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Section: Bacteriology Procedures	Subject Title: Pandemic Influenza Outbreak Plan for Microbiology	
Prepared by QA Committee		
Issued by: Laboratory Manager	Revision Date: 9/14/2018	
Approved by Laboratory Director: Microbiologist-in-Chief	Next Review Date: 5/1/2019	



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PANDEMIC INFLUENZA OUTBREAK PLAN FOR MICROBIOLOGY

Introduction

When a pandemic influenza outbreak occurs, there will almost certainly be an increase in the demand for Microbiology services. As well, staffing levels will be decreased due to infection among staff and the need for some staff to look after ill family members. In preparation for this, the laboratory has developed the following plan which addresses the extent of services that will be offered during an outbreak. The plan also provides information regarding appropriate collection of specimens and the specific tests that will be used for the detection of influenza virus. The supplies that will be required in order to allow the laboratory to function during an outbreak are also identified.

The plan is based on the following assumptions:

- 1) The outbreak is estimated to last 8 to 12 weeks;
- 2) Projected from the current workload statistics, there will be an estimated 12,300 extra samples requiring Influenza screening during this period;
- 3) Staffing levels are projected to decrease anywhere from 10% to 50% or more;
- 4) Reagents may be in short supply and therefore stockpiling of reagents may be required.

The test of choice in the microbiology lab for screening for influenza virus in clinical samples during an outbreak is PCR.

Specimen Collection and Transport

Collect specimens as per Specimen Collection section of the Influenza A,B & RSV by Luminex Areis manual. Specimens would be collected as close as possible to the onset of symptoms (within 3 to 4 days). Multiple specimens from the same patient may be required to maximize the potential for detection. Although nasopharyngeal aspirates/swabs are considered the preferred specimens for influenza testing, bronchoalveolar lavage (BAL) specimens may also be collected for detection of avian influenza. Other specimen types such as stool, CSF and blood may be collected in special circumstances.



Specimens should be submitted to laboratory as soon after collection as possible. Transport specimens as per routine procedure. The primary courier for specimens outside the hospital will be Life Labs or KJV courier companies as per current courier contracts. Each of these companies has been contacted and has confirmed that they will continue to provide service during an

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outbreak. Transportation of specimens from other sites not covered by the current service contracts will be determined by the sending site.

Reagents / Materials / Media

i) Influenza testing:

Pre outbreak supplies stock plan (based on 12,300 extra influenza test requests over 12 weeks):

The stock levels of the following supplies shall be maintained at all times before an outbreak is identified.



Supplies	Stock of Supplies		Unit Cost	Total Cost	
	Non-Pandemic	Pandemic		Non-Pandemic	Pandemic
For Specimen Collection:					
Nasopharyngeal Swabs with Multitrans transport medium	200	12,500	\$209/case of 100	\$418.00	\$26,125
Bronchoscopy suction container	200	1,000	\$2.60 each	\$520	\$32,500
Sterile Container	7,000	10,000	\$0.30 each	\$2,100	\$3,000
For Laboratory Testing:					
Transfer Pipettes	4 boxes of 500	37 boxes of 500	\$27 per box	\$108.00	\$1,995.30
Rainin pipette tips	10 racks of 960	15 racks of 960	\$ 41.60/rack	\$416.00	\$624.00
Blue Cytospin Slides	6 boxes of 144	90 boxes of 144	\$63.86/box	\$383.16	\$5,747.40
Blue Freezer Vials	500	12,300	\$247.06/500	\$247.06	\$6,077.67
Yellow Discard Container	30	200	\$6.50 each	\$195.00	\$195.00
Autoclave Bag	50	200	\$80/100	\$40.00	\$160.00
Gloves	15 boxes of 100	150 boxes of 100	\$16.33/box	\$244.95	\$2,449.50
Total				\$8,736.17	\$123,241.29

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ii) Other microbiology testing:

Supplies to be adjusted during pandemic outbreak in order to maintain testing in other key areas of the lab:

Supplies	Supply shelf life	At 10% staff reduction	At 20% staff reduction	At 30% staff reduction	At 50% staff reduction	At >50% staff reduction
Luminex Aries						
Roche Chlamydia/GC kits, diluent, QC	10 months	No change	No change	Cancel standing order	Cancel standing order	Cancel standing order
Vitek cards	6-12 months	No change	Order if less than 50% of routine inventory stock	Do not order	Do not order	Do not order
Culture media	1 month	No change	Reduce BA & MAC by 50% of standing order	Reduce BA & MAC by 50% of standing order + cancel stool culture and VRE media	Reduce BA & MAC by 50% of standing order + cancel stool culture, MRSA and VRE media	Cancel standing order



Charge/Senior Technologists in the respective areas are responsible for adjusting the supplies in their areas.

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Procedure

- 1) Activate Pandemic Influenza Tests Codes in the LIS and all clients' HIS in test codes.
- 2) Stage-wise reduction of lab services will commence as staff absenteeism increases. Staffing level will be independent of WHO pandemic phases.

Present staffing levels:

Number of MLTs: 51

Number of MLTs available for benches Monday to Friday: 38 (5 off for working weekends, 8 on vacation)

Number of regular MLT benches: 31

Number of Technicians: 22 (including 6 casual staff)

Number of Technicians available for benches Monday to Friday: 12 (2 off for working weekends, 2 on vacation)

Number of regular technician benches: 13

Stage-wise provision of service during pandemic outbreak:

1. Charge/Senior technologists of the respective areas review the staffing levels at the beginning of each day.
2. Charge/Senior technologists of the respective areas fill check list [APPENDIX I – DAILY PANDEMIC INFLUENZA OUTBREAK CHECKLIST](#)
3. Send notification of service reduction to all clients as per Client Communication Procedure QDRMI02003



Absentee Rate (number available)	Bench Assignment	Number of Benches closed	Number of MLT Benches Remaining
10 % (39 MLTs, 9 technicians)	Business as usual Assign 2 additional MLTs to Virology PCR	None	39 benches
20% (35 MLTs, 8 technicians)	Assign 2 more MLTs to Virology PCR. Close the following benches:		35 benches

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Absentee Rate (number available)	Bench Assignment	Number of Benches closed	Number of MLT Benches Remaining
	Urine Regular Wound Swabs QC, Sterility Pulsed field O&P Send-out Vaginal screen (Gram and wet prep) except GBS.	2 benches 2 benches 1 bench 1 bench	
30% (31 MLTs, 7 technicians)	Assign 1 more MLT to Virology PCR Close the following benches: Chlamydia Stool C&S Fungal Culture (not stain) ESBL, VRE Gram except critical specimens	1 bench ½ bench ½ bench 1 bench	30 benches
50% (21 MLTs, 5 technicians)	Only the following benches will be operating: Accessioning/Planting Blood Culture Sterile body fluid, STAT Respiratory C&S GBS Screening Architect CMV PCR MPX/WNV Donor PCR Viral load Flu screening PCR Viral PCR on sterile fluid Offer only essential services* on weekends	6 benches 4 benches 1 bench 1 benches 1 bench 1 bench 2 benches 1 bench 1 benches 6 bench	24 benches
*Minimal essential services to be maintained	Offer the following : Blood culture Sterile body fluid, STAT Respiratory C&S Flu screening PCR Accessioning/Planting	4 benches 1 bench 1 bench 4 benches 3 benches	13 benches

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Note: 2 Charge technologists, QA technologist and Methods Development technologists are left out of bench duties throughout the above stages except at the Minimal essential services level.

Specimen Processing

1. Accession specimens that are to be processed as per routine procedures
2. New tests are available in the LIS for ordering **Pandemic Serology** and **Pandemic Virology Detection**.
3. For tests not performed during the pandemic, accession the specimen as per routine and report as indicated below. Specimens that are not tested should be handled as follows:

Specimen/Test	Storage area / Temperature	Specimen Retention Times
Urine C&S	MIRM2 / 4°C	Discard at the end of each day
Throat Swab C&S	MIRM2 / 4°C	Discard at the end of each day
Wound Swabs C&S	MIRM1 / 4°C	Discard at the end of each day
Infection Control Screen Swabs	MIRM1 / 4°C	As per routine retention times
Genital Swabs	MIRM1 / 4°C	Discard at the end of each day
Parasitology Specimens	Room temperature	1 week
Stool Specimens	MIRM2 / 4°C	Discard at the end of each day
Sterility Specimens	MIRM1 / 4°C	1 week
Serology/Molecular Blood Specimens	MIFTL / -20°C MIFT_ / -70°C	Separate blood and freeze indefinitely until processing resumes
Chlamydia PCR	MIRT1 / 4°C	72 hours



4. For PCR procedure refer to [Influenza A, B, & RSV PCR Manual](#)
5. If supplies become scarce and/or key staff members who perform specialized testing are absent arrangements have been made through Toronto Academic Health Network (TAHSN) to refer specimens (after notification and discussion with the receiving lab) as per TAHSN agreement:

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Scenario	Action
Insufficient supply	Contact other TAHSN member for borrow supply
Insufficient staff	Send specimen with supply to another TAHSN member lab for testing
Insufficient supply and staff	Send specimen to another TAHSN member lab for testing

6. For specimens that have been processed, save the specimen as follows after processing:

Specimen/Test	Storage area / Temperature	Specimen Retention Times
Urine C&S	Not applicable	Discard after processing
Wound Swabs C&S	Not applicable	Discard after processing
Throat Swabs C&S	Not applicable	Discard after processing
Sterility Specimens C&S	Not applicable	Discard after processing
Genital Specimens C&S	Not applicable	Discard after processing
Infection Control Swabs	MIRM1 / 4°C	As per routine procedure
Respiratory Specimen other than Throat Swabs C&S	MIFF / -70°C	Indefinitely; re-evaluate post pandemic
Stool C&S	Not applicable	Discard after processing
Serology Specimens	MIRT1 / 4°C	As per routine procedure
Virology DFA Slides	MIRT12 / 4°C	As per routine procedure
Respiratory Specimen for Virology	MIRTC / -70°C	Indefinitely; re-evaluate post pandemic

Reporting



- 1) For all tests performed, report as per routine manual.
- 2) For tests that will not be performed during the pandemic, report as follows:
 “Testing temporarily suspended until further notice” (LIS TEST comment canned message) Status Bacteriology Test as “Final”. For Serology tests, leave status as pending until testing resumes.
- 3) For tests sent to a reference or other lab, report as follows:
 “Specimen sent to *reference lab*. Results will be reported when available.”

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APPENDIX I – DAILY PANDEMIC INFLUENZA OUTBREAK CHECKLIST

Date: _____



Items	Status	Checked by (signature):
No. of staff absent		
No. of staff report for duty		
% reduction of staff		
Availability of specialty staff: - PCR		
Staff debriefing		
Assign operating benches as per plan Bench Assignment		
Notify clients of available services		
Check supplies		
Notify vendors of supplies if required to adjust stock levels		

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Record of Edited Revisions

Manual Section Name: Pandemic Influenza Outbreak Plan for Microbiology

Page Number / Item	Date of Revision	Signature of Approval
Annual Review	March 15, 2007	Dr. T. Mazzulli
Annual Review	March 15, 2008	Dr. T. Mazzulli
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Annual Reviewed	March 15, 2010	Dr. T. Mazzulli
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Revised, remove viral culture and DFA	August 02, 2011	Dr. T. Mazzulli
Annual Reviewed	August 02, 2012	Dr. T. Mazzulli
Annual Review	August 22, 2013	Dr. T. Mazzulli
Annual Review Update MSH/UHN Logo Update Header Fix broken links	August 6, 2014	Dr. T. Mazzulli
Added link to Viral Hemorrhagic Fever Lab Biosafety Guidance QFSMI03001 HBV/HCV kits Removed	August 6, 2014	Dr. T. Mazzulli
MDS changed to Life Labs p.2	April 14, 2015	Dr. T. Mazzulli
Virology Manual p.2 changed to Molecular Diagnostics Manual with specimen collection link added to Simplexa manual.	April 14, 2015	Dr. T. Mazzulli
Updated present staffing, current benches	April 14, 2015	Dr. T. Mazzulli
Annual Review	April 14, 2015	Dr. T. Mazzulli
Annual Review Updated MSH logo in header Changed refer to Molecular Manual to Influenza AB & RSV PCR by Focus Diagnostics Simplexa manual. Specimen collection and transport section: removed sputa as acceptable specimen type for influenza testing.	April 2, 2016	Dr. T. Mazzulli
Annual Review	April 15, 2017	Dr. T. Mazzulli
Annual Review	April 20, 2018	Dr. T. Mazzulli
Minor format change	September 14, 2018	Dr. T. Mazzulli

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