Chapter 14A: Laboratory Tools

Contents

Laboratories Pandemic Influenza Planning Self-Assessment Tool

This tool is designed to help laboratories:

- evaluate their level of pandemic preparedness
- develop a pandemic influenza plan
- monitor progress in developing their plan
- identify gaps between already developed business continuity or emergency response plans and a pandemic influenza plan, and to prioritize tasks that need to be completed.

How to Use the Tool:

Indicate, for each of the tasks, and in the appropriate column, whether the task (if applicable) is complete, in progress, or to whom it should be assigned, and its anticipated completion date.

Indicate the priority of the task, which may differ for different organizations based on their priorities, as well as their respective levels of risk tolerance.

Once appropriate departments have completed their sections of the tool, the laboratory director and management team should review the results, and assign priorities and due dates for the tasks. The tool can then be used to monitor planning progress.

Laboratories Pandemic Influenza Planning Self-Assessment Tool

Activities	Assigned to	Completed	In Progress % completed	Due Date	Not Started	Priority of Activity A: 3 months B: 3-9 months C: 9-16 months D: not applicable	Comment (e.g. already covered in business contingency plan, date last reviewed and approved)
The Pandemic Plan							
Does your Laboratory have a Pandemic Coordinator and/or team in place?							
Are there a Terms of Reference and a planning document for Pandemic Planning?							
Are the mandate and objective(s) of planning well-described and included in the Plan?							
Has the individual(s) with authority to approve the Pandemic Plan and Terms of Reference, including revisions, been identified in the Plan?							
Has membership been determined and are sectors/divisions/positions/disciplines/etc. well-represented?							
Are there requirements for review and revision of the Plan, such as annually, or as new International, National, Provincial and/or Local plans are released? Should the review be mandatory?							
Who is responsible for communication of the Plan to employees & clients? What are the mechanisms for communication currently available? What is needed for an efficient communications response? How will it be communicated? (e.g. Web Site)							
How is the Plan and the response going to be co-coordinated? (Who is the Lead? Is there a need for a Laboratory Operations Center through which all communications are directed and released?)							
Are there defined Emergency Notification and Activation levels?							
With which trigger(s) is there Full Notification and Full Activation?							

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With which trigger(s) is there Full Notification and Partial Activation?							
With which trigger(s) will the Laboratory be put on Stand-by Notification?							
Have the roles and responsibilities for preparedness and response been outlined with respect to each Pandemic Phase (as per WHO recommendations) in the Plan?							
If your Plan does specify activities that should occur in each phase of the pandemic, does it then identify the corresponding triggers that would initiate those activities? (This is in addition to reducing the selection of tests that are performed, if applicable. For example, if Pandemic level 5 was declared for Canada, but there were no cases in Ontario, would this trigger activation of any part of your plan?)							
Have you shared your Pandemic Plan with relevant stakeholders (see below)? Do they have Plans and are you aware of a role for your organization within those plans, if any? Have you surveyed these groups to see what information and services they expect from your Laboratory?							
• Labor representatives.							
• National Planners.							
• Provincial Planners.							
• Local Planners.							
• Municipal Officials.							
• Medical Officer of Health.							
• Public Health Laboratories.							
• Community Laboratories.							
• Emergency Responders.							
• Hospitals.							

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• Health Care Workers.							
• Military or Security Services.							
Have you communicated with your local and provincial laboratories to review and assess your needs and their capacity to meet those needs?							
Have Human Resources issues been addressed, including, training, education, health & safety, sick leave, bereavement leave, compassionate leave, etc.?							
Have you determined your laboratory's Equipment and Supplies needs? (What needs to be stock-piled, how much, how paid for, how managed, and where will it be stored?)							
Have you developed plans within your Plan that address Business Continuity?							
Has your organization shared best practices with other businesses in your communities and/or associations to improve laboratory and community response efforts? For example another organization may have HR policies that it has developed for its Pandemic Plans that it would be willing to share.							
Have you incorporated or referenced relevant information from other plans in your Plan?							
Have you included information on local, provincial, national and international Influenza Testing centers for the users of your plan?							
Has your organization developed or implemented exercises or drills to test the Plan?							
Has a gap analysis been performed against the Ontario Health Plan for an Influenza Pandemic (OHPIP), in general, and the OHPIP Laboratory Chapter, in particular? (http://www.health.gov.on.ca/english/providers/program/emu/pan_flu/pan_flu_plan.html) Has a gap analysis been performed against the Canadian Pandemic							

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Influenza Plan, and in particular, against its Laboratory Annex? (http://www.phac-aspc.gc.ca/cpip-pclcpi/.)							
Mutual Aid Agreements							
To avert confusion in an emergency, has your organization established mutual aid agreements with other laboratories and businesses?							
Do these agreements:							
• Define the type of assistance; for example, types of tests, testing volume, length of time?							
• Identify the chain of command for activating the agreement?							
• Define communications procedures?							
Mutual aid agreements can address any number of activities or resources that might be needed in an emergency. For example:							
• Human Resources.							
• Supplies e.g. disposable PPE, Reagents.							
• Autoclave services.							
• Compensation for increased testing activities.							
• Licensing Issues.							
Material Transfer Agreements							
Has your organization put in place MTAs for items required to carry out testing?							
• For example, cell lines, viral strains, bacterial strains, antibodies, etc.							
Policy Development							
Has your organization established policies unique to a Pandemic which address:							

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Employee compensation and sick leave absences (i.e. non-punitive liberal leave)?							
Leave of absences for employees not ill but needed at home of care for ill family members? (Non-paid leave?)							
The use of volunteers?							
Whether students will be allowed to continue in their clinical or education related placements?							
When a previously ill person that is no longer ill, can return to work? (Will a doctor's note be required?)							
The potential for occupational exposure of employees to Pandemic Influenza, if any? How to address situations in which the employee may have been exposed, or if employee is ill, or becomes ill, at the worksite (e.g. What will be the infection control response? Will immediate mandatory sick leave be implemented?)							
A flexible worksite (e.g. telecommuting), flexible work hours (e.g. staggered shifts), shortened work hours, and to whom these policies could be applied. (e.g., Administrative/Managerial staff to work from home, technical or support staff, flexible hours for people with children or ill relatives for whom they must care, etc.)							
Operational Considerations							
Has your organization set up authorities, triggers, and procedures for:							
• Activating and terminating the Laboratory's response plan.							
• Altering business operations.							
• Shutting down specimen collection centers (SCC) or Laboratories.							
• Reducing the test menu.							
• Redirection of specimens to alternate testing sites							

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(internally & externally).							
If your organization has a Business Recovery Plan, has your organization established linkages between it and your Pandemic Flu plan?							
If provincial services are curtailed because of higher than usual absenteeism rates, has your organization determined what the impact will be on your organization (e.g. invoice payments, license plate renewals, cleaning services, etc.)?							
If municipal government or local vendors, such as the companies that handle biohazardous waste, are functioning at only minimal capacity, has your organization determined what the impact will be on its operation?							
Has your organization identified alternate vendors for critical service activities?							
Has your organization determined:							
• How much overtime it can afford?							
• Which supervisory or management activities can be downloaded?							
• What activities can be delayed without putting patients at risk and what would trigger this activity?							
• What kind of administrative tasks can be postponed, and for how long, or transferred to non laboratory staff or volunteers? For example time sheets and purchasing? What would trigger these activities?							
• What are the services, the core skills and licenses needed to perform the skilled activities? (e.g., Review quality control results? Report patient results?)							
Absenteeism rates should be closely monitored for the redeployment of staff. Absenteeism may trigger							

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activities. Does the plan describe how absenteeism rates should be captured, and how these rates should be reported to Pandemic Planning team?							
Does the plan identify the:							
• Key positions in your organization and the minimum staff required to keep your Laboratory operating during the Pandemic Period, which could last several weeks (6-12 week duration)?							
• Alternate test sites within and outside the organization and for what tests or activities?							
Has your organization worked with other organizations to identify a list of SCC that must remain open to ensure coverage? Have you agreed on what would trigger this event (e.g. HR issues for one or all of the organizations involved?). Has the role of the SCC been delineated? Will it change in the event of a Pandemic? If yes, how and with what impact?							
If an organization had to temporarily close down some specimen collection centers and redeploy staff, what would the trigger be for this activity? For example would this be done strictly based on absenteeism, or would a projected absenteeism trigger this activity?							
If staff have difficulty obtaining transportation to get to work (e.g. service centers closed, vehicle break down and no servicing agents open) or getting to a new work location, would your organization be able or willing to assist? And how?							
Has your organization consulted with its Information Technology (IT) staff to determine the information technology infrastructure needed to support employee telecommuting and remote client access?							
How long would it take to put information technology infrastructure in place, and what would trigger this activity (e.g. Would you do it now, or wait until there is confirmed human to human transmission in other countries or provinces?)							

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Did your organization identify IT staff as key?							
Does the organization have the ability to operationalize HR policies that will allow people to work from home? Are sufficient computers available to facilitate this if required?							
When should the organization initiate the set up of the additional VPN access e.g. Pandemic Level 4 or absenteeism 20% greater than normal or a combination of those things or should they do so now?							
For Laboratories with more than one site, has your organization determined if there is a need for a focal Pandemic Laboratory Operation Center?							
Human Resources Issues							
Employee Support							
Since employees are your most valuable asset, has your organization considered supporting staff by providing or arranging for any of the following services:							
• cash advances							
• salary continuation							
• grief counseling							
• care packages							
• day care							
• resources on planning for the home and the workplace.							
Has your organization reviewed the capacity of its employee assistance plan? (Many agencies use the same providers, what is the capacity?)							
Does your plan include:							
Protocols which deal with increased numbers of grievances, workload complaints, refusal to work?							

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A list of consultants that could be called if Microbiologists, Clinical Chemists, Pathologists, Scientists, or other key employees are not available?							
The possibility of bringing back recent retirees or using volunteers, and if so, in what capacity could they be used?							
Does your plan include:							
Identified staff that can be redeployed and their skill sets (secretary, manager, strategic planner)?							
Sending testing to other internal or external locations where the pandemic has not hit yet?							
If yes, have the details of that agreement been worked out (e.g. type & volume of tests, length of time)?							
Have trigger points been identified which determine when these activities will occur? For example would this be done strictly based on absenteeism, or would a projected absenteeism trigger this activity? (e.g. Level 4.1 has been declared somewhere in Canada)							
Would Laboratories consider working together if their own resources were exhausted or limited? For example, if all the hematology staff in one location were absent, would another Laboratory be willing to accept the work, considering that all laboratories will have their own HR and other resource shortage issues?							
What conditions would have to be in place for this to happen? (Assuming a force majeure is in place)?							
Has the organization determined:							
How many part time employees would be available for full time hours?							
The number of staff that would not be able to show up for work if Day Care centers or schools are shut down?							

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Has your organization implemented any processes in its HR department to deal with staff shortages (e.g. requiring the department to maintain contact information for retirees)?							
Has your organization :							
Had meetings with Union/Labor representatives to discuss any issues that might arise as a result of redeployment of people (e.g. staff performing other people's job functions)? (Bill 56 - Emergency Management and Civil Protection Act)							
Reviewed how Bill 56 might affect it?							
Identified any College or licensing issues that might result from the redeployment of staff, (e.g. bring in staff from other provinces, and bring in retired MLT's engaged in testing).							
Identified how the organization will reenergize your staff between pandemic waves? Additional paid time off, grief counseling?							
Testing							
Has your organization :							
• Inventoried current laboratory services, including types of tests and number of personnel required to receive, perform and report on these tests?							
• Developed suspended testing guidelines, if applicable, and testing algorithms?							
• Determined when and how guidelines and algorithms would be implemented; for example, if your laboratory is not experiencing high absenteeism rates, but the province has declared Pandemic Phase 5?							
• Developed and planned for scenarios that will change testing patterns and volumes for each location? For example, high absenteeism is being							

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experienced in Toronto Laboratories while Eastern Ontario Laboratories are still operating at normal numbers.							
• Linked the type of testing that will be available with each Phase of the Pandemic?							
• Determined when directives for specimen type, collection, transportation and testing will be delivered to clients? What will you be doing with samples that come in that will not be tested?							
• Determined how the lab will phase back the regular testing menu? For example, will the Laboratory wait to see if there is a second wave of influenza before it reinstates the inter-pandemic test menu or will it be depend upon staff availability?							
If your organization is licensed to perform Influenza Testing:							
• Has the testing method been determined and validated against Pandemic Influenza strains?							
• Does the method implemented ascribe to WHO and National guidelines?							
• Has your organization participated actively in the National Microbiology Proficiency Testing program for the molecular detection of potentially Pandemic strains of Influenza?							
• Has a training program been established to ensure redundancy in the testing capabilities in order to address high volumes with limited human resources?							
• Has your organization considered the use of high throughput instrumentation to facilitate increased test requests, with decreased employee numbers and shorter turn around times (e.g., automated nucleic acid extractor)?							
• Developed reporting and response guidelines?							

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Anti Virals and Vaccines							
Has your organization :							
• Developed a policy on the use of Vaccines and Anti-Virals?							
• Surveyed all laboratory employees for seasonal vaccine uptake? (See Vaccine Uptake Form)							
• Determined who your front line workers are, as defined in the Ontario Health Provincial Influenza Plan (OHPIP)?							
• Identified either priority employees or priority positions and who will receive prophylaxis anti-virals, should they be available?							
• Identified either priority employees or priority positions and who will receive vaccine, should it become available?							
• Developed documentation requirements for receipt of antivirals or vaccines; for example, photo identification and proof of employment must be shown to receive antivirals or vaccines?							
• Required that proof of vaccination be kept with employee health records?							
• Considered the acquisition and stock-piling of antivirals and vaccine for your Laboratory employees?							
Safety Issues							
Infection Control Program							
Has your organization developed Standard Operating Procedures (SOP) for Infection Control Precautions covering:							
• the use of Personal Protective Equipment (PPE)							
• instructions for visitors (in multiple languages, as							

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required)							
• Infection Control Procedures for Patient Service Centers.							
Has your organization developed tools such as Employee and Visitor Health Status Forms required for entry into facilities?							
Does your organization have a heightened awareness campaign ready to role out that includes plans to disseminate programs and materials covering pandemic fundamentals such as:							
• signs & symptoms of influenza							
• modes of transmission							
• the importance of hand washing							
• coughing and sneezing etiquette							
• the discontinuance of hand-shaking							
• the implementation of work-from-home policies and other practices of social-distancing							
• extensive work place and work station cleaning (e.g. each employee responsible for detailed cleaning of personal work space thereby ensuring it is done)							
• avoiding the touching of face and eyes or nose especially without adequate handwashing before and after touching.							
Or, are you planning on acquiring programs and materials covering pandemic fundamentals from other sources?							
Has the organization:							
• Identified the trigger that would cause it to initiate this campaign (e.g. at a particular Pandemic Phase)?							
• Decided to ensure strict compliance with infection							

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control practices, and if yes, when would this occur?							
• Determined if additional employees will need to be trained on the Transportation of Dangerous Goods?							
• Decided to institute surveillance for influenza-like symptoms among laboratory personnel once a Pandemic has been declared?							
• Decided to minimize the frequency of face to face contact among employees, and between employees and clients or vendors? (For example, minimize meetings and encourage, where possible, staff to work from home.)							
• Conducted a sound Risk Assessment addressing specimens containing, or potentially containing pandemic influenza virus?							
• Consulted the Office of Laboratory Security for up to date information and measure relevant to Pandemic Influenza at: 613-957-1779 or http://www.phac-aspc.gc.ca/ols-bsl/aibioadv_e.html)							
Communications							
Has your organization :							
• Identified outside sources for timely and accurate Pandemic information; for example, the WHO, Emergency Management Ontario, the Incident Management system within the Ministry Emergency Management Centre, the MOHLTC, the Public Health Branch, the National Microbiology Laboratory, and the Public Health Laboratory?							
• Maintained an up to date Organizational Chart with current phone numbers and other contact information? Has someone been assigned to update this on a regular basis?							
• Developed or maintained an Emergency fan out tree with current contact information for home & at							

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work? Do all staff have a current copy?							
Has your organization :							
• Established an emergency communications plan which includes identification of, and contact information, by both location and function, for:							
• Key Laboratory Personnel.							
• Backups for key contacts.							
• Critical Vendors for Supplies and Services.							
• Identified a writer, and an approver of communications to clients and staff?							
• Developed a communiqué to alert clients of the reduction in testing menu and the trigger that will set this in motion?							
• Identified members of a distribution list to receive updates on pandemic scientific information as it becomes available?							
• Put in a process to communicate updates on bio-safety guidelines (e.g. PPE requirements)?							
• Put a process in place to ensure that communications are culturally and linguistically appropriate to staff and clients?							
• Developed platforms (e.g. hotlines, dedicated websites) for communicating pandemic status and actions to employees, vendors, suppliers and clients inside and outside the Laboratory?							
• Provided Public Health with the identity and contact information of the person to alert should vaccine become available?							
Does your organization :							
• Plan to educate and train staff on the management of respiratory specimens and other specimens							

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during an Influenza Pandemic?							
• Educate staff regarding its Pandemic Plan and relevant HR policies?							
• Communicate to staff to whom, how and when the organization will supply prophylaxis and vaccines?							
Equipment & Supply Management							
Has your organization developed a list of critical vendors for supplies and services?							
Has your organization enumerated 4 weeks supply of the critical items listed in "List of Equipment and Supplies", in addition to other identified items unique to your operation, and which of these are required at what locations within the organization?							
Does your organization have the storage capacity for this amount of material?							
If not, has your organization identified triggers which identify at which points additional items listed in "List of Equipment and Supplies" would be ordered? For example if Pandemic Level 4 has been declared somewhere in Canada, would the Laboratory start to stock pile 4 weeks worth of PPE, or would it do so sooner?							
Does your organization have a process for distribution of stock within and between sites?							
Has your organization made arrangements with vendors to sequester reagents or asked if they have the ability to supply your organization with the applicable items of your "List of Equipment and Supplies"? Has it confirmed that if all the laboratories reacted at the same time, for example in Pandemic Phase 5, that they would still be able to supply you? If not, how long would the wait be for supplies?							
Has your organization determined when it will begin purchasing to augment stockpiles during the							

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interpandemic period?							
Transportation							
Courier Issues							
Has your organization communicated with its couriers to review potential issues which might arise during a Pandemic; for example, willingness of courier to transport Pandemic Influenza containing specimens, TDG issues, the courier companies Pandemic Plans, alternate service providers, etc.?							
Has your organization determined if, should another health facility's courier system break down, due to absenteeism or other that your organization would be willing or able to assist?							
Legal Issues							
Are their any liability issues associated with your distribution plan for prophylaxis or vaccines?							
Has your organization had HR pandemic policies reviewed by your legal department?							
Are there any constraints to the organization's Plan as a result of the Occupational Health & Safety Act (OHSA)?							
Are there any constraints to the organization's Plan as a result of the College (various) regulations?							
Establish a recovery team, if necessary. Establish priorities for resuming operations.							
Has your organization determined when it would take steps to resume normal operations?							
Documentation							
Does your organization have all the information identified in the self assessment documented in a plan?							
If not, does the plan contain cross references to resources where this information is available?							

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Ethical Considerations							
Has your plan been developed within an Ethical Framework?							
Did an Ethicist or Team of Ethicists consult on, and review, your plan prior to its publication?							
Research & Development							
Have you identified Research and Development issues related to Pandemic Influenza, which might include, but are not limited to:							
• Scientific Research.							
• Operations.							
• Financial Requirements.							
• Modeling Exercises.							
• Anticipated Absenteeism Rates.							
Budget							
Has your organization developed or established a budget for Pandemic Planning and for implementation of the Plan?							
Post-Pandemic Activities							
Review and revise your Pandemic Plan.							

Laboratory Activities by Pandemic Period and Sector

The following table summarizes the recommended activities for Ontario laboratories by pandemic period and phase.

WHO Pandemic/ Phase	Public Health Laboratories	Hospital Laboratories	Community Laboratories
Interpandemic Period: Phase 1 **No new influenza virus subtypes have been detected in humans. An influenza virus subtype may be present in animals, but the risk of human infection is considered low.**	Provide routine testing. Introduce influenza molecular diagnostic methods to minimum of 4 designated testing sites. Provide appropriate training (including biosafety) and participate in proficiency testing programs. Participate in pandemic planning. Maintain an up to date list of services to be offered or suspended during a pandemic. Continue to participate in laboratory based surveillance for new subtypes and strains of influenza.	Provide routine testing Introduce influenza molecular diagnostic methods to designated testing sites. Provide appropriate training (including biosafety) and participate in proficiency testing programs. Participate in pandemic planning. Continue to participate in laboratory based surveillance for new subtypes and strains of influenza.	Provide routine testing. Participate in pandemic planning. Maintain an up to date list of services to be offered or suspended during a pandemic.
Interpandemic Period: Phase 2 **A circulating animal influenza virus subtype poses a substantial risk of human disease.**	Continue all Phase 1 activities.	Continue all Phase 1 activities.	Continue all Phase 1 activities.
Pandemic Alert Period: Phase 3 **Human infection(s) with a new subtype, but no human-to-human spread or rare instances of spread to a close contact only.**	As in Phase 2, with heightened alert and surveillance testing to facilitate early detection of new virus entry into Ontario. Molecular diagnosis and typing at designated sites.	As in Phase 2, with heightened alert and surveillance testing to facilitate early detection of new virus entry into Ontario. Molecular diagnosis and typing at designated sites.	As in Phase 2.
Pandemic Alert Period: Phase 4 **Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to**	As in Phase 3 with increased laboratory surveillance activities, including typing, sequencing and anti-viral sensitivity testing. Review and update plan as necessary. Confirm technical and biosafety training of all staff is complete. Implement relevant activities of the pandemic plan.	As in Phase 3 with increased laboratory surveillance activities, including typing, sequencing and anti-viral sensitivity testing. Review and update plan as necessary. Confirm technical and biosafety training of all staff is complete. Implement relevant activities of the pandemic plan.	As in Phase 3. Review and update plan as necessary. Confirm technical and biosafety training of all staff is complete. Review screening protocols for outbreak situations. Implement relevant activities of the pandemic plan.

WHO Pandemic/ Phase	Public Health Laboratories	Hospital Laboratories	Community Laboratories
humans.			
Pandemic Alert Period: Phase 5 **Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible.**	Provide direction on testing, cell lines, and biosafety guidelines to all testing sites. Ensure required reagents and protocols in place. Implementation of the pandemic plan.	Ensure required reagents and protocols in place. Implementation of the pandemic plan.	Ensure all community sites have up to date information regarding implementation of selective testing and screening protocols and biosafety guidelines. Implement of the pandemic plan.
Pandemic Period: Phase 6 **Increased and sustained transmission in general population.** **Several outbreaks in at least one country and spread to other countries).**	Initiate recommended testing methods and biosafety guidelines. Designated PHL sites to perform bulk of influenza testing. Redirect other testing to other surge PHL sites as required. Deploy plans for suspended testing as required.	Initiate recommended testing methods and biosafety guidelines. Designated hospital sites to perform influenza testing. Redirect testing to community laboratories as required.	Initiate selective testing guidelines and appropriate biosafety measures.
Pandemic Period: Phase 6 cont. **Regional and multi-regional epidemics.**	Continue Phase 6 activities.	Continue Phase 6 activities.	Continue Phase 6 activities.
Pandemic Period: Phase 6 cont. **End of First Pandemic Wave; Pandemic Subsiding.**	Increase virology testing to document decline in pandemic strain and introduction of other respiratory viruses. Assess laboratory capacity and resources and resume routine testing where possible.	Increase virology testing to document decline in pandemic strain and introduction of other respiratory viruses. Assess laboratory capacity and resources and resume routine testing where possible.	Assess laboratory capacity and resources and resume routine testing where possible.
Postpandemic Period return to Phase 1	Review pandemic period and activities. Revise pandemic plans.	Review pandemic period and activities. Revise pandemic plans.	Review pandemic period and activities. Revise pandemic plans.

Collection of Nasopharyngeal Specimens for Pandemic Influenza

WASH HANDS BEFORE AND AFTER THIS PROCEDURE

WHAT IS THE NASOPHARYNX? The nasopharynx is the upper part of the throat and is located behind the nose. It is the highest part of the **pharynx** or the throat, which is divided into three parts; the top one being **nasopharynx**, the middle one being **oropharynx**, and the last part being the **laryngopharynx**.

Materials

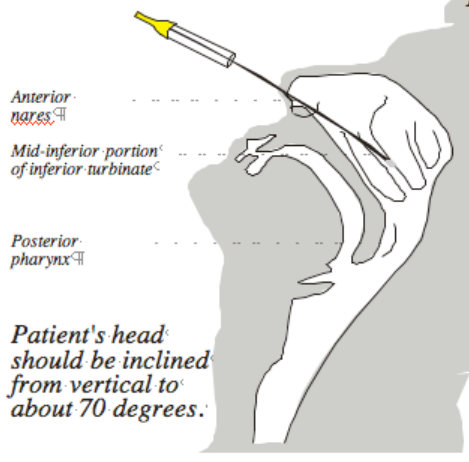
1. Nasopharyngeal swab (with flexible shaft) and rayon tip.
2. Viral transport medium.
3. Personal Protective Equipment (PPE) as required.

Personal Protection

Risk assessment should be conducted for specimen collection procedures in order to identify associated risks and apply appropriate control measures to reduce the risk of disease transmission. This may involve a combination of administrative controls (safe work practices, procedures) and the use of personal protective equipment (e.g. masks, gloves, gowns) in accordance with the risk or exposure when collecting the specimen.

Method

N.B. Rule of thumb: Swab is placed properly if inserted to one-half the distance from the tip of the nose to the tip of the earlobe, or approximately 7-10 cm.



The laboratory requires high levels of virus in order to successfully detect respiratory pathogens in the specimen.

A properly taken nasopharyngeal swab will yield high levels of virus.

1. *Wear appropriate PPE.*
2. *Gently tilt the patient's head back.*
3. *Gently bend the wire swab, while in the sterile package, to give it a slight arc.*
4. *Insert the flexible nasopharyngeal swab into one nostril and into the nasopharynx.*
5. *Gently rub the swab back and forth several times.*
6. *Leave swab in place for a few seconds. Gently withdraw.*
7. *Place swab in viral transport medium. Break or cut swab at the score line.*
8. *Ensure cap secure to prevent leakage.*
9. *Refrigerate and ship to laboratory as soon as possible.*

Supply and Equipment Checklist

The **Equipment and Supplies Checklist** is meant to be a first step in identifying supplies and equipment that should be purchased and/or stockpiled, and to monitor the laboratory's progress in creating those stockpiles. It will also serve to collate the necessary ordering information.

Supplies & Equipment	Normal volume used in 1 week	Estimated Increase per week during Pandemic	Total required for 4 weeks	Cost per unit	Catalogue #	Vendor	Purchased	NA
Infection Control Supplies and PPE								
Hand Soap								
Paper Towels								
Alcohol based hand rinse								
Masks *								
Gloves								
Gowns								
Alcohol Wipes								
Alcohol								
Surface cleaners and disinfectant								
Garbage bags								
Autoclave bags								
Biohazard boxes & bags								
Coveralls								
Boots								
Face Shields/Eye Protection								
Safety Goggles								
Head Covers								
N95 or N100 Respirators								

Supplies & Equipment	Normal volume used in 1 week	Estimated Increase per week during Pandemic	Total required for 4 weeks	Cost per unit	Catalogue #	Vendor	Purchased	NA
Diagnostic Testing Reagents & Supplies								
Nasopharyngeal Swabs								
Transport Media								
Testing reagents, including:								
DFA reagents								
RT-PCR or NAAT reagents								
Cell Culture reagents								
Supplies related to testing, other than influenza								
Requisitions								
Collection Kits								
Influenza Screening Kits								
Other								
Kleenex								
Toilet Paper								
Office Supplies								

* The Ministry of Health and Long-Term Care is continuing to develop a provincial position on personal protective equipment (i.e., masks). In the absence of a provincial position, references to masks and/or respirators in this document should be interpreted broadly (i.e., facial protection).

Seasonal Influenza Vaccination Uptake Rates at Ontario Laboratories

Year of Reporting: 200_ (for 200_/200_ influenza season)

Influenza is an acute viral illness characterized by fever, headache, myalgia, prostration, sore throat and cough. Influenza derives its importance from the rapidity with which epidemics evolve, the widespread morbidity, and the seriousness of complications, notably viral and bacterial pneumonias. During seasonal epidemics, severe illness and deaths occur, primarily among the elderly and those with underlying diseases. Clinical attack rates during epidemics range from 10% to 20% in the general community to > 50% in closed populations.

The best protection from seasonal influenza is the annual influenza vaccine. The influenza vaccine is available at no charge to anyone aged six months and older living, working or attending school in Ontario.

This vaccine is not expected to provide protection against a novel or pandemic strain, but it will reduce the opportunity for dual influenza infections, and hence, the opportunity for reassortment of the novel strain with a strain already well adapted to humans, and capable of human to human transmission. Further, it may help to discriminate between influenza like illness (ILI) symptoms as a consequence of infections with the seasonal strain, or as a consequence of infection with a laboratory acquired strain, following occupational exposure.

Please keep this form, and records of influenza vaccination for laboratory employees, on file with your Laboratory's Occupational Health and Safety Department for future reference.

Data collected should reflect vaccination status of staff for ***the same day of each year for all laboratories. (e.g., November 15, 2006).***

Definitions

Medical Exemption: persons who experienced an anaphylactic reaction to a previous dose or have anaphylactic hypersensitivity to eggs which is manifested as hives, swelling of the mouth and throat, difficulty breathing, hypotension and shock.

Applicability: The influenza surveillance protocol is voluntary and applies to all persons who carry on activities in the laboratory including employees, students, volunteers, and contract workers. The protocol does not apply to visitors of the facility.

Staff

Permanent: Employees assigned permanently to a department(s) in the laboratory.

Temporary: Would include temporary employees, for example, from an agency. Would also include assistants/researchers affiliated with a university/other, as the university would hold the contract.

Laboratory Name: _____

Address: _____

Name of person completing form: _____

Date form completed (mm/dd/yyyy):**_____Date form submitted** (mm/dd/yyyy): **_____**

*Data for **A** and **B must** be provided. If information not known for other categories is not known, please leave blank.*

A) Total number of **staff*** (permanent and temporary) in the facility: _____

B) Number of vaccinated **staff** *: _____

C) Number of unvaccinated **staff***: _____

Of these, the number **with** documented **medical exemption***: _____

Of these, the number **without** documented **medical exemption**:* _____

D) Number of **staff** with **vaccination status unknown**: _____

Staff Vaccination Rate = **(B/A x 100)**: _____

Avian Influenza
Interim Guidelines for Laboratories

Avian influenza viruses are classified as low pathogenic avian influenza (LPAI) or high pathogenic avian influenza (HPAI) viruses, on the basis of the severity of illness caused by the virus in birds and genetic characteristics of the virus. Most avian influenza viruses cause only mild or asymptomatic illness in birds, but HPAI infections can be rapidly fatal in some bird species. There are 16 known haemagglutinin (HA) subtypes and 9 known neuraminidase (NA) subtypes of influenza A viruses. Many different combinations of HA and NA proteins are possible. Each combination represents a different subtype. Although all known subtypes of influenza A viruses can be found in birds, the three most prominent subtypes are H5, H7 and H9. The currently circulating avian influenza A/H5N1, although not readily transmissible human to human, has rarely infected humans and is considered a potential candidate for the next pandemic strain of influenza. Infected birds shed influenza virus in their saliva, nasal secretions, and feces. Direct contact with infected poultry, or surfaces and objects contaminated by their feces or secretions, is presently considered the main route of human infection. As such, and given the greater likelihood of seasonal influenza infections in Canada, these guidelines for human H5N1 testing should only be applied to patients who have a history of travel, or contact with a traveller, to areas affected by outbreaks of avian influenza (http://www.phac-aspc.gc.ca/h5n1/index.html) AND a significant exposure history. To establish your patient's risk for avian influenza A/H5N1 infection based on travel and exposure history, and for guidance on further actions, contact your local Medical Officer of Health. For additional information on avian influenza testing, contact your Provincial Public Health Laboratory.

Specimen Type

A nasopharyngeal swab is generally considered the preferred specimen for the testing of human influenza. Recent data suggests that lower respiratory tract specimens, and possibly oropharyngeal, are superior to nasopharyngeal specimens for detection of avian A/H5N1 in humans. Specimens should be obtained within 1-3 days of symptom onset, or as close as possible to the onset of symptoms; however, the incubation period and length of time that avian influenza virus is shed from infected humans is not well known and may evolve as the virus evolves. As a result, multiple specimens, from multiple different sites, including nasopharyngeal swabs, nasopharyngeal aspirates, conjunctival swabs, throat swabs and lower respiratory tract specimens (e.g. sputa, bronchoalveolar lavage), collected over a range of time, may be required to make a diagnosis. Avian influenza A/H5N1 has also been isolated from the stool of some infected patients and the collection of stool in patients who have significant gastrointestinal symptoms should be considered. In addition, testing of cerebrospinal fluid (CSF), by reverse transcriptase polymerase chain reaction (RT-PCR), should be considered in patients presenting with encephalopathy. Please note that swabs and transport media intended for bacteriologic testing are not suitable for influenza testing. Swabs used for specimen collection

should have a Dacron tip and an aluminum or plastic shaft. Swabs with calcium alginate or cotton tips and wooden shafts are not recommended.

Specimen Storage and Transportation

Specimens should be collected and transported in the appropriate viral transport medium and shipped to the laboratory immediately following collection (on ice, if possible). Specimens for the direct detection of viral antigens can be refrigerated prior to processing. If specimens for virus isolation must be stored before shipping, they should be refrigerated immediately. If specimens cannot be processed within 48-72 hours, they should be frozen at -70ºC.

Packaging, shipping and transport of specimens must comply with the requirements of the Transportation of Dangerous Goods Regulations, Transport Canada, (http://www.tc.gc.ca/tdg/menu.htm) and the Dangerous Goods Regulations, International Air Transport Association (http://www.iataonline.com). These requirements state:

For air shipment, clinical specimens from suspicious and confirmed cases (i.e. samples from patients meeting case definition) must be shipped as UN 3373 diagnostic specimens or clinical specimens For air shipment, cultures of Highly Pathogenic Avian Influenza Virus, must be shipped as UN 2814 Infectious Substance affecting humans (Highly Pathogenic Avian Influenza Virus, Risk Group 3).

Specimen Testing

Avian influenza virus is considered a high risk pathogen and culture of this virus is restricted to those laboratories with certified Containment Level (CL)-3 facilities. Avian influenza detection and sub-typing is also possible by molecular methods (e.g. RT-PCR) and requires CL-2 facilities. Molecular testing is available through the Public Health Laboratories and some hospital laboratories in Ontario.

Commercial rapid antigen testing is not currently recommended for the detection of avian influenza virus. The clinical accuracy of these rapid tests for the detection of avian influenza is unknown and a positive test result would not differentiate between avian and seasonal influenza virus. Moreover, a negative test does not exclude avian influenza, and confirmatory testing must be performed using RT-PCR and/or viral culture. The recommendations of the World Health Organization (WHO) for the use of rapid testing for influenza diagnosis, including a review of the currently available kits, can be found at:

http://www.who.int/csr/disease/avian_influenza/guidelines/rapid_testing/en/index.html

Laboratory Handling of Specimens associated with Highly Pathogenic Avian Influenza

As per the Office of Laboratory Security, Public Health Agency of Canada at (613)-957-1779

(http://www.phac-aspc.gc.ca/ols-bsl/aibioadv_e.html)

Precautions for laboratories receiving and processing human clinical specimens and tissue samples from suspicious human Avian Influenza cases:

- Specimens may be processed for packaging and distribution to diagnostic laboratories for further testing in a Containment Level 2 laboratory using the additional

operational practices as outlined below.

- Diagnostic testing to rule out Avian Influenza may be performed in a Containment Level 2 laboratory using the additional operational practices as outlined below.

Additional operational practices

- Laboratory workers should wear personal protective equipment (e.g. protective solid-front gowns, gloves, and N-95, or equivalent, respiratory protection) in accordance with the risk of exposure when handling specimens.
- Manipulations that may produce aerosols should be carried out in a certified biological safety cabinet.
- Centrifugation of respiratory and tissue specimens should be carried out using sealed centrifuge cups or rotors, both of which are unloaded in a biological safety cabinet.
- All contaminated liquid and solid wastes must be decontaminated prior to disposal, preferably by autoclaving.

Precautions for laboratories handling human clinical specimens from confirmed Avian Influenza cases for isolation and further manipulation of the agent:

- Specimens may be processed for packaging and distribution to laboratories for further testing in a Containment Level 2 laboratory using the additional operational practices as outlined above.
- Manipulations involving growth of the agent should be in a Containment Level 3 laboratory using Containment Level 3 operational practices.
- Manipulations involving growth of the agent must not be performed in the same laboratory that is simultaneously culturing material that may contain human influenza.
- PCR testing of extracted genetic material may be performed in a Containment Level 2 laboratory.

Note: For Containment Level 3 facilities manipulating specimens from **confirmed** human cases of avian influenza, the Canadian Food Inspection Agency requires, under the authority of the *Health of Animals Act*, that operational procedures must be reviewed and certified by the Canadian Food Inspection Agency prior to work commencing. In addition, all staff or visitors must agree, before entering the laboratory, not to have contact with avian and porcine species for a period of five (5) days.

For information on biosafety precautions for other activities (e.g. research and handling animal specimens with Highly Pathogenic Avian Influenza), contact the Biohazard Containment and Safety Division at the Canadian Food Inspection Agency (613) 221-7088.

Additional Resources:

Further biosafety information may be obtained from:

The Office of Laboratory Security, Public Health Agency of Canada at (613) 957-1779, fax (613) 941-0596 or web site at: http://www.phac-aspc.gc.ca/ols-bsl/index.html.

The Biohazard Containment and Safety Division of the Canadian Food Inspection Agency at (613) 221-7088, fax (613) 228-6129 or web site at: http://www.inspection.gc.ca/english/sci/lab/bioe.shtml.

Laboratory Biosafety Guidelines, 3rd Edition, Public Health Agency of Canada http://www.phac-aspc.gc.ca/ols-bsl/lbg-ldmbl/index.html.

Containment Standards for Veterinary Facilities, 1st edition, 1996, Agriculture and Agri-Food Canada, http://www.inspection.gc.ca/english/sci/lab/convet/convete.shtml.

Highly Pathogenic Avian Influenza MSDS. Office International des Epizooties. Updated April 22, 2002. http://www.oie.int/eng/maladies/fiches/a_A150.htm.