Public Health England

Laboratory Investigations for Avian Influenza A(H7) and A(H5) Human Infections in England

Deciding whether testing is indicated and obtaining samples:

- for possible A(H7N9) and A(H5N1) infections, the local clinician/microbiologist should follow the respective PHE investigation and management algorithms, which reflect advice and definitions issued by the World Health Organization.[1]
- if the patient is considered to be a possible case, the local clinician/microbiologist should contact the Duty Microbiologist/Virologist at the nearest regional PHE Public Health Laboratory (PHL). If the PHL Duty Microbiologist/Virologist agrees that testing is indicated, the local clinician/microbiologist must also notify the local PHE Health Protection Team (HPT).

Individuals at risk of infection with one subtype of avian influenza are potentially at risk of infection with other avian influenza viruses[2]; the tests required will be informed primarily by a known or suspected exposure and/or geographical risk.

Minimum diagnostic sample set:

- an upper respiratory tract sample (combined nose and throat viral swabs, or nasopharyngeal aspirate)
- if obtainable, a lower respiratory tract sample (sputum, or an endotracheal tube aspirate if intubated)

Appropriate personal protective equipment and infection prevention and control measures should be used when obtaining diagnostic samples (see PHE guidance).

All samples for influenza testing must be handled at Containment Level 3 in the local laboratory.

Sample transfer to the public health laboratory:

- once the decision to test has been agreed, the PHL Duty Microbiologist/Virologist will liaise with the referring hospital/laboratory to arrange the transportation of the sample(s) to the assigned PHE avian influenza testing laboratory
- the PHL Microbiologist/Virologist will inform the National Reference Laboratory, Respiratory Virus Unit (RVU) PHE Colindale, that testing is going to be performed (respiratory@phe.gov.uk or telephone 020 8327 6017)
- the HPT will notify the Respiratory Diseases Department (RDD) (respiratory.lead@phe.gov.uk or telephone 020 8327 6661; out-of-hours, call the Colindale Duty Doctor: 020 8200 4400 (17:30-21:00h weekdays; 09:00-21:00h at weekends)
- **samples should be sent by Category B transport**. The referring laboratory must provide contact details for telephone and hard copy reporting

Respiratory virus screen[3] and generic influenza A tests, followed by seasonal and A(H7) and/or A(H5) assay performed at PHL testing laboratory[4]

Presumptive positive influenza A(H7) or A(H5) result (virus detected by screening but confirmatory testing by RVU is pending)

Reporting presumptive positive results:
PHL Duty Microbiologist/Virologist communicates result to local HPT, referring laboratory and RVU. All *presumptive* results should be telephoned and confirmed in writing
Local HPT informs RDD Colindale respiratory.lead@phe.gov.uk (or Colindale Duty Doctor at any time if out-of-hours: 020 8200 4400)

PHL sends residual material URGENTLY to RVU by Category B Transport, for confirmatory testing

Avian influenza virus detection confirmed by RVU (confirmed case)[6]

Reporting confirmatory results:
RVU informs the referring clinical laboratory, the PHL Microbiologist/Virologist, the HPT, the PHL testing laboratory, and RDD, by telephone and in writing.

Influenza A(H7) and/or A(H5) **not detected**[5]

Reporting negative results:
PHL Duty Microbiologist/Virologist informs the local HPT, the referring laboratory, and RVU. All results should be telephoned and confirmed in writing.
Local HPT informs RDD Colindale respiratory.lead@phe.gov.uk (or Colindale Duty Doctor at any time if out-of-hours: 020 8200 4400)

[1] Investigation of suspected exposures to other A(H5) or A(H7) avian viruses (eg H5N6; H5N8; H7N7) should be discussed with the PHL Duty Microbiologist/Virologist in the first instance.

[2] Testing for avian influenza viruses other than select A(H7) and A(H5) viruses is not available routinely and should be discussed with the local PHL Microbiologist/Virologist in the first instance.

[3] Non-influenza respiratory virus screens vary between different PHLs. If a referring laboratory chooses to perform its own respiratory virus panel (in addition to requesting avian influenza testing), a local risk assessment should be performed and appropriate health and safety measures followed.

[4] The PHL testing laboratory should divide each sample into two aliquots, with one untreated aliquot reserved at Containment Level 3; lysis buffer should be added to other aliquot(s). Following lysis, samples may be handled at Containment Level 2 for further testing.

[5] If appropriate samples were obtained and an alternative diagnosis is possible, then A(H5) or A(H7) may be considered excluded. If clinical suspicion remains, the local clinician/microbiologist should discuss repeat sampling and testing with the local PHL Duty Microbiologist/Virologist.

[6] In the event of an indeterminate result, RVU will contact the local PHL Duty Microbiologist/Virologist to discuss further actions.

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