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## World Organization for Animal Health (OIE) Biosafety Guidelines for Handling Highly Pathogenic Avian Influenza Viruses in Veterinary Diagnostic Laboratories

The spread of highly pathogenic H5N1 avian influenza throughout Asia, Africa and Europe has led to an increase in the number of laboratories performing diagnostics for this pathogen. Highly pathogenic avian influenza (HPAI) is a serious threat to birds and mortality is often 100% in susceptible chickens. In addition, the agent can also pose a serious zoonotic threat, with over 50% mortality in humans reported. In recognition of the need for guidance on how to handle HPAI viruses safely, the OIE has established the following biocontainment level guidelines for handling specimens that may contain HPAI virus. They are based on biosafety guidelines published in the OIE *Manual* (1) and by the World Health Organization (2).

Samples for diagnostic testing for HPAI, using the following techniques, can be processed using the OIE containment level for group 2 pathogens.

- polymerase chain reaction (PCR)
- antigen-capture assays
- serology

Virus isolation and identification procedures, for handling specimens that may contain HPAI, should be performed at the OIE containment level for group 3 or group 4 pathogens, which would include the following procedures:

- Personnel protective equipment should be worn, including solid-front laboratory coats, gloves, safety glasses and respirators with greater than or equal to 95% efficiency

- Specimens from potentially infected birds or animals should only be processed in type II or type III biological safety cabinets (BSC).
- Necropsies of birds should be performed in a Type II BSC while wearing respiratory protection such as a N95 respirator or in a Type III biological safety cabinet.
- Centrifugation should be performed in sealed centrifuge cups.
- Centrifugation rotors should be opened and unloaded in a BSC.
- Work surfaces and equipment should be decontaminated after specimen processing.
- Contaminated materials should be decontaminated by autoclaving or disinfection before disposal or should be incinerated.

If chickens or other birds are inoculated with HPAI viruses, it should be done in a containment level for group 4 pathogens and should include:

- Inoculated chickens should be held in isolation cages
- Cages should be in separate facility that is equipped to handle containment level for group 3 pathogens
- The room should be negative to the outside and the cages should be negative to the room
- Cages should have HEPA filtered inlet and exhaust air
- Biosafety cabinet should be available in the animal facility to perform post mortems and to collect specimens

## References

1. World Organization for Animal Health (OIE), 2008, *Manual of standards for diagnostic tests and vaccines*. [http://www.oie.int/eng/normes/en\\_mmanual.htm](http://www.oie.int/eng/normes/en_mmanual.htm)
2. WHO laboratory biosafety guidelines for handling specimens suspected of containing avian influenza A virus, 12 January 2005.