

Specimen Collection & The Lab

Janice Pettipas

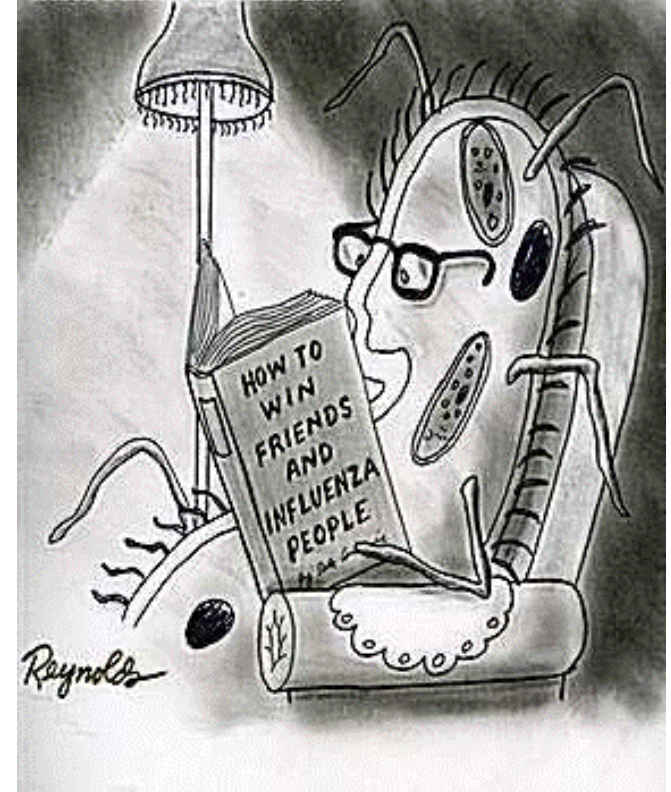
Coordinator

Provincial Public Health Laboratory Network

PPHLN

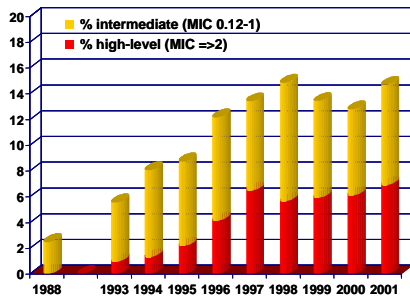
CD Conference – Halifax – March 4, 2009

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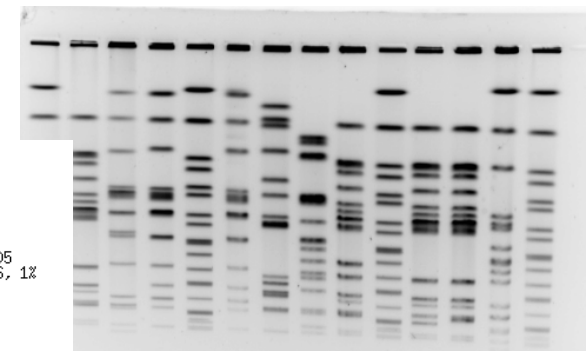
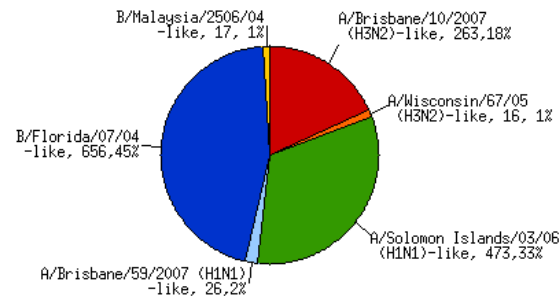
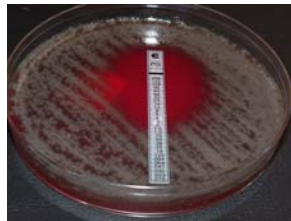


Laboratory Functions

- **Diagnostic- detection of infectious agents**
- **Epidemiological - information provided can be used to complement clinical information**
 - Track resistant isolates (e.g. MRSA)
 - Follow trends in development of resistance
 - Detect or confirm outbreaks related to infectious agents
 - Support control efforts



Canadian Bacterial Surveillance Network, January 2002



Advantages of being a Smart Laboratory User

- Lab results correspond to the initial clinical question
- Decreased frustration – for patients and health care workers
- Most cost effective use of Lab resources
- Speediest results by eliminating delays
- By providing information, specialized testing can be accessed for unusual circumstances
- Avoidance of liability of mislabeled specimens, or loss of specimens

How to be a Smart Laboratory User

- Send as good quality specimens as possible...
- Use the appropriate transport media.
- Make sure both specimen and requisition are labeled appropriately.
- Put relevant clinical information on the requisition.
- Get specimens to the laboratory rapidly.
- When in doubt – ask the laboratory (especially if a request is unusual or needs additional testing, or results are unclear, etc.)
- When problems arise, work with laboratory staff to fix them.

Test Request
↓
Specimen collection
(phlebotomy, urine, sputum, CSF, etc.)

↓
Transport & Delivery

↓
Local / Regional Labs
Anchor Labs

↓
Accessioning

↓
Testing

↓
Result in LIS → “Notifiables” to
Public Health Services

It's the Law Reporting Notifiable Diseases and Conditions

Report as soon as suspected by telephone	Report by next business day
<ul style="list-style-type: none"> • Acute Flaccid Paralysis (AFP) • Anthrax • Botulism • Cholera • Diphtheria • Disease occurring more frequently than expected or in a rare or unusual form • Group A Streptococcal Disease • Invasive Haemophilus influenzae Type b • Invasive Disease (IDB) • Hepatitis A • Influenza Virus of Pandemic Potential • Measles • Meningitis (Bacterial) • Meningococcal Disease Invasive • Paratyphoid • Plague • Poliomyelitis • Rabies • Respiratory Outbreak in Long Term Care (LTC) • Rubella 	<ul style="list-style-type: none"> • Severe Acute Respiratory Syndrome (SARS) • Shellfish Poisoning (Amnesic, Domoic, Paralytic) • Smallpox • Tuberculosis • Typhoid • Verotoxigenic E. coli • Viral Hemorrhagic Fevers (Crimean-Congo, Ebola, Lassa, Marburg and others) • West Nile Virus (WNV)
<ul style="list-style-type: none"> • Acquired Immunodeficiency Syndrome (AIDS) • Adverse Event Following Immunization (AEFI) • Amebiasis • Brucellosis • Campylobacteriosis • Chancroid • Chlamydia • Congenital Rubella Syndrome • Creutzfeldt-Jakob Disease – Classic (CJD) • Creutzfeldt-Jakob Disease – New Variant (vCJD) • Cryptosporidiosis • Cyclosporiasis • Encephalitis (Viral) • Giardiasis • Gonorrhoea • Group B Streptococcal Disease of Newborn • Hantavirus Pulmonary Syndrome (HPS) • Hepatitis B • Hepatitis C • Hepatitis D • Hepatitis E • HIV 1 and 2 • Human Granulocytic Ehrlichiosis (HGE) • Human Immunodeficiency Virus (HIV) • Influenza – Laboratory Confirmed 	<ul style="list-style-type: none"> • Legionellosis • Leprosy (Hansen's Disease) • Listeriosis • Lyme Disease • Lymphogranuloma Venereum • Malaria • Meningitis (Viral) • Methicillin Resistant Staphylococcus Aureus (MRSA) • Mumps • Pertussis • Pneumococcal Disease Invasive • Q Fever • Relapsing Fever • Rocky Mountain Spotted Fever • Salmonellosis • Shigellosis • Syphilis • Tetanus • Toxoplasmosis • Trichinellosis • Tularemia • Vancomycin Resistant Enterococcus (VRE) • Yellow Fever • Yersiniosis

Report Notifiable Diseases to Public Health Services

<p>South Shore Health 215 Dominion St., Suite 100 Bridgewater, NS B4V 2K7 Tel: 543-0800 Fax: 543-0804</p>	<p>South West Health Yamouche Regional Hospital 60 Macovers St., 4th Fl. Yamouche, NS B5A 2P5 Tel: 742-7141 Fax: 742-8062</p>	<p>Annapolis Valley Health 23 Elmwood Ave. Wolfville, NS B4P 1X4 Tel: 542-6010 Fax: 543-6333</p>	<p>Colchester East Hants, Cumberland, and Pictou County Health Authorities 201 Willow St. Tunns, NS B2H 4Z9 Tel: 853-5830 Fax: 853-2814</p>	<p>Guyborough, Antigonish, Stellat, and Cape Breton District Health Authorities 235 Townsend St. 2nd Floor Annex Sydney, NS B1P 5E7 Tel: 563-2400 Fax: 563-2005</p>	<p>Capital Health 1 Major Ave. Unit 5 Dartmouth, NS B3B 0E8 Tel: 481-6800 Fax: 481-5889</p>	<p>Public Health Services NEW SCOTIA Health Services and Programs www.pshn.ca/hpp</p>
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COLLECTION CONTAINER

Check Expiration Date – zero tolerance!

(QEll packing room requisition and fax it to 473-7584)

SPECIMEN LABELLING

New Policy - accreditation standards ISO 15189

2 Unique Identifiers (both the specimen and the requisition)

(1) must be the patient's legal name

(2) medical record number (in-patients) or HCN

(2b) other unique identifiers:

- registered health card equivalent
- passport number
- Capital Health invoice number
- immigration number
- private insurance policy number
- physician office's patient chart number

Coded specimens (anonymous testing) only require the code on the specimen and requisition

REQUISITION LABELLING

Importance of complete information

- Correct request
- Reporting results
- Surveillance
- Outbreak numbers





Which is the pleural fluid sample?



Specimen Collection → Receipt

- Samples

- Blood (serum/plasma)
- Blood cultures
- Cerebral spinal fluid
- Urine
- Stool
- Tissue
- Sterile body fluids.....

- Transport media

- Stool cultures (Cary-Blair)
- Viral transport media

- Transport temperature

- Outlined in Microbiology User's Manual





DISEASE/ORGANISM	SPECIMEN REQUIRED	CONTAINER	TEST	NOTES
Cytomegalovirus infections - Blood	EDTA blood for viral load quantitation by PCR	Lavender top	Quantitative PCR	Test not performed on holidays and week-ends. The test will be performed at least every Thursday. To ensure your sample is included in the run, please submit it to the lab no later than Wednesday. Ship EDTA blood to lab ASAP. Or separate plasma from EDTA blood within 24 hours of collection. Transport plasma to lab at 2-8°C within 24 hours. Only one specimen per patient per week will be processed.
Cytomegalovirus infections - Serology	Blood, clotted or serum	Mottled top	EIA: acute infection (IGM); immune status (IgG)	Diagnosis - acute and convalescent sera required. Immune status - single serum only required.
Decubitus ulcers	Superficial swabs not cultured	No specimen	Not performed	Because it is impossible to separate pathogens from colonizing organisms, we suggest antibiotic coverage of both aerobic and anaerobic organisms.
Dermatophytosis	Skin scrapings; nail clippings; hair (root ends)	Envelope with black construction paper	Culture / KOH	Direct exam with KOH may show fungal elements. Culture confirmation may take >1 week. Use transport kit provided by laboratory.
Diarrhea - Bacterial	Stool	Enteric transport media (Cary Blair)	Culture	Routine culture includes Salmonella, Shigella, Campylobacter and Yersinia. <i>E. coli</i> 0157 culture is performed on bloody/liquid specimens. For other agents, consult a microbiologist.
Diarrhea - Parasitic	Stool	Parasite transport media (SAF)	Microscopy	Send 2 specimens from separate days; a third may be sent if clinically indicated and the first two are negative.
Diarrhea - Viral	Stool	Sterile container	Electron microscopy or PCR for Norovirus if outbreak related.	EM is best performed on specimens <72 hours after onset of illness and liquid sample is required. If outbreak suspected, consult a microbiologist.
Diphyllobothrium (Fish Tapeworm) - Stool	Stool	Parasite stool transport media (SAF)	Macroscopic and microscopic analysis	Endemic in western Canada.
Diphyllobothrium (Fish Tapeworm) - Segments	Unfixed segments of worm in faeces	Sterile container	Macroscopic and microscopic analysis	Do not send in formalin.
Diphtheria	Swabs of nose; throat; ear or skin	Amies transport swab	Culture (special media required, notify lab)	Discuss with a microbiologist prior to submission of specimens.



Cary Blair Media
(Enteric Transport Media)

Stool for:

-Diarrhea – Bacterial

Salmonella, Shigella, Escherichia coli 0157

Campylobacter and Yersinia.



SAF Fixative Container
(parasite transport media)
Sodium Acetate
Acetic Acid
Formalin

Stool for:

-Diarrhea – Parasitic



Sterile Container
(plain – no preservative)

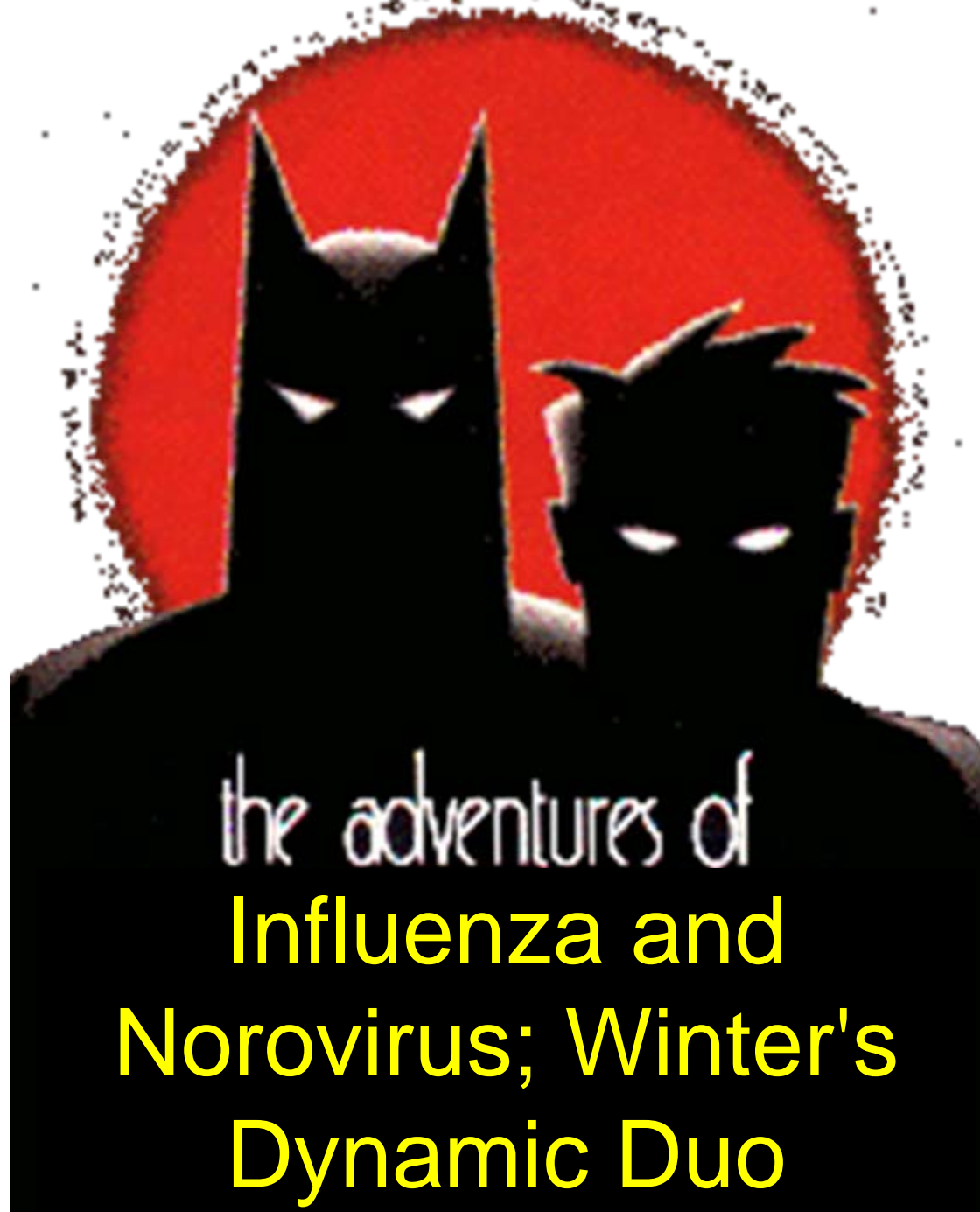
Stool for:

- Clostridium difficile (Cytotoxin test)

- Rotavirus / Adenovirus Screen

- Norovirus (“Norwalk”)

- EM (special request)

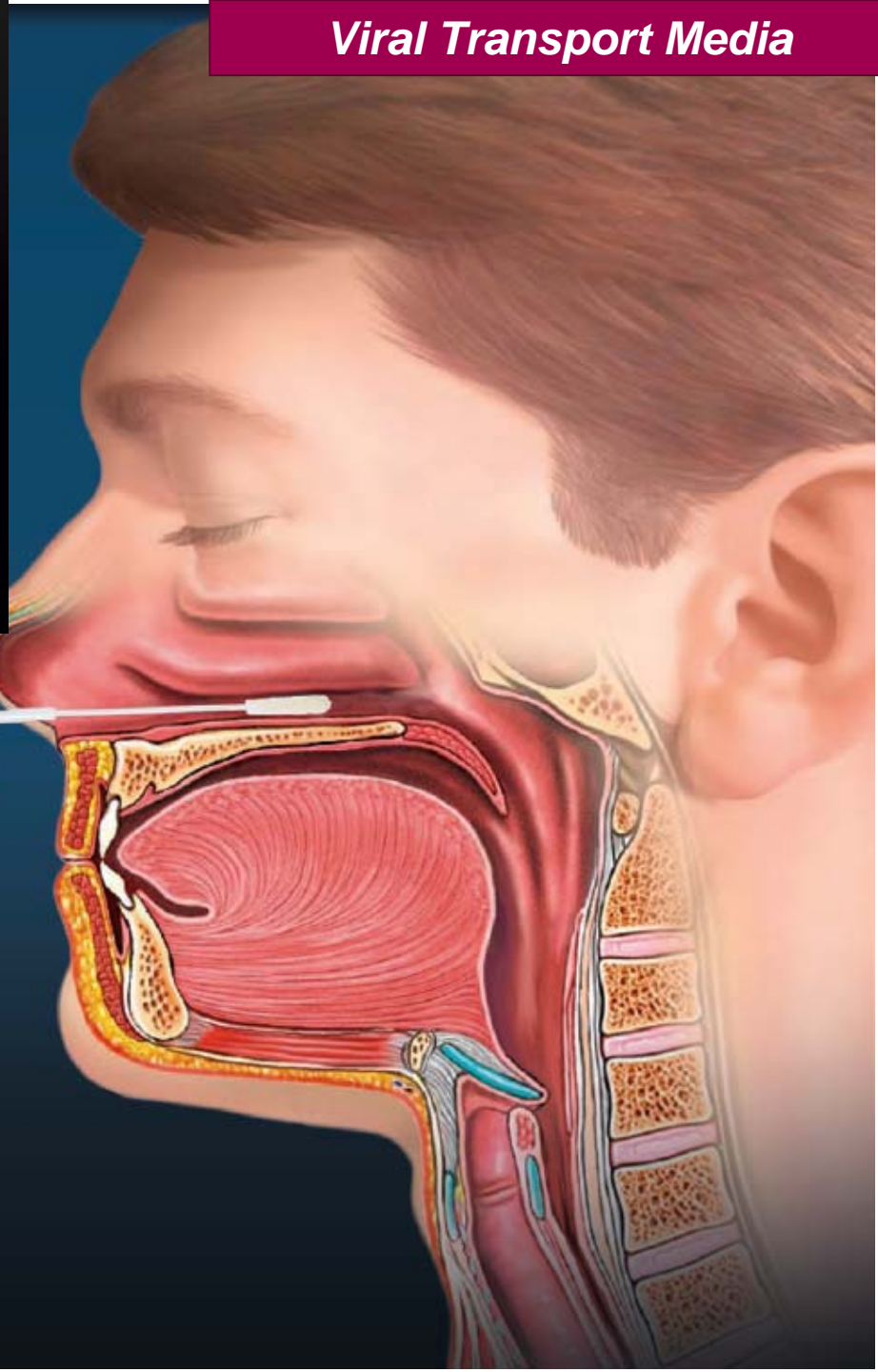
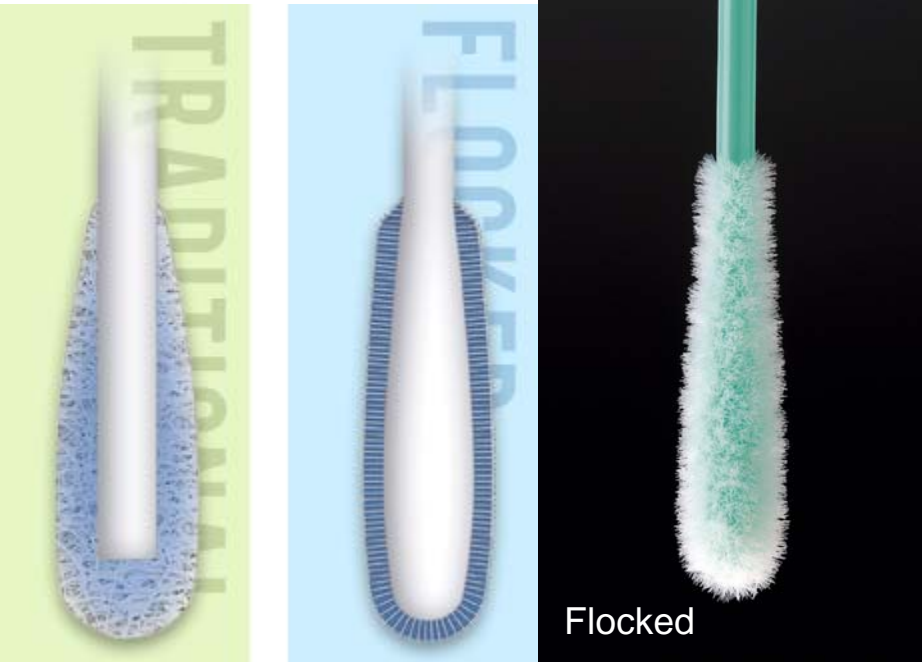


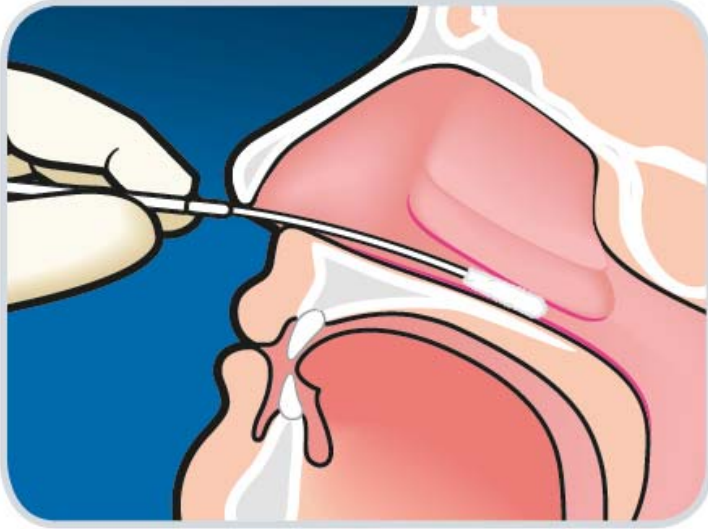
the adventures of
**Influenza and
Norovirus; Winter's
Dynamic Duo**

Respiratory Season



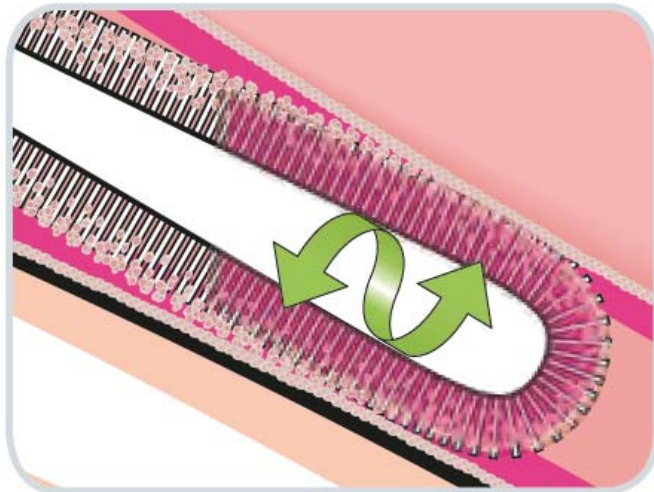
Viral Transport Media





Step 1:

Insert the flocked SWAB into the nasal passage until a slight resistance is met. Liquid secretions are rapidly absorbed between the perpendicular fibers by capillary action.



Step 2:

Rotate the swab two to three times and hold the swab in place for 5 seconds to ensure maximum absorbency. Strong capillary hydraulics between the strands of Nylon maximizes liquid sample collection.

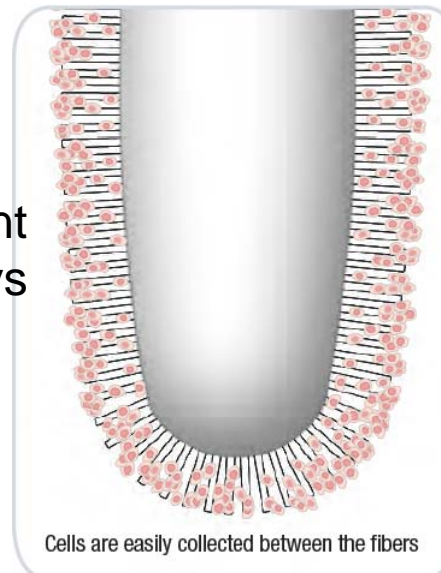


Step 3:

Put the swab in the transport medium and break the shaft at the painted breakpoint. Sample elutes automatically and rapidly because it is held very close to the surface in a totally open structure. This does not hinder the flow dynamics, so the entire sample is released.

Entire Sample Released

The entire sample is instantaneously and automatically released the moment the flocked SWAB is mixed with assays reagents or placed in a buffer solution or transport medium.



What happens in the lab.....

Specimen Receiving

- Open Parcel, match req + specimen
- 2 Unique Identifiers
- Expiry Date of Collection Container
- LIS (Lab Information System)

Patient Information entered into LIS

Test ordered



Specimen Set Up

- Rapid Testing
 - Microscopy
 - Other Rapid tests
- Culture
- Molecular testing
- Special handling/processing needs
 - Special processing requirements. e.g. TB specimens
 - “Referred out tests” – testing done in others labs





QUALITY

THE RACE FOR QUALITY HAS NO FINISH LINE-
SO TECHNICALLY IT'S MORE LIKE A DEATH MARCH.

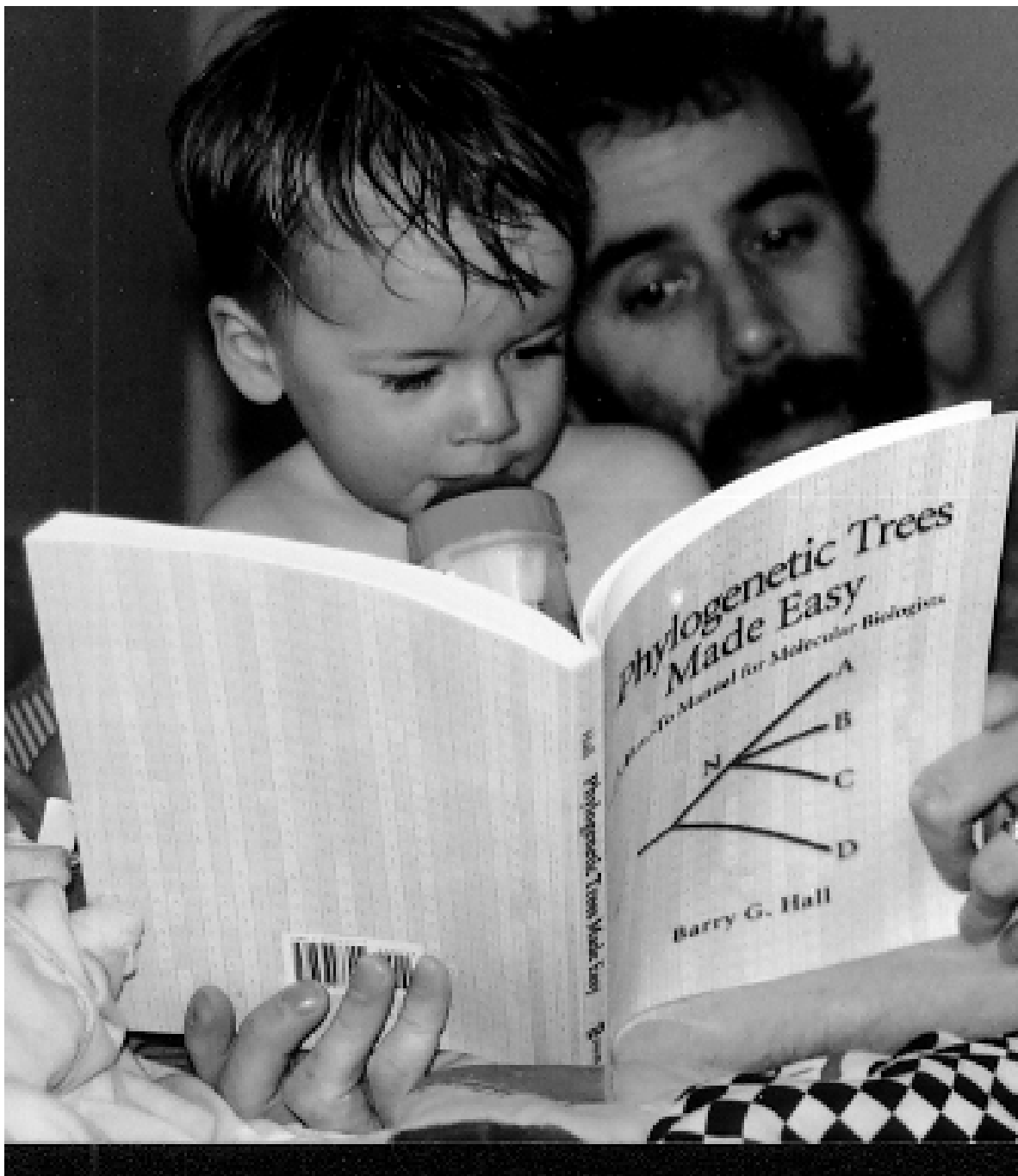
www.despair.com

Results / TAT



- Local/Regional Lab testing
- Referral to Anchor labs (Halifax) → travel time
- Microscopy is usually available within 1-2 hours of specimen receipt.
- Cultures may take from overnight to several weeks for some organisms (e.g. TB). Most are available within 3 days.
- Rapid testing (e.g. antigen detection) may be available on a same day.
- Susceptibility results usually require a further overnight incubation.
- Frequency of testing.
- Outbreaks – communication is key → coordinate services

Who do you call?



As Promised.....

Any questions contact:

Dr. Hatchette
473-6885

Information → Regional DHA lab or.....

Anchor Lab Contact List: PPHLN-M0001-02 (March 3, 2009)

Laboratory Contact List: CDHA Anchor Lab

Service	Name	Position	Phone 473-	Email
PPHLN	Dr. David Haldane	PPHLN Clinical Director and Microbiology Consultant	2392	David.Haldane@cdha.nshealth.ca
	Janice Pettipas	PPHLN Coordinator	8280	Janice.Pettipas@cdha.nshealth.ca
Microbiology CDHA	Dr. Kevin Forward	Service Chief Microbiology	4109	Kevin.Forward@cdha.nshealth.ca
	Carolyn Mills	Technical Manager	2231	Carolyn.Mills@cdha.nshealth.ca
Bacteriology & Processing Area	Dr. Kevin Forward	Director of Bacteriology	4109	Kevin.Forward@cdha.nshealth.ca
	Dr. Ross Davidson	Associate Director Bacteriology	5520	Ross.Davidson@cdha.nshealth.ca
	Shane Buchanan	Supervisor	7843	Shane.Buchanan@cdha.nshealth.ca
	Gail Drisdelle	Supervisor	4103	Gail.Drisdelle@cdha.nshealth.ca
Special Pathogens (<i>Mycology, Parasitology, Mycobacteriology</i>)	Dr. David Haldane	Director of Special Pathogens	2392	David.Haldane@cdha.nshealth.ca
	Shane Buchanan	Supervisor	7843	Shane.Buchanan@cdha.nshealth.ca
Virology/Immunology (<i>Serology</i>)	Dr. Todd Hatchette	Director of Virology / Immunology	6885	Todd.Hatchette@cdha.nshealth.ca
	Debbie Anthony	Supervisor	5528	AnthonyD@cdha.nshealth.ca
Molecular Testing	Dr. Ross Davidson	Director of Molecular Microbiology	5520	Ross.Davidson@cdha.nshealth.ca
	Dr. Todd Hatchette	Associate Director of Molecular Microbiology	6885	Todd.Hatchette@cdha.nshealth.ca
	Debbie Anthony	Supervisor	5528	AnthonyD@cdha.nshealth.ca
Environmental Microbiology	Dr. Ross Davidson	Director of Environmental Microbiology	5520	Ross.Davidson@cdha.nshealth.ca

Laboratory Contact List: IWK Health Centre

Service	Name	Position	Phone 470-	Email
Pediatric Microbiology	Dr. Tim Mailman	Head of Microbiology IWK Health Centre	470-7892	Tim.Mailman@iwk.nshealth.ca
	George Nelson	Supervisor	470-8266	George.Nelson@iwk.nshealth.ca

CDHA Microbiology Laboratory Numbers

IWK Health Centre Microbiology Laboratory Numbers

Microbiology Secretary, Dorothy Gillie	473-6624 (phone) 473-4432 (fax)	Microbiology Laboratory	470-8271
PPHLN FAX	422-1367 (fax)	IWK Microbiology FAX	470-7046
Specimen Receiving Area	473-2120		
Bacteriology	473-6695		
Special Pathogens	473-6887		
Virology/Immunology	473-6881 / 6886		
Molecular	473-7480		

After Hours

To locate the On-Call Microbiologist or Medical Officer of Health, please contact QEII Locating at 902-473-2222.



Dr. Forward



Dr. Haldane



Dr. Hatchette



Dr. Davidson

Thank You