact tracing of persons who have moved outside the Containment Zone

Every effort should be made to trace the individuals who had moved out of containment zone before and after establishment of containment zone

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REFERENCES

1. Anonymous, Health care workers manual for Avian Influenza, National Institute of Communicable Diseases, Directorate General of Health Services, Delhi – 110 054.

2. World Health Organization (WHO), WHO Interim Protocol: Rapid operations to contain the initial emergence of pandemic influenza, October 2007.

3. Ministry of Health and Ministry of Agriculture, National Influenza Pandemic Preparedness Plan (NIPPP), version 7, 2007.

4. Anonymous, The Second National Strategic Plan for Prevention and Control of Avian Influenza and Preparedness for Influenza Pandemic, Thailand, 2008.

Annex 1: Weekly ARI Reporting Form

Name of Hospital/ BHU: Geog: Dzongkhag: Period:

Sl. No.	Disease																				Total	Referred	
	Common Cold					Acute Phary./Tonsilities					Pneumonia					Other							
	< 5 years		5 & older			< 5 years		5 & older			< 5 years		5 & older			< 5 years		5 & older					
	M	F	M	F	Death	M	F	M	F	Death	M	F	M	F	Death	M	F	M	F	Death		In	Out
Total																							