ANIMAL PRODUCTION AND HEALTH DIVISION
Avian Influenza Fact Sheet

Laboratory testing and field diagnosis for avian influenza

Laboratory testing

A national laboratory service should be able to carry out any of the following tests for avian influenza:

- Virus isolation in eggs (SPF or SAN), identification of isolates as "A" influenza virus, haemagglutinin and neuraminidase typing
- Serology – including ELISA (for antibody to matrix protein), haemagglutination-inhibition testing
- Antigen detection – ELISA or haemagglutinin testing

It is recommended that a national laboratory service also be able to perform the following tests:

- Neuraminidase antigen identification
- Pathogenicity testing of virus isolates by chicken inoculation
- Polymerase chain reaction (PCR) technology for rapid detection of virus genome

The methods to use are described in the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*, Chapter 2.1.14. (*www.oie.int/eng/normes/mmanual/A_00037.htm*)

A national laboratory service must have the appropriate technology and the capacity to handle a large number of specimens in the event of a disease control emergency.

All countries should have access to international expertise to help confirm the identity and characteristics of isolates and to carry out further studies of particular importance at the international level.

It is important to monitor field viruses for early detection of changes – do this by:

- systematic sampling of birds during an epizootic (widespread disease outbreak in a given area) and in inter-epizootic periods
- sending suspect samples to a reference laboratory for confirmation and further characterisation (for a list, see *OIE/FAO Reference Laboratories for Avian Influenza*)

OFFLU
OIE-FAO Network on Avian Influenza

In April 2005, OIE and FAO launched a joint worldwide scientific network to support veterinary services in the control of avian influenza (OFFLU). The objectives of the network are to:

- collaborate with the WHO human influenza network on issues relating to the animal-human interface, including early preparation of vaccines for possible human use
- promote research on avian influenza
- offer veterinary expertise and new skills to countries to assist in the control and eradication of HPAI

Through active and permanent scientific cooperation, the network will develop collaborative research proposals, provide multidisciplinary teams to countries requiring assistance, and act as a link between OIE/FAO reference and regional and national laboratories. For more detailed information, see the OFFLU website at *www.offlu.net*.

Field diagnosis

Decisions must often be made directly and immediately in the field during an emergency.

Waiting for a laboratory diagnosis before taking action to quarantine an area can lead to critical delays.

Clinical and pathological findings gathered in the field are often sufficient for making a reasonable diagnosis of HPAI and taking appropriate action.

However, although some rapid on-site diagnostic kits are available, these have so far been of poor sensitivity and expensive. A number of institutes are developing more sensitive, specific and rapid cost-effective on-site kits, but these must still be tested.

Source: *Preparing for Highly Pathogenic Avian Influenza: A Manual for Countries at Risk*, FAO, February 2006