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Subject:	COLLECTION GUIDELINE FOR LABORATORY DIAGNOSIS OF COMMON VIRAL INFECTIONS				
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COLLECTION GUIDELINE FOR LABORATORY DIAGNOSIS OF COMMON VIRAL INFECTIONS

Laboratory diagnosis of viral infections is dependent upon appropriate selection, collection, and transport of clinical specimens early in the course of the patient's illness. Specimens obtained within the first 3 days of onset of patient's symptoms will increase the likelihood of virus isolation. Collect specimens aseptically since bacterial contamination will interfere with testing. Following collection all specimens should be kept cold (except blood specimens). All specimens should be transported immediately to the Laboratory. For optimal specimen handling and processing a brief clinical history specifying the date of onset, type of infection (or virus) suspected, and the major clinical findings should be included.

Note: Specimen collection should be performed using Dacron or cotton tipped swabs with plastic or aluminum shafts. DO NOT use calcium alginate tip swabs or swabs with wooden shafts.

Note: Herpes Simplex can be specifically requested on genital sources.

For further information regarding specimen collection please contact Microbiology at 731-541-7328.

DISEASE CATEGORY	ASSOCIATED VIRUSES	SPECIMENS TO COLLECT (IN ORDER OF PREFERENCE)	SPECIAL COMMENTS
RESPIRATORY TRACT URI, Pharyngitis, Common cold	Adenovirus CMV (immunodeficient patients) Enterovirus HSV Influenza virus Parainfluenza virus RSV (infants and young children)	Collect Nasopharyngeal swab in VTM or Bronchial washing/BAL for RESPIRATORY VIRAL PANEL BY PCR. FOR CHILDREN 2 YRS OR LESS: NASOPHYNGEAL (NP) SECRETIONS, ASPIRATE OR SWAB OR THROAT SWAB SUBMITTED IN VTM. FOR ADULTS AND CHILD > 2 YRS OF AGE: TRACHEAL ASPIRATE, SPUTUM, BRONCHIAL WASHINGS, BRONCHIAL LAVAGE SUBMITTED IN STERILE CONTAINER OR NP SECRETIONS, NP ASPIRATE, NP SWAB, OR THROAT SWAB SUBMITTED IN VTM FOR VIRAL CULTURE.	RESPIRATORY VIRAL PANEL BY PCR DOES NOT DETECT CMV or HSV. IF CYTOMEGALOVIRUS (CMV) IS SUSPECTED, SUBMIT 1 mL bronchial brush/wash/BAL or URINE for PCR or 3 mL bronchial brush/wash or 50 mL first morning clean catch urine in VTM for culture.
Croup	Influenza A & B Parainfluenza 1-4 Rhinovirus RSV	SEE ABOVE	SEE ABOVE;
Bronchiolitis	Adenovirus Enteroviruses Human Coronaviruses Influenza A & B Human Metapneumovirus Parainfluenza 1-4 RSV Rhinoviruses	SEE ABOVE	SEE ABOVE;
Pneumonia	Adenoviruses CMV HSV Human Coronaviruses Human Metapneumovirus Influenza A & B Parainfluenza 1-4 Rhinoviruses RSV VZV	SEE ABOVE	SEE ABOVE; RVP BY PCR DOES NOT DETECT HSV, VZV, OR CMV

DISEASE CATEGORY	ASSOCIATED VIRUSES	SPECIMENS TO COLLECT (IN ORDER OF PREFERENCE)	SPECIAL COMMENTS
EXANTHEM (Rash or Vesicles)	Coxsackie virus A Echovirus HSV VZV	Nonvesicular rash; throat swab in VCM; stool	<ul style="list-style-type: none"> • Vesicular fluid; Open the lesion; collect fluid and cells from base of lesions. Use VCM. May freeze at -70C up to 5 days only if in VCM. • Throat; Rub one or two sterile swabs over the posterior wall of the pharynx. Use VCM. May freeze at -70C up to d days if in VCM. • Stool; Submit several grams in sterile container. May freeze at -70C up to d days if in VCM. EIA; Submit in a stool container-do not place into VCM.
GENITOURINARY TRACT Cervicitis, vulvovaginitis or genital lesions	HSV	Endocervical or andourethral swab in VCM; vesicle fluid or swabs in VCM	<ul style="list-style-type: none"> • Endocervical; use a Dacron/rayon swab to remove mucus and exudates from the endovervix. Insert the swab into the endocervix, rotate, and remove. Discard. Insert a second swab into the cervical OS to collect cells from the transitional zone. Rotate the swab fro 10-30 seconds in firm contact with endo cervical surfaces. Withdraw the swab without touching any vaginal surfaces. Place the swab in the VCM. • Vesicular fluid; Open the lesion; collect fluid and cells from base of lesions. Use VCM. May freeze at -70C up to 5 days only if in VCM.

DISEASE CATEGORY	ASSOCIATED VIRUSES	SPECIMENS TO COLLECT (IN ORDER OF PREFERENCE)	SPECIAL COMMENTS
Acute Hemorrhagic Cystitis, Urethritis, Cervicitis, Genital Ulcerative Lesions	Adenovirus CMV Enterovirus HSV	<ul style="list-style-type: none"> Adenovirus: Urine CMV; Throat washing or throat swab in VCM; urine; bone marrow Enterovirus; Blood in lavender, yellow or green-top tube; biopsy tissue in VCM; stool; throat swab in VCM HSV; Blood in lavender, yellow or green-top tube; brain biopsy; CSF; throat swab in VCM; vesicle fluid or swab in VCM 	
<u>CENTRAL NERVOUS SYSTEM</u> Aseptic Meningitis Encephalitis	Enterovirus HSV Influenza virus VZV	Autopsy or biopsy specimens in VCM; CSF; stool (if Enterovirus is suspected); Throat washing or throat swab in VCM. VZV PCR: 1 mL whole blood (EDTA)	
<u>GASTROENTERITIS</u>	Adenovirus (children) Echovirus Rotavirus Noravirus	STOOL: COLLECT 1-5 mL or 1-5 gm	Direct EIA for Rotavirus performed in house. Direct EIA for Adenovirus sent to reference lab
<u>CONJUNCTIVITIS KERATITIS</u>	Adenovirus CMV Enterovirus type 70 HSV VZV	Conjunctival or corneal swab in VCM	
<u>CONGENITAL, NEONATAL</u> Teratogenic	CMV Rubella HSV	CMV: Culture: Urine: 50 mL first morning catch urine PCR: Blood : 1 mL whole blood (EDTA) Rubella Antibody: 1 mL serum	For a serologic diagnosis of congenital rubella in the neonatal period, antibody to rubella virus should be measured in both infant and maternal sera. If IgM is detected in a newborn infants serum, it is probable that transplacental rubella infection has occurred.
Disseminated Disease	CMV Enterovirus (Coxsackie, Echo) HSV VZV Hepatitis B	CMV: Culture: Urine: 50 mL first morning catch urine PCR: Blood : 1 mL whole blood (EDTA)	Suspected Hepatitis B must be diagnosed by serology, acute phase serology may be performed for CMV, VZV and HSV
<u>Herpangina Stomatitis</u>	Enterovirus (Coxsackie, Echo) HSV	Throat swab or Swab of Oral Lesion	

DISEASE CATEGORY	ASSOCIATED VIRUSES	SPECIMENS TO COLLECT (IN ORDER OF PREFERENCE)	SPECIAL COMMENTS
Lymphadenopathy	CMV EBV HIV	CMV Culture: Urine: 50 mL first morning catch urine CMV, EBV PCR: Blood : 1 mL whole blood (EDTA)	
Hepatitis	Hepatitis Viruses CMV EBV	Hepatitis viruses; Submit Serum for Serology, Blood for Culture CMV Culture: Urine: 50 mL first morning catch urine CMV, EBV PCR: Blood : 1 mL whole blood (EDTA)	
Myocarditis Pericarditis	Coxsackie virus B Echovirus	Pericardial fluid; stool, throat swab in VCM Note: Virus is rarely isolated from pericardial fluid. In this case, antibody titers may provide more diagnostic information.	Fluid: Collect aseptically. Submit in equal proportion to VCM. Stool: Collect in clean, dry container. Submit several grams. May freeze at -70C up to 5 days if in VCM. Throat: May freeze at -70C up to 5 days if in VCM.
Urinary Tract Infection	Adenovirus CMV	CMV: Culture: Urine: 50 mL first morning catch urine PCR: Blood : 1 mL whole blood (EDTA)	Fresh clean-catch urine in sterile container. Submit 2-10 mL

The following viruses can be tested in house by Immunoassay or PCR:

ADENOVIRUS (NP Swab, bronchial wash or lavage- Respiratory Viral Panel)

CORONAVIRUS, PCR (NP Swab, bronchial wash or lavage- Respiratory Viral Panel)

ENTEROVIRUS/Human RHINOVIRUS, PCR (NP Swab, bronchial wash or lavage- Respiratory Viral Panel)

HERPES SIMPLEX VIRUS (HSV): CSF- PCR only

HUMAN METAPNEUMOVIRUS (NP Swab, bronchial wash or lavage- Respiratory Viral Panel)

INFLUENZA VIRUS (A & B), Immunoassay or PCR (NP Swab, bronchial wash or lavage- Respiratory Viral Panel)

PARAINFLUENZA TYPE 1-4, PCR (NP Swab, bronchial wash or lavage- Respiratory Viral Panel)

RESP. SYNCYTIAL VIRUS (RSV), Immunoassay and PCR (NP Swab, bronchial wash or lavage- Respiratory Viral Panel)

ROTAVIRUS, Immunoassay Only

Reference:

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- *FilmArray Respiratory Panel* Package Insert, BioFire Diagnostic, Inc., Salt Lake City, Utah, USA.
- Tillman, R., A. Ballows, C. Hohnadel, and R. Reisse (editors). Textbook of Clinical Laboratory Medicine, C.V. Mosby, St. Louis, Mo., 1992. Virology Chapter, Mark A. Neuman, Ph.D.