Packing and Shipping Key Points

- Nasopharyngeal (NP) swabs and viral transport media are available from UPHL (NP swabs are preferred for annual influenza/ an oropharyngeal or throat swab is preferred if avian influenza H5N1 is suspected. An emerging new type of influenza might have different specimen collection requirements
- Swabs used for RT-PCR testing must be Dacron or Rayon. DO NOT use cotton swabs or calcium alginate swabs or swabs that have wooden shafts. These may have inhibiting substances for PCR testing.
- All Department of Transportation (DOT) and International Air Transport Association (IATA) regulations must be followed for shipping suspected infectious agents, such as influenza specimens.
- All individual specimen tubes must be marked with the patient's name and/or unique identifier and the specimen collection date.
- In general, infectious agents must be shipped in three layers: 1) primary or specimen tubes, wrapped with Parafilm-like material to prevent leaking 2) all primary specimens up to 50 ml. are placed in a secondary container. Absorbant material is packed between the primary and secondary container, 3) The primary and secondary containers are put in a United Nations certified third container for shipping.
- Questions may be addressed to UPHL for further information on shipping or to inquire about shipping & packing trainings for your facility.

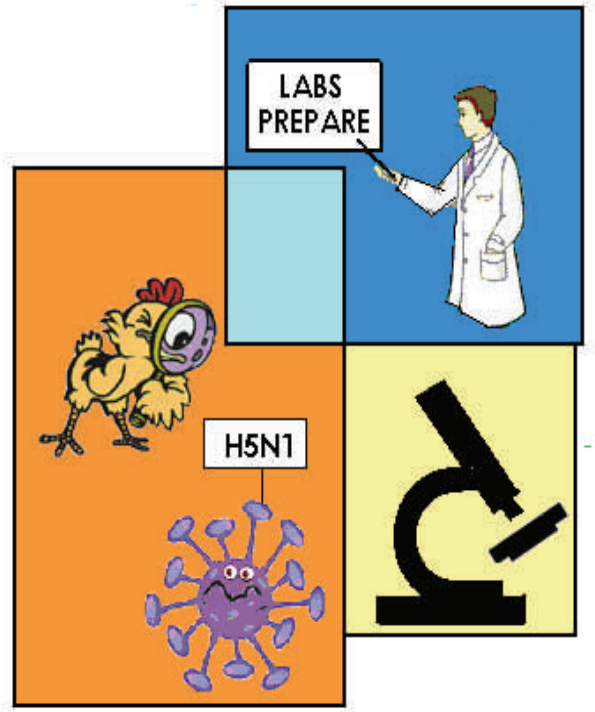
Contact Information:

Utah Public Health Laboratories

Main Desk, for paging and referral	801-584-8400
Virology (DFA & Viral Culture)	801-584-8235 or 801-584-8454
Molecular Biology (RT-PCR)	801-584-8449
Customer Support/ Specimen Shipping & Receiving	801-584-8417 or 801-584-8286
24/7 Emergency Response (leave message for call back in < 15 min.)	1-888-374-8824

Utah Public Heath Laboratories
Utah Department of Health

Lab Clues for Flu



Preparing Laboratories For Pandemic Influenza

Introduction

Because Influenza mimics many other respiratory illnesses, laboratory diagnosis is important for the appropriate clinical diagnosis and treatment of patients. Complexity of laboratory testing goes from simple rapid testing done in "point-of-care" facilities to expertise-dependent testing, such as viral culture and molecular genetic tests, done in appropriate bio-safety facilities. The information in this pamphlet is meant for all levels of laboratory and healthcare personnel involved in Influenza testing to assist in preparing for a possible Influenza pandemic. Use this pamphlet for review or to learn new information.

About Influenza A Virus

- There are other influenza viruses but Influenza A strains are the most virulent pathogens to humans and cause the most severe illness.
- Influenza A virus has 8 RNA genes that code for 11 proteins. The two best-characterized proteins are hemagglutinin (HA or H) and neuraminidase (NA or N).
- Hemagglutinin and neuraminidase proteins act as antigens and viral subtyping is done by targeting NA or HA with antibody reagents in lab testing. The response of the virus antigens NA or HA to different antibody reagents gives rise to the various subtypes.
- The current avian influenza A of concern reacts to H(5) antisera and N(1) giving the familiar H5N1.
- A common subtype for annual influenza currently circulating in North America is H3N2. There are currently 16 H subtypes and 9 N subtypes of influenza A.
- New influenza viruses are constantly being produced by mutation or by reassortment. These mutations create an increasing variety of strains over time until one of the variants eventually achieves higher fitness, becomes dominant, and rapidly sweeps through the human population – often causing an epidemic.

Influenza Diagnostic Testing Table

Procedure	Influenza Types Detected	Time for Results	Comments
Viral Culture	A and B	3-10 days	Provides information for virus characterization and vaccine formulation. **NOT** recommended if a novel or highly pathogenic avian influenza strain is suspected.
Immunofluorecent DFA Antibody Staining	A and B	2-4 hours	These kits may also be used for other respiratory virus detection.
RT-PCR	A and B	2-4 hours	May be used for H and N characterization in laboratories with capacity.
Enzyme Immuno Assay (EIA)	A and B	2-3 hours	Sensitivity and Specificity of test kits may vary.
Serology	A and B	>2 weeks	Requires paired sera (acute and convalescent) has greatest value in epidemiological population studies
Rapid Diagnostic Tests	Refer to kit inserts to see if both A & B are detected and differentiated	<30 minutes	Recommended to confirm rapid test results with another method such as viral culture or PCR.

Clinical Lab & Point-of-Care Help Needed for Public Health Surveillance

During outbreaks of respiratory illness when influenza is suspected, some respiratory samples should be tested by both rapid tests and by viral culture. The collection of some respiratory samples for viral culture is essential for determining the influenza A subtypes and influenza A and B strains causing illness, and for surveillance of new strains that may need to be included in the next year's influenza vaccine. During outbreaks of influenza-like illness, viral culture also can help identify other causes of illness.

The Utah Department of Health's Office of Epidemiology, along with the Utah Public Health Laboratories participate in year-round influenza surveillance. Clinical Laboratories and other influenza testing sites can assist the important work of public health by sending to UPHL for testing influenza specimens from those patients who are hospitalized or extremely ill, or who have specific travel or work histories that put them at risk for novel or avian influenza strain infections. Influenza hospitalizations or deaths are a reportable diseases to local or state health authorities.