MANUAL FOR COLLECTION

AND HANDLING OF SPECIMENS FOR

VIRAL, CHLAMYDIAL AND MYCOPLASMAL STUDIES

CLINICAL VIROLOGY LABORATORY, Room 1942

DEPARTMENT OF INTERNAL MEDICINE

Hackensack University Medical Center

Dr. Gary Munk - Director

ISSUED: **7/87**
REVISED: **4/96**
7/97
5/98
6/99
3/00
8/00
5/01
2/02
5/03
2/04
7/05
4/06
10/07
6/10

CLINICAL VIROLOGY LABORATORY

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

Hours of Operation

Monday- Friday	7 a.m. to 11 p.m.
Saturday & Sunday	7 a.m. to 3:30 p.m.
Hospital Holidays	7a.m. to 3:30p.m.

In Case of Emergency, please notify by calling the Operator (201-996-2000) 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. P. Gross (201-996-3500), Senior Vice President and Chief Medical Officer, and Dr. C. Mannion (201-996-4830), Chairman, Pathology, for their 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, Chlamydial, and
   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 201-996-4945).

VIRAL DISEASES

DISEASE	ASSOCIATED VIRUSES	RECOMMENDED SPECIMENS
Congenital and Neonatal Infections	Rubella	Placental tissue, CSF, urine, or nasopharyngeal swab.
	Cytomegalovirus (CMV)	Throat, urine, blood – green top tube @ room temp. (buffy coat).
	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) can be obtained in the Virology Laboratory.

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 buffy coat cells from heparinized blood are also occasionally useful for detection of viremia, primarily for patients with cytomegalovirus infections. 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 clays 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 culture)
Buffy coat for CMV. Collect 10 ml aseptically in a green top vacutainer tube. Maintain at room temperature no longer than 2 hrs. **Specimens must be received no later than 12 noon, Monday through Friday only.**

Blood for CMV DNA Detection (PCR)
Collect 1 full lavender (EDTA) top tube (10 ml in each tube). Maintain at room temperature for up to 24 hrs. Thereafter, the plasma must be separated from the cells (centrifuged) and stored at 4^0C**.**

Blood (for serology)
Collect 10 ml aseptically in a red top 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 by PCR
Swab specimens
Collect and transport endocervical or urethral swab specimens in 1 - 3 ml UTM Culture Transport Medium. Use recommended methods to sample columnar and squamous-columnar cells after removing cervical mucus. Use only dacron, rayon, or calcium alginate tipped collection swabs with plastic or non-aluminum wire shafts. Do not use collection swabs with wooden or aluminum shafts. Leave swabs in the transport media after collection. Transport at 2 – 8 ^{0}C.
Urine specimens
The patient must not have urinated for the last two hours. Collect 10 - 50 ml of the first catch urine (first part of the stream) into a clean, polypropylene container without preservatives. Seal the specimen container. Transport at 2 - 8° C.

Chlamydia trachomatis/Neisseria gonorrhoeae Combination Test by PCR
Swab specimens
Endocervical specimens from asymptomatic or symptomatic patients and male urethral swab specimens from symptomatic patients must be collected and transported in UTM Culture Transport Media. Use recommended methods to obtain swab specimens after removing cervical mucus. Use only Dacron, rayon, or calcium alginate tipped collection swabs with plastic or non-aluminum shafts. Do not use collection swabs with wooden or aluminum shafts. Leave swabs in the transport media. Seal the specimen container and label appropriately. Transport at 2 – 8^0 C.
Male Urine Specimens
The patient must not have urinated during the previous 2 hrs. Collect 10 - 50 ml of first catch urine (the first part of the stream) into a clean polypropylene container without preservatives, and label appropriately. Transport at 2 - 8° C.

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

HIV DNA by PCR
Whole Blood
Collect one full 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 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. Maintain at room temperature and transport to lab immediately. Specimens must be received no later than 4 p.m. M - F only *(h)

HTLV I & II by PCR
Whole Blood
Collect one full 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 p.m. M -F only. *(h)

HIV Culture
Whole Blood
Collect one green top tube. Maintain at room temperature and transport to lab immediately. Specimen must be received no later than 4 p.m. M - F only. *(h)

Human Papillomavirus (HPV) Detection and Typing
Use HPV Collection kit (Virapap/ViraType®) or a liquid based cytology preservative
(i.e. Thin Prep, Cytyc PreserCyt®)
Male: Collect cells from urethra using swab provided. Place swab in the HPV transport tube.
Female: Collect cervical cells from endocervix and exocervix using swab. Place swab in transport tube.
Samples in cytology preservative: Cervical specimens collected in liquid-based cytology fixative should be collected in the routine manner for making Pap slides and forwarded for HPV DNA testing after slides are made. Maintain swabs and cytology fixative at room temperature and transport to lab immediately.

Lesion
Swab affected area. Place swab into UTM tube.

Mycoplasma/Ureaplasma
M. pneumoniae: Obtain sputum, throat swab, or washing or bronchial washing.
M. hominis or U. Urealyticum: Obtain primary morning urine, urethral or cervical swab, expressed prostatic fluid, or semen.
Sputum **<u>on newborns only</u>**
Place specimen immediately into (UTM) tube and transport to lab as soon as possible. Store at 4°C for processing within 24 - 48 hrs, or freeze at -70°C if held longer.

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 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) replaces M4 = Microtest, Inc., Multi - microbe media (UTM) is a collection and transport medium for viral, chlamydial, and mycoplasma agents.

TEST REFERENCE VALUES

TEST	METHODOLGY*	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	No virus isolated*
CMV DNA detection	PCR	Less than 1,000 copies/ml
Chlamydia culture (cell culture and subsequent detection of chlamydia by fluorescent antibody)	TC	No Chlamydia isolated
Chlamydia trachomatis detection	PCR	DNA not detected
Chlamydia/Neisseria gonorrhoeae detection	PCR	DNA not detected
Clostridium difficile toxin (toxin A and B)	EIA	None detected
Respiratory Syncytial Virus Antigen detection	Chromatographic Immunoassay/OIA	None detected
Rotavirus Antigen detection	Immunochromatographic Assay	None detected
Influenza A/B Antigen detection	Chromatographic Immunoassay/OIA	None detected
Mycoplasma culture (respiratory) Ureaplasma/Mycoplasma Culture (genitourinary)	Culture on selective agar	None isolated
Human immunodeficiency virus - 1 HIV-1) RNA, viral load by PCR	PCR	less than 50 copies/ml

*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	EIA	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)	IFA	Less than 1:4
Influenza (quantitative) (quantitative antibodies, seasonal-specific)	HI	Less than 1:10

*See pg 12 for abbreviation key

Methodology Abbreviation

ACIF	Anti-complement Immnunofluorescence
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
OIA	Optical Immunoassay
NAT	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 - F
Cytomegalovirus (CMV) Culture	2 –30 days	M – SU
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	1/week
Chlamydia Culture	2 – 4 days	M,W, F
Chlamydia trachomatis by PCR	1 – 7 days	T, W
Chlamydia trachomatis/Neisseria Gonorrheae by PCR	1 – 7 days	T, W
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	6 – 13 days	M – SU
Serology (Antibody detection)		
HIV 1 / 2	1 – 3 days (initial) (results take an additional 10 – 14 days for repeat testing and for Western Blot confirmation)	M – F
HIV 1 / 2 Expedited Screen (Labor and Delivery patients only)	1 hour	As needed
Rubella Screen	1 – 7 days	1/week
Measles Screen	1 – 7 days	1/week
Mumps Screen	1 – 7 days	1/week
Varicella-zoster Screen	1 – 7 days	1/week
CMV	1 – 7 days	2/week
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, 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 cancels 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**

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**.

CRITERIA FOR LINSATISFACTORY SPECIMENS (continued)

CRITERION ACTION

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**.

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.**

A green top tube collected for viral culture collected after 12 p.m. or collected on a weekend or holiday. Floor/physician 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. buffy coat 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

ADENOVIRUS ANTIBODY TITER

CPT 86603
METHOLDOLOGY: COMPLEMENT FIXATION (CF)
SPECIMEN: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: SEPARATE SERUM AND REFRIGERATE
CAUSE FOR REJECTION: HEMOLYSIS, LIPEMIA, GROSS BACTERIAL CONTAMINATION
USE: SEROLOGIC DIAGNOSIS OF ADENOVIRUS INFECTION. ADENOVIRUS HAS BEEN ASSOCIATED WITH NONINFLUENZAL ACUTE RESPIRATORY DISEASE, PNEUMONIA, EPIDEMIC KERATOCONJUNCTIVITIS, ACUTE FEBRILE PHARYNGITIS, ACUTE HEMORRHAGIC CYSTITIS. ASYMPTOMATIC INFECTIONS CAN MAKE SEROLOGIC RESPONSES DIFFICULT TO INTERPRET.
REFERENCE INTERVAL: NEGATIVE: less than 1:8

ADENOVIRUS CULTURE (SEE VIRAL ISOLATION, GENERAL)

CPT 87252

ADENOVIRUS ANTIGEN

CPT 87301
METHODOLOGY: EIA (ENZYME LINKED IMMUNOASSAY)
SPECIEMN: STOOL
MINIMUM VOLUME: 2 GRAMS FRESHLY UNPRESERVED STOOL
COLLECTION TUBE: STERILE CONTAINER
STORAGE REQUIREMENT: FROZEN
REFERENCE INTERVAL: NEGATIVE

ADENOVIRUS DNA, QUANTITATIVE REAL-TIME PCR

CPT 87799
METHODOLOGY: REAL TIME PCR
SPECIMEN: 0.85 ML RESPIRATORY SPECIMEN IN UTM; SPUTUM; BRONCHIAL LAVAGE/WASH; PLASMA (EDTA);WHOLE BLOOD; SERUM, CSF, URINE
STORAGE REQUIREMENT: REFRIGERATE

ANTIVIRAL SUSCEPTIBILITY TEST

SPECIMEN: CLINICAL ISOLATE (CELL CULTURE TUBE WITH 4+ CPE)
MUST SPECIFY WHICH DRUG(S) TO BE TESTED

ARBOVIRAL ENCEPHALITIS PROFILE (IgG) QUANTITATIVE

CPT 86651, 86652, 86653, 86654
TEST INCLUDES: CALIFORNIA, EASTERN EQUINE, ST. LOUIS AND WESTERN EQUINE ENCEPHALITIS VIRUS ANTIBODIES
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA):
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: SEPARATE SERUM AND REFRIGERATE
REFERENCE INTERVAL: NEGATIVE

ARBOVIRAL ENCEPHALITIS ANTIBODIES PROFILE (IgM) QUANTITATIVE

CPT 86651,86652, 86653, 86654
TEST INCLUDES: CALIFORNIA, EASTERN EQUINE, ST. LOUIS AND WESTERN EQUINE ENCEPHALITIS VIRUS ANTIBODIES
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: SEPARATE SERUM AND REFRIGERATE
REFERENCE INTERVAL: NEGATIVE:

BK VIRUS BY PCR
CPT 87799
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: URINE, PLASMA (EDTA), SERUM, CSF, WHOLE BLOOD (EDTA)
MINIMUM VOLUME: 0.7 ML
COLLECTION: CLEAN SPECIMEN COLLECTION CUP FOR URINE, LAVENDER TOP TUBE FOR WHOLE BLOOD OR PLASMA, STERILE CONTAINER FOR CSF
STORAGE REQUIREMENTS: WHOLE BLOOD – ROOM TEMPERATURE, ALL OTHERS FROZEN
REFERENCE INTERVAL: NOT DETECTED

CHLAMYDIA ANTIBODIES (IgG)
CPT 86331
SYNONYMS: CHLAMYDIA TRACHOMATIS IgG ANTIBODIES
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
USE: AID IN THE DIAGNOSIS OF CHLAMYDIAL INFECTION
CAUSE FOR REJECTION: HEMOLYSIS; LIPEMIA; GROSS BACTERIAL CONTAMINATION
REFERENCE INTERVAL: NEGATIVE: less than 0.91; EQUIVOCAL: 0.91 - 1.09; POSITIVE: greater than or equal to 1.10
FOR OTHER SPECIES OF CHLAMYDIA (C. pneumoniae, psittaci) , PLEASE CONTACT VIROLOGY LABORATORY

CHLAMYDIA TRACHOMATIS (IgM) QUANTITATIVE
CPT 86632
SYNONYMS: CHLAMYDIA TRACHOMATIS ANTIBODIES
TEST INCLUDES: N/A
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA):
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
USE: EVALUATE POSSIBLE CHLAMYDIAL INFECTION. USEFUL FOR PATIENTS SUSPECTED OF HAVING TRACHOMA, PELVIC INFLAMATORY DISEASE, INFANTILE PNEUMONIA AND LYMPHOGRANULOMA VENEREUM.
CAUSE FOR REJECTION: HEMOLYSIS, LIPEMIA, GROSS BACTERIAL CONTAMINATION.
REFERENCE INTERVAL: NEGATIVE: less than 1:8

CHLAMYDIA TRACHOMATIS CULTURE AND TYPING
CPT 87110
SYNONYMS: CHLAMYDIA (ISOLATION) CULTURE; CULTURE: CHLAMYDIA; LYMPHOGRANULOMA VENEREUM CULTURE; NONGONOCOCCAL URETHRITIS CULTURE; TRACHOMA INCLUSION CONJUNCTIVITIS
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 SPECIMEN CONTAINING EPITHELIAL CELLS OF CONJUNCTIVA, CERVIX, POSTIERIOR NASOPHARYNX, THROAT, RECTUM, URETHRA, *VAGINAL ON PREPUBESCENT FEMALES ONLY
MINIMUM VOLUME: ONE SWAB
COLLECTION TUBE: (UTM) TRANSPORT MEDIA
STORAGE REQUIREMENTS: REFRIGERATE
USE: AID IN THE DIAGNOSIS OF INFECTIONS, INCLUDING MEDICAL/LEGAL CASES CAUSED BY CHLAMYDIA TRACHOMATIS (e.g. CERVICITIS, TRACHOMA, CONJUNCTIVITIS, PID, PNEUMONIA, URETHRITIS, NONGONOCOCCAL URETHRITIS, PNEUMONITIS, AND SEXUALLY TRANSMITTED DISEASES).
CAUSE FOR REJECTION: VAGINAL SPECIMEN SOURCE ON AN ADULT; ANY SOURCE OTHER THAN THOSE LISTED ABOVE; SPECIMEN RECEIVED AN ANY OTHER FLUID OTHER THAN (UTM).
REFERENCE INTERVAL: NO CHLAMYDIAL ORGANISM ISOLATED
ADDITIONAL INFORMATION: SPECIFY SPECIMEN OF ORIGIN AND 1F MEDICAL/LEGAL. CULTURE MAY BE NEGATIVE IN IHE PRESENCE OF CHLAMYDIAL INFECTION FOR A VARIETY OF REASONS, INCLUDING THE VARIABILITY OF SAMPLING AND TRANSPORT TO THE LABORATORY.

CHLAMYDIA TRACHOMATIS, SWAB BY PCR
CPT 87491
SYNONYMS: NUCLEIC ACID AMPLIFICATION FOR CHLAMYDIA TRACHOMATIS
TEST INCLUDES: NUCLEIC ACID AMPLIFICATION WITH SUBSEQUENT ENZYME IMMUNOASSAY (EIA) DETECTION
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: ENDOCERVICAL OR URETHRAL SWAB, URINE
MINIMUM VOLUME: ONE TRANSPORT TUBE (UTM) FOR SWABS, 10 -50 ML URINE, FIRST CATCH
COLLECTION TUBE: (UTM) TRANSPORT MEDIA FOR SWABS, CLEAN CUP FOR URINE
STORAGE REQUIREMENTS: REFRIGERATE
USE: CONFIRM THE DIAGNOSIS OF CHLAMYDIA TRACHOMATIS INFECTION
CAUSE FOR REJECTION: ANY SPECIMEN SOURCE OTHER THAN THOSE LISTED ABOVE; ENDOCERVICAL OR URETHRAL SPECIMEN RECEIVED IN ANY OTHER FLUID THAN (UTM).
NORMAL RANGE: NO DETECTION OF CHLAMYDIAL DNA
ADDITIONAL INFORMATION: CHLAMYDIA IS A REPORTABLE DISEASE BY MEANS OF A TARGETED GENE AMPLICFICATION TECHNIQUE

CHLAMYDIA TRACHOMATIS/NEISSERIA GONORRHOEAE, SWAB BY PCR
CPT 87491, 87591
SYNONYMS: NUCLEIC ACID AMPLIFICATION FOR CHLAMYDIA TRACHOMATIS AND NEISSERIA GONORRHOEAE
TEST INCLUDES: NUCLEIC ACID AMPLIFICATION WITH SUBSEQUENT ENZYME IMMUNOASSAY (EIA) DETECTION
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: ENDOCERVICAL OR URETHRAL SWAB, MALE URINE
MINIMUM VOLUME: ONE TRANSPORT TUBE FOR SWABS, 10 - 50 ml MALE URINE, FIRST CATCH
COLLECTION TUBE: (UTM) TRANSPORT MEDIA FOR SWABS, CLEAN CUP FOR MALE URINE
STORAGE REQUIREMENTS: REFRIGERATE
USE: CONFIRM THE DIAGNOSIS OF CHLAMYDIA TRACHOMATIS AND/OR NEISSERIA GONORRHOEAE
CAUSE FOR REJECTION: ANY SPECIMEN SOURCE OTHER THAN THOSE LISTED ABOVE. ENDOCERVICAL OR URETHRAL SPECIMEN RECEIVED IN ANY FLUID OTHER THAN (UTM).
REFERNCE INTERVAL: NO DETECTION OF CHLAMYDIAL DNA; NO DETECTION OF NEISSERIA GONORRHOEAE
ADDITIONAL INFORMATION: CHLAMYDIA AND GONORRHOEAE ARE REPORTABLE DISEASES, BY MEANS OF A TARGETED GENE AMPLIFICATION TECHNIQUE

CLOSTRIDIUM DIFFICILE TOXIN A AND B ASSAY
CPT 87230
SYNONYMS: C. DIFFICILE TOXIN A AND/OR B, TOXIN A & B
TEST INCLUDES: N/A
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: STOOL
MINIMUM VOLUME: 5 GRAMS
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 -20^{0}C OR COLDER.
USE: AID IN THE DIAGNOSIS OF ANTIBIOTIC RELATED COLITIS
CAUSE FOR REJECTION: UNLABELED SPECIMEN; LEAKING SPECIMEN; SPECIMENS RECEIVED IN DENTURE CUPS, COOL WHIP CONTAINERS, MARGARINE CONTAINERS, OR SIMILAR CONTAINERS.
REFERENCE INTERVAL: NEGATIVE FOR C. DIFFICILE TOXINS A AND/OR B
ADDITIONAL INFORMATION: ONE SPECIMEN PER 24 HOURS

COXSACKIE VIRUS GROUP A ANTIBODIES
CPT 86658 X 4
SYNONYMS: N/A
TEST INCLUDES: ANTIBODY TITERS TYPES A7, A9, Al0, A16 SEROTYPES
METHODOLOGY: COMPLEMENT FIXATION (CF)
SPECIMEN TYPE: SERUM

MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
USE: DETECT IgG ANTIBODIES AGAINST COXSACKIEVIRUS TYPE A7, A9. A10 AND A16 IN HUMAN SERUM
CAUSE FOR REJECTION: QUANTITY NOT SUFFICIENT FOR ANALYSIS, GROSS HEMOLYSIS, LIPEMIA
REFERENCE INTERVAL: NEGATIVE: less than 1:8
ADDITIONAL INFORMATION: THIS TEST IS USEFUL IN DETECTING COMPLEMENT-FIXING ANTIBODIES TO THE IMMUNOLOGICALLY DISTINCT A7., A9, Al0 AND A16 SEROTYPES OF GROUP A COXSACKIE VIRUSES. PLEASE IDENTIFY THE SPECIMEN AS ACUTE OR CONVALESCENT PHASE AND SUBMIT THE APPROPRIATE STUDY REQUEST.

COXSACKIE VIRUS GROUP B ANTIBODIES
CPT 86658 X 6
SYNONYMS: N/A
TEST INCLUDES: TITERS FOR ANTIBODIES TO GROUP B COXSACKIE VIRUSES, B1 THROUGH B6; (B1, B2, B3, B4, B5, B6)
METHODOLOGY: COMPLEMENT FIXATION (CF):
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 3ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
USE: DETECTS IgG ANTIBODIES AGAINST COXSACKIEVIRUS TYPES 1-6 IN HUMAN SERUM
CAUSE FOR REJECTION: QUANTITY NOT SUFFICIENT FOR ANALYSIS; GROSS HEMOLYSIS; LIPEMIA
REFERENCE INTERVAL: NEGATIVE: less than 1:8
ADDITIONAL INFORMATION: AN AID IN DIAGNOSING GROUP B COXSACKIE VIRUS INFECTION. IDENTIFY SPECIMEN AS ACUTE OR CONVALESCENT AND SUBMIT THE APPROPRIATE TEST REQUEST.

CYTOMEGALOVIRUS (CMV) ANTIBODIES, IgG
CPT 86644
SYNONYMS: CMV ANTIBODIES, IgG
METHODOLOGY: ENZYME - LINKED FLUORESCENT IMMUNOASSAY (ELFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
USE: AID IN THE DIAGNOSIS OF CMV INFECTION; SCREEN FOR PAST EXPOSURE TO CMV
CAUSE FOR REJECTION: HEMOLYSIS, LIPEMIA, GROSS BACTERIAL CONTAMINATION
REFERENCE INTERVAL: NEGATIVE: less than 4 AUIml
ADDITIONAL INFORMATION: CAUTIONS IN INTERPRETATION: MOST ADULTS ARE INFECTED WITH CMV AND IT IS NORMAL TO BE A CARRIER OF THE VIRUS.

CYTOMEGALOVIRUS (CMV) ANTIBODIES, IgM, QUANTITATIVE
CPT 86645 . ..
SYNONYMS: CMV ACUTE ANTIBODIES, IgM
TEST INCLUDES: A SEMIQUANTITATIVE (INDEX) RESULT
METHODOLOGY: ENZYME IMMUNOASSAY (EIA):
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML

COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
USE: AID IN DIAGNOSIS OF ACUTE PRIMARY INFECTION
CAUSE FOR REJECTION: HEMOLYSIS, LIPEMIA, GROSS BACTERIAL CONTAMINATION
REFERENCE INTERVAL: NEGATIVE: less than or equal to 0.90, EQUIVOCAL: 0.091-1.09, POSITIVE: greater than or equal to 1.10.
ADDITIONAL INFORMATION: IgM RESPONSES MAY PERSIST FOR WEEKS TO MONTHS POSTINFECTION. LOW LEVELS OF IgM MAY BE DETECTABLE DURING THE RE-EXPRESSION/REACTIVATION OF THIS HERPES FAMILY VIRUS INFECTION.

CYTOMEGALOVIRUS (CMV) CULTURE

CPT: 87252 x 2, 87254 x 2
SYNONYMS: CMV ISOLATION AND SHELL VIAL CENTRIFUGATION ENHANCED CULTIVATION
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, BUFFY COAT, 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.
USE: AID IN THE DIAGNOSIS OF DISEASE CAUSED BY CMV (eg VIRAL INFECTIONS, PNEUMONIA, AND ORGAN TRANSPLANT RELATED DISEASE).
CAUSE FOR REJECTION: SPECIMENS COLLECTED OTHER THAN WHAT IS LISTED ABOVE; LEAKING TRANSPORT CONTAINERS; SPECIMENS RECEIVED IN EXPIRED TRANSPORT MEDIA; SPECIMENS SUBMITTED IN FIXATIVE OR ADDITIVES; SPECIMENS RECEIVED AFTER A PROLONGED DELAY IN TRANSPORT; UNLABELED SPECIMENS
NORMAL RANGE: NO CMV VIRUS DETECTED
ADDITIONAL INFORMATION: CMV INFECTIONS ARE COMMMON AND ARE OFTEN ASYMPTOMATIC, BUT CAN BE SEVERE AND LIFE THREATENING IN IMMUNOCOMPROMISED PATIENTS INCLUDING ORGAN RECIPIENTS AND AIDS PATIENTS. SEROLOGY FOR THE DETECTION OF CYTOMEGALOV1RUS IS AVAILABLE.

CYTOMEGALOVIRUS (CMV) BY PCR (QUANTITATIVE)

CPT: 87497
TEST INCLUDES: POLYMERASE CHAIN REACTION (PCR) WITH ENZYME IMMUNOASSAY (EIA) DETECTION
SPECIMEN TYPE: PLASMA
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
MINIMUM VOLUME: 1 ml
COLLECTION TUBE: LAVENDER TOP TUBE (EDTA). PLASMA MUST BE SEPARATED WITHIN 24 HRS.
STORAGE REQUIREMENTS: REFRIGERATE
CAUSE FOR REJECITION: QUANTITY NOT SUFFICIENT FOR ANALYSIS, WHOLE BLOOD OLDER THAN 24 HOURS
REFERENCE INTERVAL: NO CMV DETECTED
ADDITIONAL INFORMATION: DETECTS CMV DNA IN CLINICAL SPECIMENS. USED TO MANAGE CMV INFECTIONS.

DENGUE FEVER ANTIBODY
CPT 86790;86790* (*this test was performed using a kit that has not been cleared or approved by the FDA. The analytical performance characteristics of this test have been determined by Focus Diagnostics. This test should not be used for diagnosis without confirmation by other medically established means).
SYNONYMS:
TEST INCLUDES: BOTH IgG AND IgM ANTIBODIES AGAINST ALL FOUR DENGUE FEVER VIRUS TYPES.
METHODOLOGY: ELISA
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 0.5 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: $2 – 8^0$C
REFERENCE INTERVAL: IgG - < 0.90; IgM - < 0.90
ADDITIONAL INFORMATION: EXCEPT FOR VERY EARLY IgM RESPONSES, THE IMMUNE RESPONSE TO DENGUE FEVER IS NOT TYPE SPECIFIC. THEREFORE, TYPE SPECIFIC REACTIONS ARE NOT REPORTED. PAIRED TESTING OF ACUTE AND CONVALESCENT SAMPLES IS PREFERRED. IN MOST PATIENTS, DENGUE ANTIBODIES ARE DETECTABLE AFTER THE SIXTH DAY FOLLOWING THE ONSET OF SYMPTOMS. CROSSREACTIVITY WITH OTHER FLAVIVIRUSES IS KNOWN TO OCCUR. THE EXTENT AND DEGREE OF CROSSREACTION VARIES.

ECHOVIRUS ANTIBODY BY CF
CPT 86658 X 4
SYNONYMS:
TEST INCLUDES: ANTIBODY T1TER RESPONSES FOR ECHO (4, 7, 9, 11 AND 30}
METHODOLOGY: COMPLEMENT FIXATION (CF)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NO ANTIBODY DETECTED
ADDITIONAL INFORMATION: ECHOVIRUSES ARE ASSOCIATED WITH CLINICAL SYNDROMES WHICH RANGE FROM ACUTE RESPIRATORY DISEASES TO INFECTIONS OF THE CENTRAL NERVOUS SYSTEM. THIS TEST DETECTS ANTIBODY TITERS FOR 5 OF THE 31 ECHOVIRUS SEROTYPES. ALL FIVE ARE ASSOCIATED WITH PERIODIC EPIDEMIC OUTBREAKS.

ENTEROVIRUS ANTIBODIES PROFILE
CPT 86658 X 14
SYNONYMS:
TEST INCLUDES: QUANTITATIVE CF ANTIBODIES FOR: COXSACKIE VIRUS GROUP B; ECHOVIRUS; POLIOVIRUS (TYPES 1 – 3)
METHODOLOGY: COMPLEMENT FIXATION (CF):
SPECIMEN TYPE: SERUM OR CSF
MINIMUM VOLLIME: 3ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE FOR SERUM, STERILE CONTAINER FOR CSF
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: SEE INDIVIDUAL TESTS
ADDITIONAL INFORMATION: IDENTIFY SPECIMEN AS ACUTE OR CONVALESCENT PHASE. SUBMIT WITH APPROPRIATE TEST REQUEST INFORMATION.

ENTEROVIRUS BY PCR
CPT 87798
METHODOLOGY: REVERSE TRANSCRIPTASE POLYMERASE CHAIN REACTION (RT-PCR) AND REAL-TIME DETECTION PROBE TECHNOLOGY
SPECIMEN TYPE: CEREBROSPINAL FLUID (CSF), NASOPHARYNGEAL OR THROAT SWAB, RECTAL SWAB, STOOL, BAL, OR FROZEN TISSUE
COLLECTION TUBE: VIRAL TRANSPORT MEDIUM (UTM) FOR NASOPHARYNGEAL SWAB, RECTAL SWAB, THROAT SWAB; STERILE PLASTIC CONTAINER FOR CSF, STOOL, TISSUE.
STORAGE REQUIREMENTS: REFRIGERATE SWABS AND CSF. FREEZE TISSUE IMMEDIATELY AFTER COLLECTION.
REFERENCE INTERVAL: NO ENTEROVIRUS DETECTED
ADDITIONAL INFORMATION: DETECTS ENTEROVIRUS RNA IN CLINICAL SPECIMENS. THIS ASSAY IS USEFUL IN THE DIAGNOSIS OF ASEPTIC MENINGITIS.

EPSTEIN-BARR VIRUS (EBV) ANTIBODIES TO EARLY ANTIGEN, IgG
CPT 86683
SYNONYMS: EBV-EA ANTIBODIES
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: NEGATIVE less than 1:10
ADDITIONAL INFORMATION: AID IN THE DIAGNOSIS OF EBV INFECTION (INFECTIOUS MONONUCLEOSIS). PRESENCE OF ANTINUCLEAR ANTIBODY OR NONSPECIFIC FLUORESCENT ANTIBODIES MAY INTERFERE WITH THE INTERPRETATION OF THIS TEST.

EPSTEIN-BARR VIRUS (EBV) ANTIBODIES TO VIRAL CAPSID ANTIGEN (VCA), IgG
CPT 86665
SYNONYMS: EBV-VCA IgG ANTIBODIES
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: NEGATIVE less than 1:10
ADDITIONAL INFORMATION: DIFFERENTIAL DIAGNOSIS OF INFECTIOUS MONONUCLEOSIS

EPSTEIN-BARR VIRUS (EBV) ANTIBODIES TO VIRAL CAPSID ANTIGEN (VCA) IgM
CPT 86665
SYNONYMS: EBV-VCA IgM
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: NEGATIVE less than 1:10
ADDITIONAL INFORMATION: AID IN THE DIAGNOSIS OF ACUTE EBV INFECTION (INFECTIOUS MONONUCLEOSIS). WEAKLY POSITIVE RESULTS REQUIRE CAUTIOUS INTERPRETATION.

EPSTEIN-BARR VIRUS (EBV) NUCLEAR ANTIGEN, IgG ANTIBODIES
CPT 86664
SYNONYMS: EBV-NA, EBNA
TEST INCLUDES: TITER, QUANTITATIVE
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE less than 1:4
ADDITIONAL INFORMATION: AID IN THE DIAGNOSIS OF EBV INFECTIONS (INFECTIOUS MONONUCLEOSIS)

EPSTEIN BARR VIRUS (EBV) BY PCR
CPT 87799
SYNONYMS: EPSTEIN BARR VIRUS (EBV); QUANTITATIVE; DNA BY REAL TIME PCR
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR) WITH REAL TIME PCR
SPECIMEN TYPE: WHOLE BLOOD, CSF, SERUM
MINIMUM VOLUME: 1 ml CSF; 5 ml WHOLE BLOOD OR, 1 ML SERUM
COLLECTION TUBE: STERILE CONTAINER FOR CSF; LAVENDER TOP (EDTA) TUBE FOR WHOLE BLOOD, SERUM SEPARATOR TUBE FOR SERUM
STORAGE REQUIREMENTS: MAINTAIN BLOOD AT ROOM TEMPERATURE, CSF AND SERUM FROZEN
REFERENCE INTERVAL: NO EBV DNA DETECTED
ADDITIONAL INFORMATION: VIRAL LOAD IS A VERY VALUABLE TOOL IN ASSESSING DISEASE PROGNOSIS AND EFFICACY OF THERAPY. THERE IS A DIRECT RELATIONSHIP BETWEEN EBV VIRAL LOAD AND THE DEVELOPMENT OF EBV DISEASE

HERPES SIMPLEX VIRUS (HSV) CULTURE AND TYPING
CPT 87252
SYNONYMS: HERPES VIRUS CULTURE WITH REFLEX TYPING, HERPES SIMPLEX, VIRAL CULTURE, HSV. VIRUS ISOLATION, HERPES SIMPLEX
TEST INCLUDES: CONVENTIONAL TISSUE CULTURES FOR HERPES VIRUS AND TYPING OF POSITIVE CULTURES AS HSV TYPE I OR HSV TYPE 2
METHODOLOGY: TISSUE CULTURE CULTIVATION OF VIRUS WITH CONFIRMATION BY FLUORESCENT STAINING
SPECIMEN TYPE: VESICULAR FLUID, ULCERATED LESIONS, PHARYNGEAL AND THROAT SWABS, URINE, CEREBROSPINAL FLUID (CSF), AUTOPSY AND BIOPSY MATERIAL, EYE EXUDATES, VAGINAL SWABS, RECTAL SWABS
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
ADDITIONAL INFORMATION: HSV CAN ONLY RARELY BE ISOLATED FROM THE CSF OF PATIENTS WITH HSV1 ENCEPHALITIS. SEROLOGY FOR THE DETECTION OF HERPES SIMPLEX IS AVAILABLE, BUT THE RESULTS ARE OF LIMITED VALUE AS THERE IS MUCH CROSS-REACTION BETWEEN THE ANTIBODIES TO HSV1 AND HSV2 AND MANY INFECTED PATIENTS MAY BE SERONEGATIVE.

HERPES SIMPLEX VIRUS (HSV) TYPES I/II, DNA BY PCR
CPT 87529
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR) REAL TIME TECHNOLOGY
SPECIMEN TYPE: CEREBROSPINAL FLUID, VESICLE SWAB, TISSUE
MINIMUM VOLUME: 0.5 ml CSF, 250 mg TISSUE
COLLECTION TUBE: VIRAL TRANSPORT TUBE (UTM) FOR VESICLE SWAB, STERILE PLASTIC CONTAINER FOR CSF AND TISSUE.
STORAGE REQUIREMENTS: REFRIGERATE CSF OF SWAB. FREEZE TISSUE. SPECIMENS MUST BE SHIPPED WITHIN 24 HRS.
REFERENCE INTERVAL: NO HSV DNA DETECTED
ADDITIONAL INFORMATION: DETECT HSV I AND HSV II DNA IN CLINICAL SPECIMENS; SUPPORTS A DIAGNOSIS OF HSV ENCEPHALITIS AND HSV MENINGITIS.

HERPES SIMPLEX VIRUS (HSV) TYPES 1 AND 2 SPECIFIC ANTIBODY, IgG
CPT: 86695, 86696
SYNONYMS: HERPES 1 AND HERPES 2, HSV 1 AND 2
TEST INCLUDES: DETECTION OF IgG ANTIBODIES TO HSV 1 AND HSV 2
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME:2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE: less than 0.90
ADDITIONAL INFORMATION: NEGATIVE INDICATES NO ANTIBODIES DETECTED

HERPES SIMPLEX VIRUS (HSV) TYPES I- AND II- SPECIFIC ANTIBODIES, IgG
CPT 86695, 86696
SYNONYMS: HERPES-I and II; HSV-1 and 2
TEST INCLUDES: DETECTION OF ANTIBODIES SPECIFIC TO HERPES TYPE I AND/OR II ONLY
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE less than 0.9 INDEX
ADDITIONAL INFORMATION: ANTIBODIES FORMED AGAINST EITHER VIRUS ARE HIGHLY CROSS REACTIVE.

HERPES SIMPLEX VIRUS (HSV) TYPE 1 AND TYPE 2, IgM
CPT 86694
SYNONYMS: HERPES VIRUS HOMINIS TYPE I AND 2 IgM
TEST INCLUDES: TITERS FOR ANTIBODY RESPONSE TO TYPES 1 AND 2
METHODOLOGY: ENZYME IMMUNOASSAY
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFEENCE INTERVAL: NEGATIVE: less than 0.90, EQUIVOCAL 0.91 – 1.09, POSITIVE greater than or equal to 1.10
ADDITIONAL INFORMATION: IgM LEVELS CAN GIVE USEFUL INFORMATION ABOUT AN ACUTE EVENT.

HERPESVIRUS 6 DNA, QUALITATIVE REAL TIME PCR
CPT 87532
SYNONYMS: HHV6 DNA PCR
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: WHOLE BLOOD (EDTA), SERUM, CSF
MINIMUM VOLUME: 0.3ML
COLLECTION TUBE: LAVENDER TOP TUBE (EDTA)FOR WHOLE BLOOD; RED STOPPER OR SERUM SEPARATOR FOR SERUM; STERILE TUBE FOR CSF
STORAGE REQUIREMENTS: $2 – 8^0$ C
REFERENCE INTERVAL: NOT DETECTED
ADDITIONAL INFORMATION: HHV6 IS THE CAUSE OF THE COMMON CHILDHOOD DISEASE EXANTHM SUBITUM (ROSEOLA INFANTUM) AND CAN REACTIVATE AFTER PRIMARY INFECTION IN IMMUNOCOMPROMOSED ADULTS AND CHILDREN. THIS ASSAY DETECTS BOTH VARIANTS A AND B.

HUMAN HERPESVIRUS 6 (HHV-6), IgG ANTIBODIES, QUANTITATIVE
CPT 86790
SYNONYMS: HHV-6, IgG
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE: less than 1:20, EQUIVOCAL 1:20 – 1:80, POSITIVE greater than or equal to 1:160
ADDITIONAL INFORMATION: TO AID IN THE DIAGNOSIS OF PAST INFECTION/EXPOSURE TO ROSEOLA INFANTUM; MAY BE USEFUL IN DIAG-NOSIS OF CHRONIC FATIGUE SYNDROME. THE PRESENCE OF ELEVATED TITERS TO HHV 6 IN THE ABSENCE OF RESPONSES TO HAV, HBV, CMV, AND EBV SUGGEST THAT TITER RESULTS ARE ASSOCIATED WITH HIGH SPECIFICITY. WHEN ACUTE AND CONVALESCENT (4-6 WEEKS LATER) SERUM SAMPLES ARE COMPARED, A FOURFOLD RISE IN HHV-6 IgG TITER IS TYPICAL. FOURFOLD RISES IN TITER ARE SUGGESTIVE OF EITHER RECENT, PRIMARY OR REACTIVATED INFECTION. DURING THE ACUTE EPISODE AN ELEVATED IgM HHV-6 IS USEFUL. AN INCREASE IN IgG HHV-6 BETWEEN ACUTE AND CONVALESCENT SERUM SAMPLE IS CONSISTENT WITH A RECENT HHV-6 INFECTION.

HUMAN HERPESVIRUS 6 (HHV-6), lgG, IgM ANTIBODIES, QUANTITATIVE
CPT 86790 (X2)
SYNONYMS: HHV-6, IgG/IgM
TEST INCLUDES: HUMAN HERPESVIRUS 6 (HHV-6), IgG ANTIBODIES, QUANTITATIVE; HUMAN HERPESVIRUS (HHV-6), IgM ANTIBODIES,QUANTITATIVE
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE IgG < 1:20, IgM <1:10
ADDITIONAL INFORMATION: HHV6 INFECTS PERIPHERAL BLOOD LEUKOCYTES AND IS CONSIDERED THE AGENT OF ROSEOLA.

HUMAN HERPES VIRUS 6 (HHV-6), IgM ANTIBODIES
CPT 86790
SYNONYMS:HHV-6, IgM
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 0.5ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIRMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE: less than 1:20
ADDITIONAL INFORMATION: DETECTION OF HHV6 IgM IS INDICATIVE OF ACUTE INFECTION

HERPESVIRUS 7 DNA, QUANTITATION PCR
CPT 87799
SYNONYMS: HHV-7 DNA PCR
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: WHOLE BLOOD (EDTA), PLASMA (EDTA), SERUM
MINIMUM VOLUME: WHOLE BLOOD – 5ML; PLASMA OR SERUM – 1 ML
COLLECTION TUBE: LAVENDER TOP TUBE (EDTA) FOR WHOLE BLOOD OR PLASMA; RED STOPPER OR SERUM SEPARATOR TUBE FOR SERUM
STORAGE REQUIREMENTS: ROOM TEMPERATURE FOR WHOLE BLOOD; FROZEN FOR SERUM OR PLASMA
REFERENCE INTERVAL: < 500 HHV-7 DNA COPIES/ML (<2.7 LOG 10)
ADDITIONAL INFORMATION: HHV-7 IS CLOSELY RELATED TO HHV-6 AND CMV, AND CAN CAUSE REACTIVATION DISEASE IN TRANSPLANT PATIENTS OR OTHER IMMUNE-COMPROMISED INDIVIDUALS.

HERPESVIRUS 8 DNA PCR
CPT 87798
SYNONYMS: HHV-8 DNA PCR
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN: TISSUE, WHOLE BLOOD (EDTA) SERUM, PLASMA (EDTA)
MINIMUM VOLUME: TISSUE-3MM^3; WHOLE BLOOD-5ML; SERUM OR PLASMA-1ML
COLLECTION TUBE: STERILE CONTAINER FOR TISSUE; LAVENDER TOP TUBE (EDTA) FOR WHOLE BLOOD AND PLASMA; RED STOPPER OR SERUM SEPARATOR TUBE FOR SERUM
STORAGE REQUIREMENTS: FROZEN FOR TISSUE, SERUM AND PLASMA; ROOM TEMPERATURE FOR WHOLE BLOOD
REFERENCE INTERVAL: NOT DETECTED
ADDITIONAL INFORMATION: HHV-8 IS A DNA VIRUS THAT WAS ORIGINALLY DETECTED IN BIOPSIES OF INDIVIDUALS WITH AIDS-ASSOCIATED KAPOSI'S SARCOMA (KS). EXPERIMENTAL EVIDENCE SUGGESTS THAT HHV-8 IS THE ETIOLOGICAL AGENT OF KS

HUMAN IMMUNODEFICIENCY VIRUS (HIV-1) PROVIRAL DNA BY PCR AMPLICICATION
CPT: 87535

SYNONYMS: HIV-1
TEST INCLUDES: DETECTION OF HIV-1 PROVIRAL DNA BY PCR AMPLIFICATION
METHODOLOGY: POLYMERASE CHAIN REACTION AMPLICATION AND
DETECTION BY DNA HYBRIDIZATION
SPECIMEN TYPE: WHOLE BLOOD
MINIMUM VOLUME: 5ML (ADULT); 1.5ML (CHILD LESS THAN 10)
COLLECTION TUBE: YELLOW STOPPER (ACD) TUBE
STORAGE REQUIREMENTS: MAINTAIN SPECIMEN AT ROOM TEMPERATURE
REFERENCE INTERVAL: NO PROVIRAL DNA DETECTED
ADDITIONAL INFORMATION: RECOMMENDED USE: DETECT HIV; RESOLUTION OF INDETERMINATE HIV SEROLOGY; DETECT HIV-INFECTED NEWBORNS, FOR INVESTIGATIONAL USE ONLY. THE PERFORMANCE CHARACTERISTICS OF THIS PROCEDURE HAVE NOT BEEN ESTABLISHED.

HUMAN IMMUNODEFICIENCY VIRUS 1 (HIV-1) P24 ANTIGEN CONCENTRATION
CPT: 87390
SYNONYMS: HIV-1 P24, HIV-1 AG, P24 ANTIGEN
TEST INCLUDES: HIV-1 ANTIGEN TEST, NEUTRALIZATION AND QUANTITATION WITHOUT IMMUNE COMPLEX
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 3ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE; SPECIMENS MORE THAN 2 DAYS OLD MUST BE FROZEN
REFERENCE INTERVAL: NEGATIVE
ADDITIONAL INFORMATION: HIV-1 ANTIGEN APPEARS CONCOMMITAL WITH INITIAL INFECTION AND THEN GENERALLY BECOMES UNDETECTABLE DURING PERIODS OF VIRAL LATENCY. IT REAPPEARS WITH RENEWED VIRAL REPLICATION; THE REAAPEARANCE OF P24 ANTIGEN IN SERUM GENERALLY HERALDS PROGRESSION OF CLINICAL DISEASE IN AIDS.

HUMAN IMMUNODEFICIENCY VIRUS (HIV 1/HIV 2) EXPEDITITED TESTING
CPT 86703
SYNONYMS: RAPID HIV
METHODOLOGY: IMMUNOCHROMATOGRAPHIC TEST
SPECIMEN TYPE: SERUM, PLASMA, WHOLE BLOOD
MINIMUM VOLUME: 0.5 ML
COLLECTION TUBE: RED TOP TUBE OR SERUM SEPARATOR FOR SERUM; LAVENDER TOP TUBE (EDTA) FOR PLASMA OR WHOLE BLOOD
STORAGE REQUIREMENTS: 2 – 8^0C FOR UP TO 3 DAYS, -20^0C OR COLDER FOR LONGER STORAGE. **DO NOT FREEZE WHOLE BLOOD SAMPLES.**
REFERENCE INTERVAL: NONREACTIVE
ADDITIONAL INFORMATION: THIS ASSAY IS PERFORMED ONLY ON FEMALE PATIENTS PRESENTING IN LABOR WITH NO HISTORY OF HIV ANTIBODY TESTING. THIS ASSAY HAS NOT BEEN EVALUATED FOR NEWBORN SCREENING, CORD BLOOD SPECIMENS, OR INDIVIDUALS LESS THAN 18 AND GREATER THAN 64 YEARS OF AGE

HUMAN IMMUNODEFICIENCY VIRUS (HIV 1/HIV 2) ANTIBODIES, SCREEN AND SUBSTANTIATION

CPT 86703; 86689 (with confirmation)
SYNONYMS: HIV 1/HIV 2 ANTIBODIES
TEST INCLUDES: HIV 1/HIV 2 (r DNA EIA) WITH WESTERN BLOT CONFIRMATION
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: NO POUR OFFS, RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE
ADDITIONAL INFORMATION: HUMAN IMMUNODEFICIENCY VIRUS (HIV 1/HIV 2), THE ETIOLOGIC AGENT OF THE ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS). SERA WHICH ARE REPEATEDLY REACITVE IN TWO OUT OR THREE TESTS ARE SUBJECT TO CONFIRMATORY TESTING BY THE WESTERN BLOT METHOD (CPT CODE 86689). THE SENSITIVITY AND SPECIFICITY OF THIS ASSAY IS 100% AND 99.7 % RESPECTIVELY.

HUMAN IMMUNODEFICIENCY VIRUS (HIV - 1) ANTIBODY CONFIRMATION BY WESTERN BLOT

CPT 86689
SYNONYMS: HIV-1
TEST INCLUDES: gp 41; gp 120; gp 160; p 18; p24; p31; gp40; p51; p55; p65; WESTERN BLOT INTERPRETATION (PROTEIN BANDS ARE REPORTED AS PRESENT OR ABSENT).
METHODOLOGY: IMMUNOBLOT/WESTERN BLOT
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NO BAND PRESENT
ADDITONAL INFORMATION: TO ENSURE CONFIDENTIALITY, CODED NAME DESIGNATIONS ARE RECOMMENDED. THE HIV-1 WESTERN BLOT SHOULD NOT BE USED FOR SCREENING PURPOSES: HIV-1 EIA IS MORE SENSITIVE AND IS PREFERABLE FOR SCREENING. USING ELECTROPHORETICALLY SEPARATED HIV PROTEINS AND GLYCOPROTEINS OVERLAID WITH SERUM, ANTIBODIES BINDING TO APPROPRIATE ANTIGENS WILL BE VISUALIZED AS A DISCRETE BAND. CURRENT CRITERIA FOR A POSITIVE WESTERN BLOT INCLUDE TWO OR THREE OF THE FOLLOWING BANDS; P24; Gp 41; AND Gp 120/160. THE PRESENCE OF OTHER BAND PATTERNS IS TERMED INDETERMINATE AND SHOULD BE FOLLOWED UP WITH SUBSEQUENT TESTING.

HUMAN IMMUNODEFICIENCY VIRUS 1 (HIV -1) RNA, QUANTITATIVE

CPT 87536
SYNONYMS: HIV-1 PLASMA VIREMIA, VIRAL LOAD
TEST INCLUDES: PCR TECHNOLOGY AND DNA PROBE
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR) AMPLIFICATION
SPECIMEN TYPE: PLASMA (LAVENDER TOP)
MINIMUM VOLUME: 2 ML
COLLECTION TUBE: OBTAIN PLASMA FROM EDTA (LAVENDER) ANTICOAGULATED BLOOD WITHIN 3 HOURS OF DRAW. FREEZE PLASMA AT -70°C AND SHIP IF NECESSARY ON DRY ICE
STORAGE REQUIREMENTS: FREEZE PLASMA AT -70° C
USE: DETECT AND QUANTITATE HIV-1 IN PLASMA
CAUSE FOR REJECTION: HEPARINIZED PLASMA
REFERENCE INTERVAL: LESS THAN 400 COPIES HIV-I RNA/ML
ADDITIONAL INFORMATION: USED TO DETECT AND QUANTITATE HIV RNA IN PLASMA
TESTING RANGE LIMITATIONS: LESS THAT 400 - 750,000

HUMAN IMMUNODEFICIENCY VIRUS (HIV), ULTRASENSITIVE RNA

CPT 87536
SYNONYMS: HIV-1 PLASMA VIREMIA, HIV RNA, ULTRASENSITIVE RNA QUANTITATION
TEST INCLUDES: SERIAL MONITOR REPORT
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR) AMPLIFICATION AND DNA PROBE DETECTION
SPECIMEN TYPE: PLASMA
MINIMUM VOLUME: 5.0 ML
COLLECTION TUBE: 1 FULL 10 ML LAVENDER TOP TUBE (EDTA), CENTRIFUGE BLOOD AND SEPARATE PLASMA WITHIN 6 HRS OF DRAW.
STORAGE: FREEZE PLASMA AT -70^0C
USE: DETERMINE THE QUANTITY OF HIV-1 RNA IN PLASMA (VIRAL LOAD)
CAUSES FOR REJECTION: HEPARINIZED PLASMA, HEMOLYSIS, PLASMA SEPARATED FROM CELLS > 6 HRS AFTER DRAW
REFERENCE INTERVAL: LESS THAN 50 COPIES HIV-1 RNA/ML
TESTING RANGE LIMITATIONS: LESS THAN 50 – 100,000 COPIES/ML

HUMAN IMMUNODEFICIENCY VIRUS (HIV) GENOSURE
CPT 87901, 87536

SYNONYMS: HIV GENOTYPE; RESISTANCE ANALYSIS; RETROVIRAL GENOTYPE
TEST INCLUDES: IF THERE IS SUFFICENT VIRUS TO PRODUCE RESULTS, HIV-1 RNA QUANTITATION WILL BE PERFORMED TO CONFIRM VIRAL LOAD
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR) AMPLIFICATION AND DNA SEQUENCING
SPECIMEN TYPE: PLASMA
MINIMUM VOLUME: 2 ML
COLLECTION TUBE: LAVENDER STOPPER TUBE (EDTA), SEPARATE PLASMA FROM WHOLE BLOOD WITHIN 6 HOURS OF COLLECTION. TRANSFER PLASMA TO A SCREW-CAPPED POLYPROPYLENE TRANSPORT TUBE.
STORAGE: FREEZE
REFERENCE INTERVAL: NO EVIDENCE OF RESISTANCE
ADDITIONAL INFORMATION: THIS PROCEDURE MAY NOT BE SUCCESSFUL WHEN THE HIV VIRAL LOAD IS < 1000 COPIES/ML PLASMA

HUMAN IMMUNODEFICIENCY VIRUS (HIV) DRUG RESISTANCE ASSAY, PHENOSENSE GT
CPT 87903, 87904, x 2, 87536
SYNONYMS: PHENOSENSE; PHENOSENSE GT; HIV DRUG RESISTANCE ASSAY; PHENOTYPING
TEST INCLUDES: RESISTANCE INFORMATION (PHENOTYPE AND GENOTYPE) AND MEASURE OF REPLICATION CAPACITY.
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: PLASMA
MINIMUM VOLUME: 2.0 ml
COLLECTION TUBE: LAVENDER TOP TUBE (EDTA); CENTRIFUGE BLOOD AND SEPARATE PLASMA WITHIN 2 HRS OF DRAW. TRANSFER PLASMA TO A POLYPROPYLENE TRANSPORT TUBE.
STORAGE: FREEZE PLASMA AT -70^{0}C
REFERENCE INTERVAL: NO EVIDENCE OF RESISTANCE
ADDITIONAL INFORMATION: SUPPLEMENTS COMPREHENSIVE RESISTANCE INFORMATION WITH REPLICATION CAPACITY.

HUMAN PARVOVIRUS B 19, IgG, IgM
CPT 86747 X2
SYNONYMS: PARVOVIRUS B19
TEST INCLUDES: HUMAN PARVOVIRUS B 19, IgG, IgM
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 0.5ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE: IgG less than 0.80, IgM less than 0.80
ADDITIONAL INFORMATION: DIFFERENTIAL DIAGNOSIS OF ACUTE OR RECENT INFECTION FROM PAST INFECTION WITH HUMAN PARVOVIRUS ASSOCIATED WITH ERYTHEMA INFECTIOSUM (FIFTH DISEASE), APLASTIC CRISIS AND FETAL INFECTION. FOR INVESTIGATIONAL USE ONLY, THE PERFORMANCE CHARACTERISTICS OF THIS PROCEDURE HAVE NOT BEEN ESTABLISHED. IgM ANTIBODIES ARE DETECTABLE 2 WEEKS AFTER EXPOSURE. IgG ANTIBODY PRODUCTION USUALLY OCCURS 18-24 DAYS AFTER EXPOSURE. THE PRESENCE OF IgM ANTI-BODIES TO PARVOVIRUS B19 PROVIDE DEFINITIVE EVIDENCE OF RECENT INFECTION.

HUMAN T - CELL LYMPHOTROHIC VIRUS I, II (HTLV1/ HTLV II) QUALITATIVE

CPT 86790
SYNONYMS: HTLV-I/HTLV-II
METHODOLOGY: ENZYME IMMUNOASSAY (EIA), LINE BLOT (IMMUNOBLOT)
SPECIMEN TYPE: SERUM OR PLASMA
MINIMUM VOLUME: 2 ML
COLLECTION TUBE: RED TOP, SERUM SEPARATOR TUBE OR LAVENDER (EDTA) PLASMA TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE
ADDITIONAL INFORMATION: TO DETERMINE ANTIBODY STATUS FOR HTLV-I/HTLV-2 (AGENT CAUSING ADULT T-CELL LEUKEMIA AND TROPICAL SPASTIC PARAPARESIS). ADULT T-CELL LEUKEMIA IS AN AGGRESSIVE MALIGNANCY OF T-LYMPHOCYTES OFTEN ASSOCIATED WITH SKIN INFILTRATES AND HYPERCALCEMIA. THE VIRUS IS TROPIC FOR T4 LYMPHOCYTES AND IS PASSED BY SEXUAL CONTACT AND BLOOD PRODUCTS, FROM MOTHER TO FETUS AND BY BREAST MILK. PRETRANSFUSION TESTING FOR ANTIBODY TO HTLV-I/HTLV-2 IS NOW MANDATED BY BLOOD BANKS IN ORDER TO AVOID POTENTIAL TRANSFUSION TRANSMITTED HTLV-1/HTLV-2 INFECTION PROM ASYMPTOMATIC BUT INFECTED DONORS.

HUMAN T-CELL LYMPHOTROPIC VIRUS I, II (HTLV-1 AND HTLV-II) DNA BY PCR

CPT 87798
SYNONYMS: HTLV-1, HTLV-II
TEST INCLUDES: PCR TECHNOLOGY AND DNA ANALYSIS PROBE ANALYSIS METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: WHOLE BLOOD
MINIMUM VOLUME: 5ML (ADULTS); 1.5ML (CHILDREN less than 10)
COLLECTION TUBE: YELLOW STOPPER (ACD) TUBE
STORAGE REQUIREMENTS: MAINTAIN SPECIMEN AT ROOM TEMPERATURE, SPECIMENS ARE STABLE FOR AS LONG AS 96 HOURS
REFERENCE INTERVAL; NEGATIVE
ADDITIONAL INFORMATION: USE TO DETECT HTLV-1 AND HTLV-II, DISCRIMINATE BETWEEN HTLV-I AND HTLV-II, RESOLUTION OF INDETERMINATE SEROLOGY, FOR INVESTIGATIONAL USE ONLY. THE PERFORMANCE CHARACTERISTICS OF THIS PROCEDURE HAVE NOT BEEN ESTABLISHED.

INFLUENZA A AND B ANTIBODIES, QUANTITATIVE
CPT 86710 (X2)
SYNONYMS:
TEST INCLUDES: DETECTION OF ANTIBODIES TO INFLUENZA A AND B
METHODOLOGY: COMPLEMENT FIXATION (CF)
REQUEST FORM:
MINIMUM VOLUME: 2 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE, LESS THAN 1:8
ADDITIONAL INFORMATION: SEROLOGIC TYPING IS VALUABLE FOR EPIDEMIOLOGY AND FOR PLANNING THERAPY. SINCE TYPE A INFLUENZA CAN BE TREATED WITH AMANTADINE, BUT TYPE B CANNOT, THIS DISTINCTION MAY NEED TO BE MADE: THIS CAN ALLOW FOR THE RAPID IMPLEMENTATION OF APPROPRIATE CONTROL AND/OR PROPHYLACTIC MEASURES. IDENTIFY SPECIMENS AS ACUTE OR CONVALESCENT PHASE AND SUBMIT TEST REQUESTS AS APPROPRIATE.

INFLUENZA A AND B ANTIGEN DETECTION

CPT 87899X2
SYNONYMS: FLU A AND B; RAPID FLU A AND B; DIRECT DETECTION OF INFLUENZA A AND B ANTIGENS
TEST INCLUDES: INFLUENZA A AND B VIRAL ANTIGEN DETECTION
METHODOLOGY: DIRECT IMMUNOASSAY
SPECIMEN TYPE: THROAT SWABS, NASOPHARYNGEAL SWABS, LOWER NASOPHARYNGEAL SWAB, NASOPHARYNGEAL WASH, NASAL ASPIRATE, COLLECTED IN (UTM) TRANSPORT MEDIA, AND BRONCHOALVEOLAR LAVAGES.
MINIMUM VOLUME: 2 - 3 ML
COLLECTION TUBE: (UTM) TRANSPORT OR STERILE LEAKPROOF CONTAINER
STORAGE REQUIREMENT: REFRIGERATE
REFERENCE INTERVAL : NEGATIVE, NO INFLUENZA A OR B DETECTED
ADDITIONAL INFORMATION: THIS RAPID TEST MAY BE USEFUL IN EARLY DOCUMENTATION OF INFLUENZA IN A COMMUNITY NOT KNOWN TO HAVE FLU ACTIVITY DURING THE CURRENT SEASON. THIS CAN ALLOW FOR RAPID IMPLEMENTATION OF CONTROL AND/OR PROPHYLACTIC MEASURES, CONVENTIONAL CELL CULTURE BACKUP.

JC VIRUS DNA, PCR
CPT 87798
SYNONYMS: JCV
TEST INCLUDES: DETECTION OF JC VIRUS DNA
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN: CSF, PLASMA (ACD OR EDTA), URINE
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: STERILE TUBE
STORAGE REQUIREMENT: FROZEN, TRANSPORT OVERNIGHT
REFERENCE INTERVAL: NOT DETECTED
ADDITIONAL INFORMATION: JC VIRUS IS THE CAUSE OF PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY (PML). PML IS A PARTCULAR CONCERN FOR INDIVIDUALS INFECTED WITH HIV.

MEASLES, MUMPS, RUBELLA (MMR) IMMUNITY PANEL (SEE INDIVIDUAL TESTS)
CPT 86735; 86762; 86765
SYNONYMS: MMR
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: SEE INDIVIDUAL TESTS
ADDITIONAL INFORMATION: PRESENCE OF SPECIFIC VIRAL ANTIBODIES IS PRESUMPTIVE EVIDENCE OF IMMUNITY IN THE ABSENCE OF CLINICAL FINDINGS SUGGESTING ACUTE INFECTION.

MEASLES ANTIBODIES, IgG, QUALITATIVE
CPT 86765.
SYNONYMS: RUBEOLA
TEST INCLUDES: 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
ADDITIONAL INFORMATION: DETERMINE IMMUNITY TO MEASLES VIRUS

MEASLES ANTIBODIES (IgG) QUANTITATIVE
CPT 86765
SYNONYMS: RUBEOLA ANTIBODIES, MEASLES ANTIBODIES
TEST INCLUDES: RESULTS REPORTED QUANTITATIVELY
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED TOP, SST
STORAGE REQUIREMENT: REFRIGERATE
REFERENCE INTERVAL: LESS THAN 1:8
ADDITIONAL INFORMATION: MAY BE USED TO DETERMINE STATUS, OR WITH PAIRED SERA, AID IN THE DIAGNOSIS OF RECENT INFECTION. MEASLES (RUBEOLA) IS CAUSED BY A PARAMYOVIRUS AND DESPITE VACCINATION PROGRAMS THERE HAVE BEEN SEVERAL RECENT EPIDEMICS. REVACCINATION APPEARS TO BE OF GREATER VALUE AT 11 – 12 YEARS OF AGE THAN AT 4 – 6 YEARS OF AGE. SEROLOGIC STUDY CAN BE USEFUL IN ESTABLISHING THAT AN INDIVIDUAL HAS EFFCTIVE IMMUNITY SUBSEQUENT TO VACCINATION. IN MANY INDIVIDUALS, DETECTABLE IMMUNITY DOES NOT PERSISIT.

MEASLES ANTIBODIES IgM,
CPT 86765
SYNONYMS: RUBEOLA
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED TOP, SST
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE, less than 0.9 INDEX
ADDITIONAL INFORMATION: DEMONSTRATES ACUTE INFECTION WITH MEASLES VIRUS, DIFFERNETIAL DIAGNOSIS OF A PREGNANT FEMALE EXPOSED TO OR PRESENTING WITH A RASH.

MUMPS ANTIBODIES, IgG, QUALITATIVE
CPT 86735
SYNONYMS: PAROTITIS EPIDEIMICA ANTIBODIES
TEST INCLUDES: 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
ADDITIONAL INFORMATION: DETERMINE IMMUNITY TO MUMPS VIRUS

MUMPS ATIBODIES, IgM, QUANTITATIVE
CPT 86735
SYNONYMS:
TEST INCLUDES: QUANTITATIVE TITER OF IgM ANTIBODIES
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFIGERATE
REFERENCE INTERVAL: NEGATIVE: less than 0.90, BORDERLINE: 0.91-1.10, POSITIVE: GREATER THAN 1.10
ADDITIONAL INFORMATION: AID IN THE DIAGNOSIS OF ACUTE MUMPS INFECTION

MYCOPLASMA PNEUMONIAE IgG ANTIBODIES
CPT 86738
SYNONYMS: ATYPICAL PNEUMONIA ANTIBODIES, PPLO ANTIBODIES
TEST INCLUDES: QUANTITATIVE TITERS
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MIMIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: ROOM TEMPERATURE
REFERENCE INTERVAL: NEGATIVE less than 100 units/ml
ADDITIONAL INFORMATION: A positive result indicated prior exposure to Mycoplasma.

MYCOPLASMA PNEUMONIAE IgM ANTIBODIES
CPT 86738
SYNONYMS: ATYPICAL PNEUMONIA ANTIBODIES; PLEUROPNEUMONIA-LIKE ORAGANISM (PPLO) ANTIBODIES
TEST INCLUDES: QUANTITATIVE units/ml
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ml
COLLECTION TUBE: RED STOPPER TUBE OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: ROOM TEMPERATURE
REFERENCE INTERVAL: NEGATIVE; less than 770 units/ml
ADDITIONAL INFORMATION: LOW POSTIVE RESULTS (770-950 units/ml) ARE PRESUMPTIVE EVIDENCE OF ACUTE OR RECENT INFECTION. IT IS RECOMMENDED THAT THE TEST BE REPEATED ON A FRESH SPECIMEN 1 – 2 WEEKS LATER TO ASSURE REACTIVITY.

MYCOPLASMA CULTURE
CPT 87109
SYNONYMS: CULTURE, MYCOPLASMA PNEUMONIAE, PPLO CULTURE
TEST INCLUDES: TRIPHASIC CULTURE
METHODOLOGY: CULTURE
SPECIMEN TYPE: THROAT SWABS, SPUTUM, BRONCHIAL WASHINGS, LUNG TISSUE, TRACHEAL ASPIRATES
COLLECTION TUBE: VIRAL CULTURE COLLECTION SWAB AND (UTM) TRANSPORT
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NO MYCOPLASMA PNEUMONIAE DETECTED
ADDITIONAL INFORMATION: DO NOT USE SWABS WITH WOODEN STICKS. THE CULTURE PROCEDURE IS NOT OFTEN USED BECAUSE IT IS SLOW AND SOMEWHAT INSENSITIVE. CONSULT THE LABORATORY FOR AVAILABLE SPECIFIC TESTS AND SPECIFIC INSTRUCTIONS FOR SPECIMEN COLLECTION.

MYCOPLASMA PNEUMONIAE DNA PCR
CPT 87581
SYNONYMS:
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPES: THROAT OR NASOPHARYNGEAL SWAB; BRONCHIAL WASH; SPUTUM; NASAL ASPIRATE; PLEURAL FLUID; CSF; FROZEN LUNG TISSUE; PARAFFIN EMBEDDED TISSUE
MINIMUM VOLUME: ONE SWAB; 0.2 ML BRONCHIAL WASH, SPUTUM, ASPIRATE, PLERUAL FLUID, OR CSF; 100 MG FROZEN TISSUE; 2-3 SECTIONS OF PARAFFIN-EMBEDDED TISSUE
COLLECTION TUBE: STERILE CONTAINER FOR FLUID AND TISSUE, UNIVERSAL TRANSPORT MEDIA (UTM) FOR SWAB
STORAGE REQUIREMENTS: REFRIGERATE SWABS OR FLUIDS, FREEZE TISSUE IMMEDIATELY AFTER COLLECTION.
REFERENCE INTERVAL: NOT DETECTED
ADDITIONAL INFORMATION: MYCOPLASMA PNEUMONIAE IS THE LEADING CAUSE OF ATYPICAL PNEUMONIA

MYCOPLASMA/UREAPLASMA REAL TIME PCR
CPT 87801
SYNONYMS: MYCOPLASMA, DNA; MYCOPLASMA PCR; UREAPLASMA DNA; UREAPLASMA PCR
METHODOLOGY: POLYMERASE CHAIN REACTION (PCR) AMPLIFICAITON AND REAL TIME PCR
SPECIMEN TYPES: GENITAL/URETHRAL SWAB, TISSUE, SEMEN, URINE
MINIMUM VOLUME: ONE SWAB, 100 MG TISSUE, 0.5 ML SEMEN, 0.5 ML URINE
COLLECTION TUBE: SWAB IN UNIVERSAL TRANSPORT MEDIA (UTM); STERILE CONTAINER FOR TISSUE, SEMEN URINE.
STORAGE REQUIREMENTS: REFRIGERATE SWAB, SEMEN, OR URINE. FREEZE TISSUE AND SHIP ON DRY ICE
REFERENCE INTERVAL: NOT DETECTED
ADDITIONAL INFORMATION:

NOROVIRUS DETECTION, REAL TIME PCR
CPT 87798
SYNONYMS: HUMAN CALICIVIRUS; NOROVIRUS; NORWALK VIRUS; SNOW MOUNTAIN AGENT
METHODOLOGY: REVERSE TRANSCRIPTION POLYMERASE CHAIN REACTION (RT-PCR)
SPECIMEN TYPE: STOOL
MINIMUM VOLUME: 5 ML
COLLECTION TUBE: STERILE CONTAINER
STORAGE REQUIREMENTS: REFRIGERATE FOR 1 – 3 DAYS, FREEZE AFTER 3 DAYS
REFERENCE INTERVAL: NOT DETECTED
ADDITIONAL INFORMATION: NOROVIRUSES ARE A MAJOR CAUSE OF VIRAL GASTROENTERITIS IN CHILDREN AND ADULTS WITH LARGE OUTBREAKS REPORTED IN HOSPITALS, CRUISE SHIPS, SCHOOL AND RESIDENTIAL HOMES.

PARAINFLUENZA VIRUS ANTIBODIES BY CF
CPT 86790 X3
SYNONYMS: PARAMYXOVIRUS ANTIBODIES; PIV ANTIBODIES
TEST INCLUDES: TITERS FOR ANTIBODIES TO TYPES 1,2, 3
METHODOLOGY: COMPLEMENT FIXATION (CF)
SPECIMEN TYPE: SERUM
MIMINUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE: less than 1:8
ADDITIONAL INFORMATION: AID THE DIAGNOSIS OF PARAINFLUENZA VIRAL INFECTIONS. CF (COMPLEMENT FIXATION) TESTING OF THIS VIRUS IS SOMEWHAT LESS SENSITIVE THAN HI OR NEUTRALIZATION TESTING.

POLIOVIRUS ANTIBODIES BY CF
CPT 86658 (X3)
SYNONYMS: POLIOMYELITIS ANTIBODIES
TEST INCLUDES: POLIO ANTIBODY TITER
METHODOLOGY: COMPLEMENT FIXATION (CF)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED TOP,SST TUBE
SPECIMEN: SERUM
STORAGE REQUIREMENT: REFRIGERATE
REFERENCE INTERVAL: less than 1:8
ADDITIONAL INFORMATION: ALTHOUGH THERE IS CROSS REACTIVITY AMONG THE ENTEROVIRUSES, MOST HEALTHY ADULTS DO NOT HAVE DETECTABLE CF TITERS. THEREFORE, DETECTABLE TITERS, ESPECIALLY THOSE $\geq$ 1:32, SHOULD BE CONSIDERED IN THIS CONTEXT. SERODIAGNOSIS IS MADE BY DEMONSTRATION OF FOUR-FOLD CHANGE IN TERES BETWEEN ACUTE AND CONVALESCENT SERA.

POLIOVIRUS ANTIBODIES, NEUTRALIZATION
CPT 87253 X 3, 87252 X 3
SYNONYMS:
TEST INCLUDES: ANTIBODY TYPES TO THE THREE SEROTYPES OF POLIOVIRUS
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED TOP, SST TUBE
METHODOLOGY: NEUTRALIZATION
STORAGE REQUIREMENT: REFRIGERATE
REFERENCE INTERVAL: less than 1:8
ADDITIONAL INFORMATION: RECOMMENDED FOR VACCINE RESPONSE TESTING AND TYPE SPECIFIC SERODIAGNOSIS OF RECENT POLIOVIRUS INFECTION. IT CAN ALSO SERVE AS AN AID FOR DIAGNOSING IMMUNE DEFICIENCY DISORDERS.

REOVIRUS GROUP SPECIFIC ANTIBODIES, QUANTITATIVE BY CF
CPT 86790
SYNONYMS:
TEST INCLUDES: TITER
METHODOLOGY: COMPLEMENT FIXATION (CF)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFENENCE INTERVAL: less than 1:8
ADDITIONAL INFORMATION: FOR THE USE IN THE DIFFERENTIAL DIAGNOSIS OF EXANTHEMS, RESPIRATORY INFECTIONS, Gl DISORDERS AND HEPATITIS.

RESPIRATORY VIRAL SCREEN
CPT 87300,87254,87260,87276,87275,87279(X3),87280,87140
SYNONYMS: RESPIRATORY VIRUS ISOLATION, RESPIRATORY CULTURE
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
ADDITIONAL INFORMATION: VIRAL IDENTIFICATION HAS BECOME INCREASINGLY IMPORTANT IN RULING OUT BACTERIA AS THE CAUSE OF RESPIRATORY INFECTIONS AS THERE IS A NEED TO BE MORE DISCRIMINATING IN THE USE OF ANTIBIOTICS.

RESPIRATORY SYNCYTIAL VIRUS (RSV) DIRECT ANTIGEN DETECTION
CPT 87420
SYNONYMS: DIRECT DETECTION, RAPID ANTIGEN DETECTION
TEST INCLUDES: DIRECT DETECTION
METHODOLOGY: RAPID ANTIGEN DETECTION
SPECIMEN TYPE: NASOPHARYNGEAL WASHES , ASPIRATES, AND SWABS
MINIMUM VOLUME: 2.0 ml FOR WASHES; 0.5 ML ASPIRATES; PLACE SWABS IN 0.75 – 30 ml OF VIRAL TRANSPORT MEDIA (UTM) OR PHYSIOLOGICAL SALINE.
COLLECTION TUBE: STERILE LEAKPROOF CONTAINER FOR WASHES AND ASPIRATES, (UTM) TUBE FOR SWABS.
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NO RSV ANTIGEN DETECTED, NEGATIVE
ADDITIONAL INFORMATION: USED TO EVALUATE LOWER RESPIRATORY TRACT INFECTIONS IN YOUNG CHILDREN. SEVERE LIFE-THREATENING INFECTIONS DUE TO RESPIRATORY SYNCYTIAL VIRUS CAN OCCUR DURING THE FIRST FEW YEARS. ACQUIRED IMMUNITY IS INCOMPLETE AND REINFECTION CAN OCCUR LATER. THE TEST ALLOWS RAPID DIAGNOSIS OF THE PRESENCE OF RESPIRATORY SYNCYTIAL VIRUS. IT AVOIDS THE NECESSITY OF OBTAINING ACUTE AND CONVALESCENT SPECIMENS OVER A 2- WEEK PERIOD. IT MAY BE PARTICULARLY USEFUL IN CHILDREN YOUNGER THAN 6 MONTHS OLD WHOSE ANTIBODY RESPONSE TO INFECTION MAY NOT BE DIAGNOSTIC.

ROTAVIRUS, DIRECT ANTIGEN DETECTION

CPT 87425
SYNONYMS: ROTAVIRUS; RTV ASSAY
TEST INCLUDES: PRESUMPTIVE QUALITATIVE DETECTION OF ROTAVIRUS ANTIGEN
METHODOLOGY: CHROMATOGRAPHICIMMUNOASSAY
SPECIMEN TYPE: STOOL
MINIMUM VOLUME: 0.5 ML LIQUID STOOL OR 0.5 GRAM
COLLECTION TUBE: SCREW-TOP CONTAINER
STORAGE REQUIREMENTS: REFRIGERATE IMMEDIATELY AFTER COLLECTION
REFERENCE INTERVAL: NO ROTAVIRUS ANTIGEN DETECTED
ADDITONAL INFORMATION: USED TO DETECT ROTAVIRUS IN STOOLS OF PATIENTS SUSPECTED OF HAVING VIRAL GASTROENTERITIS. ROTAVIRUS IS AN EXTREMELY COMMON CAUSE OF PEDIATRIC GASTROENTERITIS. THE ILLNESS IS MOST COMMON IN WINTER, IS HIGHLY CONTAGIOUS, INVOLVES 5 - 8 DAYS OF DIARRHEA AND IS RARELY FATAL. PATIENTS SHOULD ALSO BE EVALUATED FOR POSSIBLE BACTERIAL GASTROENTERITIS. OUTBREAKS ARE SEEN AMONG CHILDREN IN DAYCARE CENTERS.

RUBELLA ANTIBODIES, IgG QUANTITATIVE

CPT 86762
SYNONYMS: GERMAN MEASLES ANTIBODIES
TEST INCLUDES: QUANTITATIVE ANTIBODY TITER
METHODOLOGY: IMMUNOFLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: SEPARATE SERUM AND REFRIGERATE
CAUSES FOR REJECTION: HEMOLYSIS; LIPEMIA; GROSS BACTERIAL CONTAMINATION
REFERNCE INTERVAL: NEGATIVE, LESS THAN 1: 4
USE: SEROLOGIC DIAGNOSIS OF RUBELLA INFECTION, QUANTITATION OF RUBELLA IgG ANTIBODIES IN SERUM
ADDITIONAL INFORMATION: RUBELLA VIRUS 1S THE CAUSE OF GERMAN MEASLES, WHICH IF ACQUIRED 1N UTERO CAN LEAD TO FETAL DEMISE, MALFORMATION, DEAFNESS AND MENTAL RETARDATION. THE ROLE OF SEROLOGIC TESTING FOR ANTIBODIES TO RUBELLA IS DIFFERENT IN DIFFERENT CLINIC SETTINGS. THE MOST STRAIGHT FORWARD APPLICATION IS IN PREMARITAL ASSESSMENT OF IMMUNITY. IF A WOMAN HAS ANTIBODIES AGAINST RUBELLA, SHE NEED NOT WORRY ABOUT INFECTION DURING SUBSEQUENT PREGNANCY. IF SHE IS NOT IMMUNE, AND IS NOT PREGNANT, SHE CAN RECEIVE RUBELLA VACCINE.

RUBELLA ANTIBODIES IgG, QUALITATIVE

CPT 86762
SYNONYMS: GERMAN MEASLES ANTIBODIES
TEST INCLUDES: IMMUNE STATUS DETERMINATION
METHODOLOGY: ENZYME LINKED FLUORESCENT IMMUNOASSAY (ELFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: SEPARATE SERUM AND REFRIGERATE
CAUSES FOR REJECTION: HEMOLYSIS; LIPEMIA; GROSS BACTERIAL CONTAMINATION
NORMAL RANGE : IMMUNE, GREATER THAN OR EQUAL TO 0.50
USE: RECOMMENDED FOR IMMUNE STATUS DETERMINATION.
ADDITIONAL INFORMATION: ONE APPLICATION OF THIS TEST IS IN PREMARITAL ASSESSMENT OF IMMUNITY. IF A WOMAN HAS ANTIBODIES AGAINST RUBELLA, EVEN OF LOW TITER, SHE NEED NOT WORRY ABOUT INFECTION DURING SUBSEQUENT PREGNANCIES. IF SHE IS NOT IMMUNE AND IS NOT PREGNANT, SHE CAN RECEIVE RUBELLA VACCINE AS INDICATED.

RUBELLA ANTIBODIES, IgM, QUANTITATIVE

CPT 86762
SYNONYMS: GERMAN MEASLES SPECIFIC IgM
TEST INCLUDES: SEMIQUANTITATIVE RESULTS REPORTED
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: I ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: SEPARATE SERUM AND REFRIGERATE
CAUSES FOR REJECTION: HEMOLYSIS; LIPEMIA; GROSS BACTERIAL CONTAMINATION
NORMAL RANGE : NEGATIVE: $\leq$ 0.89
USE: FOR THE INVITRO DETECTION OF IgM ANTIBODIES SPECIFIC FOR RUBELLA
ADDITONAL INFORMATION: lgM ANTIBODIES ARE ASSOCIATED WITH ACUTE VIRAL INFECTIONS. IgM DETECTION IS USEFUL IN THE FOLLOWING SITUATIONS: EVIDENCE OF INFECTION CAN BE OBTAINED FROM ONLY ACUTE PHASE SPECIMEN IF THE IgM RESULTS ARE POSITIVE; THE lgM TEST CAN ALSO BE USED TO DIFFERENTIATE BETWEEN PRIMARY INFECTION AND RE-EXPOSURE. THE ABSENCE OF IgM AT BIRTH DOES NOT RULE OUT CONGENITAL RUBELLA SINCE THE FREQUENCY OF IgM DETECTION IN CORD BLOOD DECREASES AS THE TIME BETWEEN CONCEPTION AND FETAL INFECTION INCREASES.

RUBEOLA (MEASLES) ANTIBODIES, IgG, QUANTITATIVE

CPT 86765
SYNONYMS: MEASLE ANTIBODIES
TEST INCLUDES: RESULT REPORTED QUANTITATIVELY
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME:1 MI.,
COLLECTION TUBE: RED TOP, SST
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE, LESS THAN 1: 8
ADDITIONAL INFORMATION: IDENTIFY SPECIMEN AS ACUTE OR CONVALESCENT. MAY BE USED TO DETERMINE STATUS OR WITH PAIRED SERA, AID IN THE DIAGNOSIS OF RECENT INFECTION. MEASLES (RUBEOLA) IS CAUSED BY A PARAMYXOVIRUS AND DESPITE VACCINATION PROGRAMS THERE HAVE BEEN SEVERAL RECENT EPIDEMICS. REVACCINATION APPEARS TO BE OF GREATER VALUE AT 11 - 12 YEARS OFAGE THAN AT 4 - 6 YEARS OF AGE. SEROLOGIC STUDY CAN BE USEFUL IN ESTABLISHING THAT AN INDIVIDUAL HAS EFFECTIVE IMMUNITY SUBSEQUENT TO VACCINATION. IN MANY INDIVIDUALS DETECTABLE IMMUNITY DOES NOT PERSIST.

RUBEOLA (MEASLES) ANTIBODIES, IgM, QUANTITATIVE

CPT 86765
SYNONYMS: MEASLES
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ml
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE, LESS THAN 0.90 INDEX
ADDITIONAL INFORMATION: DEMONSTRATES ACUTE INFECTION WITH MEASLES VIRUS. DIFFERENTIAL DIAGNOSIS OF A PREGNANT FEMALE EXPOSED TO OR PRESENTING WITH A RASH.

UREAPLASMA UREALYTICUM CULTURE
CPT 87109
SYNONYMS: CULTURE, MYCOPLASMA HOMINIS (MH), MYCOPLASMA T-STRAINS, GENITAL; UREAPLASMNMYCOPLASMA HOMINIS CULTURE
TEST INCLUDES: TRIPHASIC CULTURE
METHODOLOGY: CULTURE ON SELECTIVE AGAR
SPECIMEN TYPE: ENDOCERVICAL EXUDATES OR SCRAPINGS, URETHRAL EXUDATE, URINE, ENDOMETRIAL WASHING OR BIOSPY, FALLOPIAN TUBE, PLACENTA, FETAL PART, SEMEN,SPUTUM **collected on new borns only**
MINIMUM VOLUME: I CONTAINER (UTM)
COLLECTION TUBE: VIRAL TRANSPORT MEDIA (UTM)
STORAGE REQUIREMENTS: REFRIGERATE AND SHIP AT 4°C.
REFERENCE INTERVAL: NO MYCOPLASMA HOMINIS OR UREAPLASMA UREALYTICUM ISOLATED.
ADDITIONAL INFORMATION: USE CULTURE TO ESTABLISH THE DIAGNOSIS OF UREAPLASMA UREALYTICUM INFECTION IN SUSPECTED CASES OF URETHRITIS AND CERVICITIS. THE PRESENCE OF UU OR MH DOES NOT ALWAYS INDICATE INFECTION, ALTHOUGH THERE IS A SIGNIFICANT ASSOCIATION WITH SYMPTOMATIC DISEASE. UREAPLASMA AND MYCOPLASMA CAN BE ISOLATED FROM URETHRAL AND GENITAL SWABS, FROM URINE OF SEXUALLY ACTIVE INDIVIDUALS, AND FROM SPUTUM FROM NEWBORNS.

VARICELLA-ZOSTER VIRUS (VZV) DIRECT DETECTION BY DFA
CPT 87290
SYNONYMS: VZV DFA, RAPID VARICELLA ZOSTER VIRUS (VZV)
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), OR PREPARED SLIDES
STORAGE REQUIREMENT: REFRIGERATE
REFERENCE INTERVAL: NO VZV DETECTED
ADDITIONAL INFORMATION: USED FOR THE RAPID DIAGNOSIS OF VARICELLA-VIRUS VIRUS

VARICELLA-ZOSTER VIRUS (VZV) CULTURE
CPT 87252 x2
SYNONYMS: CHICKEN POX CULTURE, CULTURE, VARICELLA-ZOSTER VIRUS; SHINGLES CULTURE; HERPES ZOSTER CULTURE
TEST INCLUDES: VIRAL TISSUE CULTURE FOR VZV
METHODOLOGY: INOCULATION OF SPECIMENS INTO CELL CULTURES, INCUBATION OF CULTURES, OBSERVATION OF CHARACTERISTIC CYTOPATHIC EFFECT AND IDENTIFICATION BY FLUORESCENT MONOCLONAL ANITBODY
SPECIMEN TYPE: VESICLE FLUID, VESICLE SCRAPINGS
MINIMUM VOLUME: 1 ML- (UTM) TRANSPORT
COLLECTION TUBE: SPECIMENS SHOULD BE PLACED INTO VIRAL TRANSPORT MEDIUM (UTM) AND SENT TO THE LABORATORY (IMMEDIATELY)
STORAGE REQUIREMENTS: REFRIGERATE, 4°C.
REFERENCE INTERVAL: NO VIRUS ISOLATED, NO VZV VIRUS ISOLATED
ADDITIONAL INFORMATION: USE AS AN AID IN THE DIAGNOSIS OF DISEASE CAUSED BY VARICELLA-ZOSTER VIRUS (i.e. CHICKENPOX AND SHINGLES). SEROLOGY FOR THE DETECTION OF VZV ANTIBODIES IS AVAILABLE. RAPID TURNAROUND TIME OF SEROLOGICAL TESTS CAN BE ESPECIALLY IMPORTANT IN DETECTING THE PRESENCE OF ANTIBODY (PRIOR EXPOSURE) IN PREGNANT PERSONS WHO HAVE BEEN EXPOSED TO CHICKENPOX BECAUSE VZlG SHOULD BE GIVEN WITHIN 3 DAYS OF EXPOSURE..

VARICELLA -ZOSTER VIRUS (VZV) DNA BY PCR
CPT 87798
SYNONYMS: VZV, DNA BY REAL-TIME PCR
TEST INCLUDES: REAL-TIME PCR TO AMPLIFY AND DETECT DNA
METHODOLOGY: REAL-TIME POLYMERASE CHAIN REACTION (PCR)
SPECIMEN TYPE: CSF, VESICLE OR OCULAR SWAB, OR FROZEN TISSUE
MINIMUM VOLUME: 0.5 ml CSF
COLLECTION TUBE: STERILE CONTAINER
STORAGE REQUIREMENTS: REFRIGERATE CSF OF SWAB. FREEZE TISSUE.
REFERENCE INTERVAL: NO VZV DNA DETECTED
ADDITIONAL INFORMATION: VZV IS THE CAUSATIVE AGENT OF CHICKENPOX (VARICELLA PRIMARY INFECTION) AND HERPES ZOSTER (SHINGLES REACTIVATED INFECTION).

VARICELLA-ZOSTER VIRUS (VZV) ANTIBODIES, IgG (QUANTITATIVE)
CPT 86787
SYNONYMS: CHICKEN POX TITERS, HERPES ZOSTER ANTIBODIES
TEST INCLUDES: QUANTITATIVE RESULT OF ANTIBODY LEVEL
METHODOLOGY: INDIRECT IMMUNOFLUORESCENCE (IFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2 ML
COLLECTION TUBE: RED STOPPER TUBE OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: NEGATIVE: less than 1:8
ADDITIONAL INFORMATION: USE TO DIAGNOSE VZV INFECTION; DETERMINE ADULT SUSCEPTIBILITY TO INFECTION. IT MAY BE IMPORTANT TO ESTABLISH WHETHER AN INDIVIDUAL IS SUSCEPTIBLE WHEN CLINICAL HISTORY IS UNCLEAR, OR WHEN VARICELLA IMMUNE GLOBULIN MAY BE NEEDED, AS IN THE IMMUNOCOMPROMISED HOST OR CANCER PATIENT ON TOXIC CHEMOTHERAPY. SEE THE SPECIMEN GUIDE SELECTION FOR MORE INFORMATION ON VIROLOGY SPECIMEN SELECTION, COLLECTION AND TRANSPORT.

VARICELLA-ZOSTER VIRUS (VZV) ANTIBODIES, lgM, QUANTITATION
CPT 86787
SYNONYMS: VZV IgM
TEST INCLUDES:
METHODOLOGY: ENZYME IMMUNOASSAY (EIA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 1 ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL : NEGATIVE: less than 0.9 AU, BORDERLINE: 0.91-1.1 AU, POSITIVE: greater than 1.1 AU
ADDITIONAL INFORMATION: USE TO DETECT IgM ANTIBODIES SPECIFIC FOR VZV. THESE IgM ANTIBODIES, IF PRESENT, CAN HELP CONFIRM A DIAGNOSIS OF VZV ACUTE INFECTION.

VARICELLA-ZOSTER VIRUS (VZV) ANTIBODIES
CPT 86787
SYNONYMS: CHICKEN POX IMMUNE STATUS, HERPES ZOSTER ANTIBODIES, VZV IgG
TEST INCLUDES: QUALITATIVE ANTIBODY STATUS DETERMINATION
METHODOLOGY:(ELFA)
SPECIMEN TYPE: SERUM
MINIMUM VOLUME: 2ML
COLLECTION TUBE: RED STOPPER OR SERUM SEPARATOR TUBE
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE INTERVAL: IMMUNE; GREATER THAN 0.9
NON-IMMUNE; LESS THAN 0.6
EQUIVOCAL; 0.6- 0.9
ADDITIONAL INFORMATION: DETERMINE SUSCEPTIBILITY TO VZV INFECTION

VIRAL CULTURE, GENERAL
CPT 87252
SYNONYMS: CULTURE, VIRAL ISOLATION, ROUTINE VIRAL CULTURE/ISOLATION
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: INOCULATION OF SPECIMEN INTO CELL CULTURES, INCUBATION OF CULTURES, OBSERVATION FOR CHARACTERISTIC CYTOPATHIC EFFECT AND IDENTIFICATION AS REQUIRED
REQUEST FORM: INCLUDE SPECIFIC VIRUS SUSPECTED, SOURCE OF SPECIMEN, AGE OF PATIENT, RELEVANT VACCINATIONS AND PERTINENT CLINICAL HISTORY WHERE APPROPRIATE
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, FECES, NASAL WASHINGS, URINE OR BIOPSY (NO PRESERVATIVES) YELLOW STOPPER (ACD) TUBE FOR BONE MARROW, GREEN STOPPER (HEPARIN) FOR BLOOD (BUFFY COAT).
STORAGE REQUIREMENTS: REFRIGERATE. GREEN TOP FOR BUFFY COAT KEEP AT ROOM TEMPERATURE.
REFERENCE INTERVAL: NO VIRUS RECOVERED, NEGATIVE, NO VIRUS ISOLATED
ADDITIONAL INFORMATION: ISOLATION OF VIRUS MAY NOT BE RELATED TO THE PATIENTS' DISEASE. WHENEVER A VIRAL ETIOLOGY IS SUSPECTED AND WHENEVER APPROPRIATE, ACUTE AND CONVALESCENT SERUM SHOULD BE COLLECTED FOR VIRAL SEROLOGY TESTS.
MANY COMMON VIRUSES ARE NOT CULTURABLE: COXSACKIE A VIRUSES, HEPATITIS VIRUSES, ARBOVIRUSES, PARVOVIRUSES, HUMAN PAPILLOMA VIRUSES, REOVIRUSES, MEASLES VIRUS AND GASTROINTESTINAL VIRUSES (ROTA, CORONA, CALICI, ASTRO AND NORWALK).
SOME POSITIVE CULTURES ARE SENT TO THE STATE HEALTH LABORATORY FOR SPECIFIC VIRUS IDENTIFICATION. GIVE DATE OF ONSET OF ILLNESS, DATE OF COLLECTION AND BRIEF CLINICAL DESCRIPTION FOR THE PROVISIONAL DIAGNOSIS

WEST NILE VIRUS ANTIBODIES
CPT 86790 X 2
SYNONYMS: WEST NILE VIRUS IgM AND IgG; WEST NILE VIRUS SEROLOGY, WNV ANTIBODY
METHODOLOGY: INDIRECT FLUORESCENT ANTIBODY (IFA)
SPECIMEN TYPE: SERUM; CEREBROSPINAL FLUID (CSF)
MINIMUM VOLUME: SERUM, 2 ml; CSF, 0.5 ml
COLLECTION TUBE: SERUM, RED STOPPER TUBE OR SERUM SEPARATOR TUBE; CSF, STERILE CONTAINER
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE RANGE: NEGATIVE
ADDITIONAL INFORMATION: SUPPORTS A DIAGNOSIS OF WEST NILE VIRUS INFECTION
NOTE: IF SPECIMEN SENT TO NEW JERSEY STATE DEPARTMENT OF HEALTH, A NJSDH REQUISITION ID REQUIRED

WEST NILE VIRUS BY REAL TIME PCR
CPT 87798
SYNONYMS: WEST NILE VIRUS BY PCR
METHODOLOGY: REVERSE TRANSCRIPTASE POLYMERASE CHAIN REACTION (RT-PCR), REAL TIME TECHNOLOGY
SPECIMEN TYPE: CEREBROSPINAL FLUID (CSF)
MINIMUM VOLUME: 0.5 ml
COLLECTION TUBE: STERILE CONTAINER
STORAGE REQUIREMENTS: REFRIGERATE
REFERENCE RANGE: NEGATIVE
ADDITIONAL INFORMATION: SUPPORTS A DIAGNOSIS OF WEST NILE VIRUS INFECTION
NOTE: IF SPECIMEN SENT TO NEW JERSEY STATE DEPARTMENT OF HEALTH, A NJSDH REEQUISITION IS REQUIRED.