MANUAL FOR COLLECTION

AND HANDLING OF SPECIMENS FOR

VIRAL , CHLAMYDIAL AND MYCOPLASMA STUDIES

CLINICAL VIROLOGY LABORATORY, Room 1942

DEPARTMENT OF PATHOLOGY

Hackensack University Medical Center

Dr. Gary Munk – Clinical Director

ISSUED: 7/87

REVISED: 4/96 2/14
7/97 8/14
5/98 10/15
6/99 8/16
3/00 2/17
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10/07
6/10

CLINICAL VIROLOGY LABORATORY

TELEPHONE	FAX
551-996-4945	**201-525-0143**

Hours of Operation

Monday- Friday	7 AM to 4:30 PM
Saturday & Sunday	7 AM to 3:30 PM
Hospital Holidays	7 AM to 3:30 PM

In Case of Emergency, please notify by calling the Operator (551-996-2000) to contact:

Dr. Gary B. Munk

Sandra Dran

In the case of a prolonged absence of the Director from the laboratory (exceeding 10 business days), Dr. Munk has made provisions with Dr. C. Mannion (551-996-4808) Chairman, Pathology, for his assistance with the operational requirements for this laboratory service.

NOTE: The CPT codes listed in this manual are current to the best of our knowledge at this time, however, advances in technology and changes in methodology may result in a change or modification.

DIAGNOSTIC VIROLOGY SPECIMEN COLLECTION PROTOCOL

To determine the proper collection for a virology request:

1. Follow the Order Reference instructions in EPIC (HUMC COE) which appears on screen when the specific test is ordered in that system or, consult the Manual for the Collection and Handling of specimens for Viral and Chlamydial, Mycoplasmal Studies (Clinical Virology Laboratory, Department of Internal Medicine Section of the Hackensack University Medical Center, Manual of Laboratory Services)
2. If the user is unable to determine proper collection, contact the Clinical Virology Laboratory (Telephone 551-996-4945).

VIRAL DISEASES

DISEASE	ASSOCIATED VIRUSES	RECOMMENDED SPECIMENS
Congenital and Neonatal Infections	Rubella	Placental tissue, CSF, urine, or nasopharyngeal swab.
	Cytomegalovirus (CMV)	Throat, urine.
	Herpes simplex (HSV)	Vesicle swab, CSF, stool, brain biopsy.
	Enterovirus	Vesicle swab, CSF, stool, brain biopsy, throat swab.
Conjunctivitis and Corneal Lesions	Adenovirus Herpes simplex Cytomegalovirus (CMV) Varicella-zoster Enterovirus (Chlamydia)	Eye swab or corneal scrapings.
Encephalitis and Meningitis	Enteroviruses Echovirus, Coxsackie, Polio Arboviruses Adenovirus Herpes simplex HIV Measles Mumps Varicella-Zoster	CSF, biopsy of brain, throat swab or washings, urine (for Mumps or measles) blood (for Serology).
Exanthems and Enanthems	Coxsackie A & B Echovirus Herpes simplex Varicella-zoster Rubella Measles Parvovirus	Throat swab or washings, Vesicular fluid, stool, blood (for serology).
Gastroenteritis	Adenovirus Rotavirus	Stool
Myocarditis and Pericarditis	Coxsackie B Echovirus	Throat swab, pericardial Fluid, stool, blood (for serology).
Respiratory Tract	Adenovirus Enteroviruses Influenza Parainfluenza Respiratory Syncytial Virus (RSV) Rhinovirus Cytomegalovirus Herpes simplex (Chlamydia) (Mycoplasma)	Nasopharyngeal swab, Washings or aspirate; Throat swab or gargle; Bronchial alveolar lavage; Lung biopsy; sputum; blood (for serology).

COLLECTING AND HANDLING SPECIMENS FOR VIROLOGICAL STUDIES

COLLECTION AND PREPARATION OF SPECIMENS FOR VIROLOGICAL EXAMINATION

COLLECTION OF SPECIMENS

Successful isolation of viruses from clinical material depends largely on the proper collection and handling of specimens. Ideally, specimens for virus studies should be collected in sterile, tightly sealed containers*** and as early as possible in the course of the disease or on the date of admission if the patient is hospitalized. All samples should be labeled with patient name and medical record number (source for cultures) and ordered in the Medical Center computer system. The appropriate specimens should be delivered directly to the specimen receiving area (Department of Pathology) where virology specimens are picked up approximately four times a day. Transport media (UTM) is available and may be ordered through the Distribution Department.

The laboratory diagnosis of viral infections is based upon three general approaches: (a) the direct detection of viral nucleic acids, antigens or structures, either in cells derived from infected tissues or free in fluid specimens; (b) isolation and identification of viruses, usually accomplished in cell cultures; and (c) demonstration of a significant increase in serum antibodies to an etiologically plausible virus during the course of an illness.

Specimens for virus isolation and direct detection, as well as acute-phase blood samples, must be collected within the first few days of an illness if adequate sensitivity of testing is to be expected.

SPECIMENS FOR VIRUS ISOLATION ATTEMPTS

Collect specimens promptly, preferably within three days and not longer than seven days after the onset of illness. Collect postmortem specimens as soon as possible after death, using aseptic techniques. Specimens held for long intervals before testing should be promptly frozen to -70°C or below*. Otherwise, specimens should be refrigerated promptly after collection. Most viruses are better recovered from specimens held at 2-6°C for up to several days before testing than from specimens that have been frozen, with few exceptions. Do not freeze specimens at -20°C, as the infectivity of many viruses is rapidly lost at this temperature. Fluid specimens, urine, cerebrospinal fluid (CSF) do not require any transport medium and should not be diluted. Although any type of swab may be used satisfactorily with most specimens, calcium alginate fiber tips may inactivate herpes simplex virus and chlamydiae and should be avoided. Swabs with a wooden shaft should not be used for Chlamydia culture.

NASAL AND PHARYNGEAL SWABS

A dry swab (cotton or synthetic fiber) may be used to swab each nostril, and the swab should be allowed to remain in the nose for a few seconds to absorb secretions. Throat swabs are best collected by rubbing the tonsils and posterior pharynx with a cotton or synthetic fiber swab, either dry or wetted with viral transport medium.
Both nasal and pharyngeal swabs should be broken off just above the tip into screw-cap vial, containing a few milliliters of an appropriate transport medium (UTM).

NASAL WASHINGS

Nasal washings can be obtained by instilling several milliliters of sterile, preservative-free saline into each nostril while the patient's head is tilted back slightly; the head is then brought forward and the saline is allowed to flow into a small container held beneath the nose. In infants, a small catheter with a suction trap may be employed. Gelatin or bovine serum albumin (1%) may be added to the washing to stabilize any virus that may be recovered.

THROAT WASHINGS

Adult patients should gargle with the smallest convenient volume (10 to 20 ml) of cell culture medium or phosphate buffered saline (PBS) and then expectorate into a paper cup. The cup contents are then poured into a screw-cap vial. Pediatric patients may collect a specimen in the same manner, if able to cooperate; otherwise, throat swabs will suffice. Throat washings may give a somewhat higher yield of virus than swabs, but are not as convenient to collect.

*Green top blood collection tubes for CMV buffy coat or viral isolation should be kept at room temperature

ORAL SWABS

Swabs may be collected from oral lesions by rubbing a dry cotton swab over the lesions and transferring the swab immediately to a vial of virus transport medium.

EYE SWABS

If any exudate or pus is present in the eye, it should first be removed with a sterile swab. Then a second swab, moistened with transport medium or saline, should be used to rub the affected conjunctiva. The swab tip should be immediately clipped off into a vial of transport medium to retain any cells trapped in the fibers. Corneal specimens should be collected by an ophthalmologist or other adequately trained physician, using a spatula.

CERVICAL SWABS

If more than one swab is used to obtain a cervical specimen, more infected cells will be recovered and better results may be obtained. One swab is used first to clean the cervix of mucus and is discarded; another swab is then inserted about 1 cm into the cervical canal and rotated. If any lesions are seen, they should be swabbed, and the swab then should be removed to a vial of transport medium.

VESICLE FLUIDS AND SKIN SCRAPINGS

Collect specimens of vesicle fluids and cellular material from the base of lesions during the first 3 days of an eruption, as the recovery rate from specimens collected later drops sharply. Prior preparation of the site with disinfectants (e.g., alcohol or iodophors) may inactivate the viruses; if possible, it is preferable to use local disinfection after specimens have been collected. In the case of primary infections with herpes simplex virus, however, the virus may be recovered for up to 7 to 10 clays after onset. Aspirate vesicle fluids with a 26 or 27 gauge needle attached to a tuberculin syringe or with a capillary pipette. The fluids obtained with either method should be rinsed promptly into a small volume of transport medium to prevent loss of the specimen by clotting. Swab or scrape open lesions to obtain both fluid and cells from the lesion base. Immediately clip off the swab tip into a vial of transport medium to retain any cells trapped in the fibers.

STOOLS AND RECTAL SWABS

A suitable stool sample is obtained by transferring a small (1 to 4 g) portion of stool (either formed or liquid) into a small leak proof container (screw-cap jar). Cardboard or waxed containers are unsuitable, as they are not leak proof and allow desiccation of the sample. No transport medium is required. A rectal swab should not be regarded as an expedient substitute for a stool specimen, but rather as a specimen appropriate for the recovery of agents which cause proctitis. A dry swab should be inserted 3 to 5 cm past the anal sphincter, rotated, and then withdrawn. The swab should immediately be placed in a vial of transport medium (UTM) and refrigerated. Rectal swabs are inadequate specimens for the detection of rotavirus or the toxins produced by Clostridium difficile.

URINE

Clean-voided specimens collected in sterile screw-capped, tightly sealed containers are quite satisfactory for isolation of viruses; special collection methods are not required. Provided that the specimen is refrigerated at 2 to 6°C soon after collection, even viruses often regarded as "labile", e.g., cytomegalovirus, may be recovered from several days to as much as a week after collection. Addition of antibiotics to the specimen may be useful in suppressing bacterial overgrowth, but this should not be required if the specimen is kept cold. Recovery of cytomegalovirus is improved by processing several specimens when possible, as shedding may be intermittent.

CSF

Because the concentration of infectious virus is seldom very high in CSF, it is important to obtain an adequate sample volume. It is desirable to obtain at least 2 ml for virological work, collected in a sterile, tightly sealed screw-cap tube or vial. Samples of at least 1 mi in volume should be obtained from infants; volumes of less than 0.5 mi are of less value, considering the Iow recovery rate to be expected The specimen should not be diluted in any manner and should be refrigerated as soon as possible until processed by the laboratory If the specimen cannot be processed within 24 hours, the specimen may be frozen to below -70°C to preserve the infectivity of any virus that is present; the specimen should not be frozen at -20°C. as many viruses lose infectivity rapidly at this temperature.

SERUM AND BLOOD*

Serum is rarely used for the recovery of viruses; it is, however, reported to be a suitable specimen for isolation of enteroviruses from infected infants. The plasma from blood collected in the preferred lavender (EDTA) top tube or the yellow top tube (ACD) is required for most viral detection tests performed by polymerase chain reaction assays and DNA probe assays for viral antigens.

AUTOPSY AND BIOPSY SPECIMENS

Collect fresh tissue from any affected site or obvious lesion, using separate sterile instruments for each site sampled. Autopsy samples need not be larger than 1 or 2 g. Each specimen should be placed in a separate sterile, tightly sealed container and clearly labeled. Frequently sampled tissues for cases of suspected viral etiology include brain, lung, heart muscle, lymph node, and kidney. Liver tissue is often collected, but is frequently toxic to cell cultures; tracheal/bronchial tissue is often overlooked, but is often superior to lung tissue for recovery of respiratory viruses. Samples should be kept refrigerated in a small volume of viral transport medium or saline, but should not be fixed or placed in any sort of preservative solution.
This renders them useless for virus isolation and often for immunofluorescent staining tests as well. If the specimens cannot be processed within 1 or 2 days, it may be preferable to freeze them to -70°C or below.

BLOOD SPECIMENS FOR SEROLOGICAL TESTS*

Blood specimens are usually collected to obtain serum for serological tests to measure antibodies. Only rarely are they useful for virus isolation. Acute and convalescent phase sera must be tested together to determine that antibodies have appeared or increased in titer during the course of the illness. Collect an acute phase specimen as soon as possible, not later than 5 to 7 days after onset of the illness. Collect a convalescent phase specimen 14 to 21 days after onset, or 7 to 14 days after the acute phase specimen, Useful results may sometimes be obtained by testing a single serum specimen.

Blood specimens should be collected without anticoagulants or preservatives, which may affect the results of serological tests. The usual volume of blood collected is 8 to 10 ml, although 3 to 4 ml specimens (normally collected from pediatric patients)** usually provide enough serum to complete all necessary tests. Allow the specimen to clot at room temperature, and then separate the serum by centrifugation and remove it to a separate vial. Serum should not be shipped in its collection tube to a remote laboratory, as the clot tends to disintegrate and hemolyze during transit, The serum may be stored at 4 to 6'C for up to several weeks, pending the completion of tests. For longer storage, serum is usually frozen to -20°C or below. Do not freeze whole blood; this causes severe hemolysis and may render the specimen unusable for serological testing. Paired acute and convalescent phase sera from a patient should always be tested simultaneously in one laboratory, as results obtained from two laboratories cannot be accurately compared for changes in antibody titer. If the specimen is a random sample for determination of immunity, it should be identified as "for immunity status".

*Updates on blood collection are communicated through memos/emails to phlebotomy supervisor and any other related departments, , revision of Collection Manual, revision of on screen computer instructions.
**The laboratory regularly reviews the specimen collection manual to minimize unnecessarily large blood draw volumes. Additionally, when it appears that tests are ordered in duplicate, telephone calls are made to the ordering party to question the order to avoid unnecessary repetition of tests.
If the orders are cancelled it is documented in the QA log under unsatisfactory specimens for reason of “duplicate:.
***Specimen containers are evaluated to ensure that they do not contribute to analytic interference by review of clinical literature and evaluation of information from manufacturers.

SUMMARY METHODS FOR SPECIMEN COLLECTION AND HANDLING**

SPECIMEN SOURCE OR TEST REQUEST PROCEDURE FOR COLLECTION, TRANSPORT AND STORAGE

Blood for CMV DNA Detection (PCR)
Collect 1 full lavender (EDTA) top tube (10 ml in each tube). Whole blood must be transported at 2^0 C to 25^0 C and centrifuged within 6 hours of collection. Specimens must be received no later than 4 p.m. M - F only

Blood (for serology)
Collect 10 ml aseptically in a red top or serum separator vacutainer tube. Submit acute-phase specimen no later than
5 - 7 days after onset of illness and convalescent-phase specimen 7 - 14 days later.
Store at 4° C if transport is delayed.

Body fluids
(other than blood or urine)
Collect 2 - 3 mls in a sterile tube or container using aseptic technique.
Store at 4°C if transport is delayed.

CSF (Cerebral Spinal Fluid)
Obtain minimum of 1 ml in an empty sterile tube.
Transport immediately to lab or store at 4°C if transport is delayed.

Chlamydia Culture
Swab the affected area (endo-urethral, endocervical, conjunctival, nasopharyngeal, rectal) with a cotton-tipped non-wooden applicator. Place swab in tube of UTM transport medium. Store at 4°C for same day processing or freeze (-70°C) if held longer than 24 hrs.

Chlamydia trachomatis/Neisseria gonorrhoeae by PCR

1. **Swab specimens**

Collect endocervical or vaginal swab specimens with the **cobas®** PCR Female Swab Sample Kit. Follow the instructions for collection. Leave 1 swab in the sample kit tube. Transport and store the **cobas®** PCR Media tube containing the 1 collected specimen swab at 2^0 to 30^0 C. The collected specimen is stable at 2^0 to 30^0 C for up to 12 months

2. **Urine Specimens**

Prior to collection, the patient should not have urinated for at least 1 hour. Instruct the patient to provide 10 - 50 ml of first catch urine (the initial stream) into a urine collection cup. Immediately transfer urine into the **cobas®** PCR Urine Sample Packet Media tube using the provided disposable pipette until the volume is between the 2 black lines on the tube label. Tightly recap the tube. Invert the tube 5 times. If specimens cannot be transferred immediately, they can be stored at 2^0 to 30^0 C for up to 24 hours. Once stabilized (transferred to the **cobas®** PCR Media tube), the urine specimens are stable at 2^0 to 30^0 C for up to 12 months.

3. **PreservCyt Solution**

Follow the manufacturer's instructions for collecting cervical specimens into PreservCyt Solution. PreservCyt Solution can be transported at 2^0 to 30^0 C and stored at 2^0 to 30^0 for up to 12 months.

EYE
Swab the inflamed conjunctiva or corneal lesions. Place swab into UTM tube. Store at 4°C if transport is delayed.

HCV PCR

Serum or EDTA plasma specimens.
Plasma

Collect one full 10 ml lavender top tube. Mix specimen well so that no clots form. Whole blood must be transported at 2^0 C to 25^0 C and centrifuged within 24 hours of collection. Specimens must be received no later than 4 p.m. M - F only *(h)

Whole Blood for Serum
Collect one full serum separator tube (SST) (
Whole blood must be transported at 2^0 C to 25^0 C and centrifuged within 24 hours of collection. Specimens must be received no later than 4 p.m. M - F only *(h)

HIV DNA by PCR
Whole Blood
Collect one full Lavender top tube (EDTA). Mix specimen well so that no clots form. Transport to lab immediately, whole blood must be refrigerated within 6 hours of collection.
Specimens must be received no later than 4 p.m. M - F only *(h)

HIV RNA by PCR
Whole Blood
Collect one full 10 ml lavender top tube. Mix specimen well so that no clots form. Whole blood must be transported at 2^0 C to 25^0 C and centrifuged within 24 hours of collection. Specimens must be received no later than 4 p.m. M - F only *(h)

HTLV I & II by PCR
Whole Blood
Collect one full lavender top (EDTA) or yellow top (ACD) tube. Mix specimen well so that no clots form. Maintain at room temperature and transport to lab immediately. Specimens must be received no later than 4 PM, M -F only. *(h)

Human Papillomavirus (HPV) Detection and Typing
Follow the manufacturer's instructions for collecting cervical specimens into PreserveCyt Solution.
PreserveCyt Solution can be transported at 2°to 30°C and stored at 2°to 30°C for up to six months.

Lesion
Swab affected area. Place swab into UTM tube.

Nasopharynx
Swab the area or obtain a naso-pharyngeal wash or aspirate in a sterile empty container using 3 - 7 ml of buffered saline (the latter especially recommended for RSV detection). Place swab into UTM tube. Wash/aspirate can be transported as is. Store at 4^0 C if transport is delayed.

Rectal
Insert a cotton - tipped swab into the rectum. Place swab into UTM tube. Store at 4°C if transport is delayed.

Stool
Collect 5 - 10 grams of fresh stool in an empty stool cup. Transport as is. Store at 4°C if transport is delayed.

Throat
Swab the affected area with a cotton tipped applicator (or other suitable and validated synthetic fiber), or have patient gargle with 5 - 10 ml of phosphate buffered saline (PBS) and expectorate into a sterile container. Place swab into (UTM) tube. Transport tube or container with gargled saline immediately to lab, or store at 4°C if transport is delayed.

Tissue
(from biopsy or autopsy)
Collect specimens using aseptic technique. Place into separate sterile containers. Collect biopsy specimens as soon as possible after onset of symptoms and autopsy specimens as soon as possible after death. Tissue should be covered with a small amount of HBSS to prevent dehydration or place tissue directly into (UTM) tube. Store at 4°C for same day processing, or freeze if held longer than 24 hours. **Please alert lab that procedure is being performed and when to expect receipt of specimen.**

Urine
Collect 10 - 20 ml of a preferably primary morning clean void in a sterile screw cap container. Store at 4°C if transport is delayed.

Vesicular Lesion
Collect the vesicle fluid with a cotton - tipped swab or aspirate with a needle. Obtain cells by scraping base of lesion with beveled side of needle (this material can be used to make a Tzanck's prep smear on a clean microscope slide). Place fluid and/or swab and/or needle into (UTM) tube. Store at 4^0 C if transport is delayed.

*(h) -- excluding holidays
**Specimen collection, processing and storage follows manufacturers/reference laboratory instructions to prevent loss, alteration or cross contamination of samples .

UTM is a collection and transport medium for viral, chlamydial, and mycoplasma agents.

TEST REFERENCE VALUES

TEST	METHODOLOGY*	REFERENCE VALUE
Virus culture (inoculation of Specimen into cell cultures, incubation of culture, microscopic observation for characteristic, cytopathic effect and if detected, identification/confirmation by antibody staining); including Cytomegalovirus	TC	o virus isolated*
CMV DNA detection	PCR	Not detected
Chlamydia culture (cell culture and subsequent detection of chlamydia by fluorescent antibody)	TC	No Chlamydia isolated
Chlamydia/Neisseria gonorrhoeae detection	PCR	DNA not detected
Clostridium difficile toxin (toxin A and B)	Rapid membrane Enzyme immunoassay	None detected
EBV PCR	PCR	Not detected
Respiratory Syncytial Virus Antigen detection	Chromatographic Immunoassay	Negative
Rotavirus Antigen detection	Immuno chromatographic Assay	Negative
Influenza A and B Rapid NAA	Isothermal Nucleic Acid Amplification	Not Detected
HCV	PCR	Not detected
Human immunodeficiency virus (HIV-1) RNA, viral load by PCR	PCR	Not detected
HPV Test	PCR	Negative Test

*Comment: a negative test result does not exclude the possibility of infection because reliable results are dependent on many conditions, including; adequate specimen collection and the absence of inhibitors.

To date, viruses typically isolated from clinical specimens include: Adenovirus, Coxsackie virus type A, Coxsackie virus type B, Cytomegalovirus, Echovirus, Enterovirus, Herpes simplex virus type 1, Herpes simplex virus type 2, Influenza A, Influenza B, Measles (Rubeola), Mumps, Parainfluenza types 1,2,3, Poliovirus, Respiratory syncytial virus, Rhinovirus and Varicella-zoster virus. *See pg 12 for abbreviation key

SEROLOGY (Antibody Determinations)

TEST	METHODOLOGY*	REFERENCE VALUE
HIV 1/HIV 2	CIMA	Non-reactive
Rubella screen- German Measles (IgG antibodies in human serum)	ELFA	Immune
Measles screen (IgG antibodies in human serum)	ELFA	Immune
Mumps screen (IgG antibodies in human serum)	ELFA	Immune
Varicella-zoster screen (IgG antibodies in human serum)	ELFA	Immune
Cytomegalovirus (CMV) IgG antibodies	ELFA	Negative
Epstein-Barr Virus (VCA-IgM) (antibodies to Viral Capsid Antigen)	IFA	Less than 1:10
Epstein-Barr Virus (VCA-IgG) (antibodies to Viral Capsid antigen)	IFA	Less than 1:10
Epstein-Barr Virus (EA-IgG) (antibodies to Early Antigen)	IFA	Less than 1:10
Epstein-Barr Virus (EBNA-IgG) (antibodies to Nuclear Antigen)	ACIF	Less than 1:5

Methodology Abbreviation

ACIF	Anti-complement Immnunofluorescence
CIMA	Chemiluminescent microparticle immunoassay
DFA	Direct Fluorescent Antibody
EIA	Enzyme Immunoassay
ELFA	Enzyme Linked Fluorescent Immunoassay
HC	Hybrid Capture
HI	Hemagglutination Inhibition
IFA	Indirect Fluorescent Antibody
PCR	Polymerase Chain Reaction
TC	Tissue Culture
NAA	Nucleic Acid Amplification Testing

TEST TURNAROUND TIMES

TEST	TURNAROUND TIME	DAYS PEFORMED
Virus Culture, General	10 – 14 days	M – SU
CMV DNA PCR	1-5 days	M – W – F
Cytomegalovirus (CMV) Culture	2 –30 days	M – SU
EBV PCR	1 – 4 days	T, F
Herpes Simplex (HSV) Culture	1 –14 days	M – SU
Varicella-Zoster Virus (VZV) Culture	3 – 30 days	M – SU
HIV 1 Viral Load	1 – 10 days	Th
Chlamydia Culture	2 – 4 days	M,W, F
Chlamydia trachomatis/Neisseria Gonorrheae by PCR	1 – 10 days	T, F
Clostridium difficile toxin	1 – 2 days	M - SU
Respiratory Syncytial Virus (RSV) Antigen Detection (seasonal)	2 hours	M – SU
Influenza Antigen detection (seasonal)	1 hour	M-SU
Rotavirus Antigen Detection	1 – 3 days	M,W,F
Mycoplasma/Ureaplasma Cultures	7 – 10 days	M – Th
HCV PCR	1-10 days	W,F
HPV Test	1-10 days	M, Th
Serology (Antibody detection)		
HIV 1 / 2	1 – 3 days (initial) (results take an additional 10 – 14 days for repeat testing and confirmation	M – F
HIV 1 / 2 Expedited Screen (Labor and Delivery patients only)	1 hour	As needed
Rubella Screen	1 – 7 days	T, Th
Measles Screen	1 – 7 days	W, F
Mumps Screen	1 – 7 days	W, F
Varicella-zoster Screen	1 – 7 days	T, Th
CMV IgG	1 – 7 days	W,F
Epstein-Barr Virus (EBV) profile	1 – 7 days	T, Th

The following cultures are sent out to a reference laboratory. Results may take up to 30 days to be received: Influenza (strain confirmation), Mumps, Mycoplasma, Enterovirus (Echo, Coxsackie, Polio), HIV

All additional testing sent to reference laboratories may take up to 14 days to be resulted.

The laboratory maintains a turn-around-time exceptions log and a abnormal/positive findings log.

CRITERIA FOR UNSATISFACTORY SPECIMENS

CRITERION ACTION

A specimen received with no orders. Floor/physician is notified and the proper order is requested (verbal followed by written orders).

An unlabeled or improperly labeled specimen. Floor/physician is notified and it is requested that a new labeled specimen be submitted. The order is canceled due to **specimen unacceptable.** **If it is a "precious" specimen (EX: CSF), it is requested that someone come to the lab to label the specimen correctly.**

A specimen that is not quantitatively sufficient "QNS" for processing. Floor/physician is notified to request additional material.
If additional material cannot be obtained, physician is asked to state priorities for test requests, as appropriate.

Inappropriate specimen type for specific test ordered. Floor/physician is notified and asked to submit new correct specimen. The order is canceled due to **specimen unacceptable**.

A specimen that has not been properly stored (i.e., improper when stored not refrigerated) prior to receipt in the laboratory. Flood physician is notified and asked to submit new specimen. The order is canceled due to specimen unacceptable.

A specimen that has been contaminated in transit. Floor/physician is notified and asked to submit new specimen. The order is canceled due to contaminated **specimen - unacceptable**.

A specimen received in formalin or other fixative. Floor/physician is notified and asked to submit new specimen. The order is canceled due to **specimen unacceptable.**

A specimen that is not contained in the proper preservative or anticoagulant. Floor/physician is notified and asked to submit new specimen. The order is canceled due to **specimen unacceptable**.

A specimen collected in an outdated specimen collection system. Floor/physician is notified and asked to submit new specimen. The order is canceled due to **specimen unacceptable**.

More than one culture site collected in the same tube of transport, medium. Floor/physician is notified and asked to submit specimens in separate tubes of transport media. The order is canceled due to **specimen unacceptable**.

A specimen for virus culture which is more than 2 days old and which has not been stored at 4°C. Floor/physician is notified and asked to submit new specimen. The order is canceled due to **specimen unacceptable**.

A specimen for virus culture which is collected in a Culturette. Floor/physician is notified and asked to submit new specimen in transport medium using a cotton-tipped non-wooden applicator. The order is cancelled due to **specimen unacceptable.**

A blood specimen for Phenosense, Phenosense GT, Trofile, or Entry that is not received in Virology within 2 hours of the draw. Floor/physician is notified and asked to submit new specimen.
The order is canceled due to **specimen unacceptable**.

A blood specimen for HIV Viral Load that is not received in Virology within 3 hours of the draw. Floor/physician notified and asked to submit a new specimen. The order is canceled due to **specimen unacceptable**

.**CRITERIA FOR LINSATISFACTORY SPECIMENS (continued)**

CRITERION ACTION

A urine specimen that is not collected in a sterile container. Floor/physician is notified and asked to submit new specimen. The order is canceled due to **specimen unacceptable**

For chlamydia culture:

a. A specimen obtained with an applicator that is not cotton-tipped or that has a wooden shaft.

b. A specimen that has not been stored at 4°C for transport delays of up to 24 hours or frozen if held for longer periods.

c. A vaginal specimen taken on an adult female.

Floor/physician is notified and asked to submit new specimen. The order is canceled due to **specimen unacceptable**.

For Chlamydia trachomatis and Neisseria gonorrhoeae (CT/NG) PCR:

a. Endocervical or vaginal swab specimens not collected with the **cobas®** PCR Female Swab Sample Kit
b. Endocervical or vaginal swab specimens collected with the **cobas®** PCR Female Swab Sample Kit that does not contain a swab
c. Male and female urine not collected with the **cobas®** PCR Urine Sample kit
d. Male and female urine collected with the **cobas®** PCR Urine Sample kit if the volume level is below the lower line in the 2 line window.

Floor/physician is notified and asked to submit new specimen. The order is canceled due to **specimen unacceptable**.

A specimen for respiratory syncytial virus antigen detection other than a nasopharyngeal aspirate, wash, or swab. Floor/physician is notified and asked to submit new specimen. The order is canceled due to **specimen unacceptable**.

A specimen for mycoplasma culture that is not collected and transported in (UTM) transport medium. Floor/physician is notified and asked to submit new specimen. The order is cancelled due to **specimen unacceptable**.

A stool specimen for rotavirus, clostridium difficile toxin or viral culture that is brought to the laboratory in a diaper. Floor/physician is notified and asked to submit new specimen. The order is cancelled due to **specimen unacceptable**.

Any specimen received in a leaking container (stool, urine, BAL, etc.) Floor/physician is notified and asked to submit new specimen. The order is cancelled due to **specimen unacceptable.**

A yellow, lavender or green top tube that has been refrigerated. Floor/physician is notified and asked to submit new specimen. The order is cancelled due to **specimen unacceptable**.

A yellow or lavender top tube collected after 4 p.m. or collected on a weekend or holiday. Floor/physician is notified and asked to submit new specimen. The order is cancelled due to **specimen unacceptable.**

Any specimen collected at a time or day when it is specifically stated that that time or day is unacceptable (e.g. CMV PCR on a weekend day). Floor/physician is notified and asked to submit during acceptable time. The order is cancelled due to **specimen unacceptable**.

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The laboratory maintains an unsatisfactory specimen log

ALPHABETICAL TEST LISTING
IN – HOUSE TESTING*

ADENOVIRUS CULTURE (SEE VIRAL ISOLATION, GENERAL)
CPT 87252

CHLAMYDIA TRACHOMATIS CULTURE AND TYPING
CPT 87110
TEST INCLUDES: CHLAMYDIA IS A SINGLE GENUS AND CONSISTS OF THE FOLLOWING; C. TRACHOMATIS, LGV, C. PSITTACI, C. PNEUMONIAE.
METHODOLOGY: CELL CULTURE AND SUBSEQUENT DETECTION OF CHLAMYD1A BY FLUORESCENT ANTIBODY
SPECIMEN TYPE: OBTAIN A NON-WOODEN SWAB (COTTON OR POLYESTER) SPECIMEN CONTAINING EPITHELIAL CELLS OF CONJUNCTIVA, CERVIX, POSTIERIOR NASOPHARYNX, THROAT, RECTUM, URETHRA, SEMEN, *VAGINAL ON PREPUBESCENT FEMALES ONLY
MINIMUM VOLUME: ONE SWAB
COLLECTION TUBE: (UTM) TRANSPORT MEDIA
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NO CHLAMYDIAL ORGANISM ISOLATED

CHLAMYDIA TRACHOMATIS/NEISSERIA GONORRHOEAE (CT/NG), BY PCR
CPT 87491, 87591
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: FEMALE ENDOCERVIAL AND VAGINAL SWAB SPECIMEN COLLECTED WITH THE **cobas®** PCR FEMALE SWAB SAMPLE KIT AND**,** MALE AND FEMALE URINE COLLECTED WITH THE **cobas®** PCR URINE SAMPLE KIT. *URINE MAY BE COLLECTED IN A STERILE CONTAINER AND TRANSFERRED TO THE **cobas®** PCR MEDIA TUBE IMMEDIATELY. IF SPECIMENS CANNOT BE TRANSFERRED IMMEDIATELY THEY CAN BE STORED AT 2^0 TO 30^0 C FOR UP TO 24 HOURS BEFORE BEING TRANSFERRRED TO THE **cobas®** PCR MEDIA TUBE.
STORAGE REQUIREMENTS: FEMALE SWAB SPECIMENS COLLECTED WITH THE **cobas®** PCR FEMALE SWAB SAMPLE KIT AND MALE AND FEMALE URINE COLLECTED WITH THE **cobas®** PCR URINE SAMPLE KIT MAY BE STORED AT 2^0 TO 30^0 C FOR UP TO 12 MONTHS ONCE THE SPECIMENS HAVE BEEN STABILIZED IN **cobas®** PCR MEDIA.
REFERENCE INTERVAL: NOT DETECTED

CLOSTRIDIUM DIFFICILE TOXIN A AND B ASSAY
CPT 87324
METHODOLOGY: RAPID MEMBRANE ENZYME IMMUNOASSAY
SPECIMEN TYPE: STOOL (LIQUID OR SEMI SOLID)
COLLECTION TUBE: CLEAN, AIR TIGHT CONTAINER WITH NO PRESERVATIVE
STORAGE REQUIREMENTS: STORE AT 2 - 8°C FOR UP TO 72 HOURS. IF SPECIMEN CANNOT BE TESTED WITHIN 72 HOURS IT SHOULD BE FROZEN UPON RECEIPT AT -/= $<10^0$ C.
REFERENCE INTERVAL: NEGATIVE FOR C. DIFFICILE TOXINS A AND/OR B

CYTOMEGALOVIRUS (CMV) IgG ANTIBODIES
CPT 86644
METHODOLOGY: ENZYME - LINKED FLUORESCENT IMMUNOASSAY (ELFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE: less than 4 AUIml

***For assistance with Virology tests not listed here, please follow the EPIC instructions or call 551 996**

4945

CYTOMEGALOVIRUS (CMV) CULTURE
CPT: 87252 x 2, 87254 x 2
TEST INCLUDES: CONVENTIONAL TISSUE CULTURE, SHELL VIAL ATTEMPTS, IMMUNOFLUORESCENT CONFIRMATION
METHODOLOGY: CONVENTINAL TISSUE CULTURE AND SHELL VIAL CELL CULTURES, FLUORESCENT ANTIBODY CONFIRMATION
SPECIMEN TYPE: BLOOD, URINE, THROAT, BRONCHOALVEOLAR LAVAGE, BRONCHIAL WASHINGS, CERVICAL, SEMEN, BIOPSY SOURCES
MINIMUM VOLUME: 3 ML
COLLECTION TUBE: SWAB SAMPLES USE (UTM), BUFFY COAT; COLLECT 2 GREEN TOP (HEPARIN) TUBES, SEE SPECIMEN COLLECTION APPENDIX.
STORAGE REQUIREMENTS: DO NOT FREEZE, MAINTAIN BLOOD AT ROOM TEMPERATURE; OTHER SPECIMEN SOURCES SHOULD BE REFRIGERATED.
REFERENCE INTERVAL: NO CMV ISOLATED
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CYTOMEGALOVIRUS (CMV) BY PCR (QUANTITATIVE)
CPT: 87497
SPECIMEN TYPE: PLASMA****
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: LAVENDER TOP TUBE (EDTA). PLASMA MUST BE SEPARATED WITHIN 6 HRS.
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NOT DETECTED

****For other acceptable specimen types that may be sent to a reference lab, refer to EPIC instructions or call 4945**

EPSTEIN-BARR VIRUS (EBV) ANTIBODIES TO EARLY ANTIGEN, IgG
CPT 86663
TEST INCLUDES: TITER
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: less than 1:10

EPSTEIN-BARR VIRUS (EBV) ANTIBODIES TO VIRAL CAPSID ANTIGEN (VCA), IgG
CPT 86665
TEST INCLUDES: TITER
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: less than 1:10

EPSTEIN-BARR VIRUS (EBV) ANTIBODIES TO VIRAL CAPSID ANTIGEN (VCA) IgM
CPT 86665
TEST INCLUDES: TITER
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: less than 1:10

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EPSTEIN-BARR VIRUS (EBV) NUCLEAR ANTIGEN, ANTIBODIES
CPT 86664
TEST INCLUDES: TITER,
METHODOLOGY: ANTI-COMPLEMENT IMMUNOFLUORESCENCE (ACIF)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: less than 1:4

EPSTEIN BARR VIRUS (EBV) BY PCR
CPT 87799
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: PLASMA****
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: LAVENDER TOP (EDTA) TUBE
STORAGE REQUIREMENTS: WHOLE BLOOD SPECIMENS MAY BE RECEIVED AT ROOM TEMPERATURE AND SPUN AT 2300 RPM FOR 15 MINUTES AT 22^0 C. SPUN SAMPLES MAY BE STORED AT ROOM TEMPERATURE FOR 2 DAYS, OR REFRIGERATED FOR UP TO 7 DAYS
REFERENCE INTERVAL: NOT DETECTED

HEPATITIS C VIRUS BY PCR
CPT 87522
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: PLASMA OR SERUM****
MINIMUM VOLUME: 10 ML
COLLECTION TUBE: 1 FULL LAVENDER TOP (EDTA) TUBE OR SERUM SEPARATER TUBE (SST)
STORAGE REQUIREMENTS: WHOLE BLOOD MUST BE TRANSPORTED AT 2^0 C TO 25^0 C AND CENTRIFUGED WITHIN 24 HOURS OF COLLECTION. SPECIMENS MUST BE RECEIVED NO LATER THAN 4 P.M. M - F ONLY *(h)
REFERENCE INTERVAL: NOT DETECTED
TESTING RANGE LIMITATIONS: LESS THAN 15 IU/ML –GREATER THAN 100,000,000 IU/ML

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HERPES SIMPLEX VIRUS (HSV) CULTURE AND TYPING
CPT 87252
METHODOLOGY: TISSUE CULTURE CULTIVATION OF VIRUS WITH CONFIRMATION BY FLUORESCENT STAINING FOR HSV TYPE I OR HSV TYPE 2
SPECIMEN TYPE: VESICULAR FLUID, ULCERATED LESIONS, PHARYNGEAL AND THROAT SWABS, URINE, CEREBROSPINAL FLUID (CSF), AUTOPSY AND BIOPSY MATERIAL, EYE EXUDATES, VAGINAL SWABS, RECTAL SWABS*****For other acceptable specimen types refer to EPIC instructions or call 4945**
MINIMUM VOLUME: SWAB IN TRANSPORT MEDIA (UTM), 1 ML FLUID, 0.5G TISSUE
COLLECTION TUBE: VIRAL TRANSPORT MEDIA, (UTM), STERILE CONTAINER
STORAGE REQUIREMENTS: SPECIMEN SHOULD BE KEPT AT 4°C (REFRIGERATION) AND TRANSPORTED WITHIN 24 HOURS OF COLLECTION. IF LONGER STORAGE IS REQUIRED, THE SPECIMEN SHOULD BE FROZEN AT -70C OR ON DRY ICE
REFERENCE INTERVAL: NO HERPES VIRUS ISOLATED

HUMAN IMMUNODEFICIENCY VIRUS - 1 (HIV-1), RNA
CPT 87536
METHODOLOGY: REVERSE TRANSCRIPTION, POLYMERASE CHAIN REACTION (PCR) AMPLIFICATION AND DETECTION OF HIV-1 TARGET RNA
SPECIMEN TYPE: PLASMA
MINIMUM VOLUME: 5.0 ML

COLLECTION TUBE: 1 FULL 10 ML LAVENDER TOP TUBE (EDTA), CENTRIFUGE BLOOD AND SEPARATE PLASMA WITHIN 24 HRS OF DRAW.
STORAGE: FREEZE PLASMA AT -70^0 C
REFERENCE INTERVAL: NOT DETECTED
TESTING RANGE LIMITATIONS: LESS THAN 20 – GREATER THAN 10,000,000 COPIES/

HUMAN PAPILLOMA VIRUS (HPV HIGH RISK WITH 16 AND 18 GENOTYPING)
CPT 87624 (DIAGNOSTIC)
CPT G0476 (SCREENING)
METHODOLOGY: REAL TIME POLYMERASE CHAIN REACTION (PCR) AMPLIFICATION OF TARGET DNA AND NUCLEIC ACID HYBRIDIZATION FOR THE DETECTION OF 14 HIGH RISK (HR) HPV TYPES IN A SINGLE ANALYSIS. THIS TEST SPECIFICALLY IDENTIFIES TYPES HPV 16 AND 18 WHILE CONCURRENTLY DETECTING THE REST OF THE HIGH RISK TYPES (31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, AND 68)
SPECIMEN TYPE: CERVICAL SPECIMENS COLLECTED IN PresevCyt® SOLUTION USING AN ENDOCERVICAL BRUSH/SPATULA.
STORAGE: 2-30°C FOR UP TO SIX MONTHS REFERENCE INTERVAL:NEGATIVE

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INFLUENZA A AND B RAPID NAA
CPT 87502
TEST INCLUDES: INFLUENZA A AND B VIRAL ANTIGEN DETECTION
METHODOLOGY: Isothermal Nucleic Acid Amplification
SPECIMEN TYPE: NASOPHARYNGEAL SWAB IN VIRAL TRANSPORT MEDIA (UTM)
MINIMUM VOLUME: 1- 3 ML
COLLECTION TUBE: (UTM) TRANSPORT
STORAGE REQUIREMENT: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE
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MEASLES, MUMPS, RUBELLA (MMR) IMMUNITY PANEL (SEE INDIVIDUAL TESTS)
CPT 86735; 86762; 86765
TEST INCLUDES: MEASLES (RUBEOLA) ANTIBODIES, MUMPS ANTIBODIES, RUBELLA ANTIBODIES
METHODOLOGY: ENZYME LINKED FLUORESCENT IMMUNOASSAY (ELFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 3 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: IMMUNE

MEASLES ANTIBODIES, IgG, QUALITATIVE
CPT 86765.
SYNONYMS: RUBEOLA
TEST INCLUDES: IMMUNE STATUS
METHODOLOGY: ENZYME LINKED FLUORESCENT IMMUNOASSAY (ELFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: IMMUNE; GREATER OR EQUAL TO 0.7
NON-IMMUNE; LESS THAN 0.5
EQUIVOCAL; 0.5- 0.69

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MUMPS ANTIBODIES, IgG, QUALITATIVE
CPT 86735

TEST INCLUDES: IMMUNE STATUS
METHODOLOGY: ENZYME LINKED FLUORESCENT IMMUNOASSAY (ELFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL IMMUNE; GREATER OR EQUAL TO 0.5
NON-IMMUNE; LESS THAN 0.35
EQUIVOCAL; 0.35-0.49

RESPIRATORY VIRAL SCREEN
CPT 87300,87254,87260,87276,87275,87279(X3),87280,87140
TEST INCLUDES: SHELL VIAL CELL CULTURE, IMMUNOFLUORESCENT CONFIRMATION
METHODOLOGY: SHELL VIAL CELL CULTURES, FLUORESCENT ANTIBODY CONFIRMATION
SPECIMEN TYPE: NASOPHARYNGEAL WASH, NASOPHARYNGEAL ASPIRATE, NASAL SWAB, THROAT SWAB, NASOPHARYNGEAL SWAB, LUNG, BRONCHIAL LAVAGE (BAL)
MINIMUM VOLUME: 3ML
COLLECTION TUBE: SWAB SAMPLES USE VIRAL TRANSPORT MEDIA (UTM), ASPIRATES, WASHES, BAL, LUNG - COLLECT IN STERILE CUP
STORAGE REQUIREMENTS: 2 – 8^0 C FOR NO LONGER THAN 48 HRS. FOR LONGER STORAGE -70^0 OR LOWER
REFERENCE INTERVAL: NO RSV,ADENOVIRUS, INFLUENZA A AND B, PARAINFLUENZA 1,2,3 ISOLATED
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RESPIRATORY SYNCYTIAL VIRUS (RSV) DIRECT ANTIGEN DETECTION
CPT 87420
TEST INCLUDES: RSV VIRAL ANTIGEN DETECTION
METHODOLOGY: CHROMATOGRAPHIC IMMUNOASSAY
SPECIMEN TYPE: NASOPHARYNGEAL WASHES, NASOPHARYNGEAL ASPIRATE, NASOPHARYNGEAL SWAB IN VIRAL TRANSPORT MEDIA
MINIMUM VOLUME: 1 – 3 ML
COLLECTION TUBE: (UTM) TRANSPORT OR STERILE LEAKPROOF CONTAINER
STORAGE REQUIREMENT: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE
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ROTAVIRUS, DIRECT ANTIGEN DETECTION
CPT 87425
TEST INCLUDES: IMMUNOCHROMATOGRAPHICI SANDWICH ASSAY
SPECIMEN TYPE: STOOL
MINIMUM VOLUME: 0.5 ML LIQUID STOOL OR 0.5 GRAM
COLLECTION TUBE: CLEAN DRY SCREW-TOP CONTAINER, PLASTIC OR GLASS
STORAGE REQUIREMENTS: REFRIGERATE IMMEDIATELY AFTER COLLECTION
REFERENCE INTERVAL: NEGATIVE

RUBELLA ANTIBODIES IgG, QUALITATIVE
CPT 86762
TEST INCLUDES: IMMUNE STATUS
METHODOLOGY: ENZYME LINKED FLUORESCENT IMMUNOASSAY (ELFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
CAUSES FOR REJECTION: HEMOLYSIS; LIPEMIA; GROSS BACTERIAL CONTAMINATION
REFERENCE INTERVAL: IMMUNE: GREATER THAN OR EQUAL TO 10
NOT IMMUNE : LESS THAN 5
EQUIVOCAL: GREATER THAN OR EQUAL TO 5 OR LESS THAN 10

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VARICELLA-ZOSTER VIRUS (VZV) DIRECT DETECTION BY DFA
CPT 87290
TEST INCLUDES: DIRECT MICROSCOPIC EXAMINATION OF VIRUS INFECTED CELLS

METHODOLOGY: DIRECT FLUORESCENT ANTIBODY (DFA)
SPECIMEN TYPE: LESION SCAPINGS AND SWABS
COLLECTION TUBE: VIRAL TRANSPORT MEDIA (UTM)
STORAGE REQUIREMENT: REFRIGERATE
REFERENCE INTERVAL: NO VZV DETECTED

VARICELLA-ZOSTER VIRUS (VZV) CULTURE
CPT: 87252 x 2, 87254 x 2
TEST INCLUDES: CONVENTIONAL TISSUE CULTURE, SHELL VIAL ATTEMPTS, IMMUNOFLUORESCENT CONFIRMATION
METHODOLOGY: CONVENTINAL TISSUE CULTURE AND SHELL VIAL CELL CULTURES, FLUORESCENT ANTIBODY CONFIRMATION,
SPECIMEN TYPE: VESICLE FLUID, VESICLE SCRAPINGS
MINIMUM VOLUME: 1 ML- (UTM) TRANSPORT
COLLECTION TUBE: VIRAL TRANSPORT MEDIUM (UTM)
STORAGE REQUIREMENTS: REFRIGERATE, 4°C.
REFERENCE INTERVAL: NO VZV VIRUS ISOLATED

VARICELLA-ZOSTER VIRUS (VZV) IgG ANTIBODIES
CPT 86787
TEST INCLUDES: IMMUNE STATUS
METHODOLOGY: ENZYME LINKED FLUORESCENT IMMUNOASSAY (ELFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: IMMUNE; GREATER THAN OR EQUAL TO 0.90
NON-IMMUNE; LESS THAN 0.60
EQUIVOCAL; 0.6- 0.89

VIRAL CULTURE, GENERAL
CPT 87252
TEST INCLUDES: BASED ON SPECIMEN SOURCE, VIRUSES TO BE TESTED FOR AND TYPICALLY ISOLATED FROM CLINICAL SPECIMENS
INCLUDE:
ADENOVIRUS, COXSACKIE VIRUS TYPES A AND B, CYTOMEGALOVIRUS, ENTEROVIRUSES, HERPES SIMPLEX VIRUS TYPES 1,2; INFLUENZA
TYPES A, B; MEASLES (RUBEOLA), MUMPS, PARAINFLUENZA TYPES 1,2, 3;
POLIOVIRUSES, RESPIRATORY SYNCYTIAL VIRUS, RHINOVIRUS
AND VARICELLA-ZOSTER VIRUS.
METHODOLOGY: CONVENTINAL TISSUE CULTURE,
SPECIMEN TYPE: BLOOD, CEREBROSPINAL FLUID, DERMAL, OCULAR, GENITAL, MUCOSAL, ORAL, RECTAL, RESPIRATORY, STOOL, TISSUE, URINE, BIOSPY
MINIMUM VOLUME: 1 ML FLUID, ONE SWAB
COLLECTION TUBE: VIRAL TRANSPORT MEDIUM (UTM) FOR SWABS, STERILE SCREW-CAPPED TUBE OR CONTAINER FOR FLUIDS, STOOL, NASAL WASHINGS, URINE OR BIOPSY (NO PRESERVATIVES)
STORAGE REQUIREMENTS: REFRIGERATE. GREEN TOP FOR BUFFY COAT KEEP AT ROOM TEMPERATURE.
REFERENCE INTERVAL: NO VIRUS ISOLATED

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