Lab Dept: Microbiology/Virology

Test Name: BLOOD CULTURE, VIRAL

General Information

Lab Order Codes: BCV

Synonyms: Culture, Blood for Viruses; BC, Viral; Viral Blood Culture; Culture, Blood for CMV; Culture, Blood for Herpes; Culture, Blood for Enterovirus; CMV Blood Culture; Blood Culture for CMV; Blood Culture for Herpes; Blood Culture for Enterovirus

CPT Codes: 87252 – Virus isolation; tissue culture inoculation, observation, and presumptive identification by cytopathic effect

The following testing may be added if appropriate based on findings for organism identification (multiple additions are possible if more than one organism is identified).

87253 – Virus isolation; tissue culture, additional studies or definitive identification, each isolate (if appropriate)

Test Includes: Isolation and identification of viruses from blood using rapid shell vial technique and/or conventional cell culture. Shell vial culture for CMV is performed on all viral blood cuture specimens. Order CMV Rapid FA; if Herpes is suspected, also order HSV Rapid FA. Positive results are called immediately to the physician or nursing unit.

Logistics

Lab Testing Sections: Virology

Phone Numbers: MIN Lab: 612-813-5806

STP Lab: 651-220-6555

Test Availability: Daily, 24 hours

Turnaround Time: Shell vial culture: 1 - 2 days

Viral culture: 2 - 21 days

Special Instructions:
- CMV antigenemia or molecular techniques are more sensitive tests for CMV detection in blood.
- Requisition must state **specific site** of specimen and **date/time of collection**.
- Collect during acute phase of illness

Specimen

Specimen Type: Whole blood

Container: Lavender top (EDTA) tube

Draw Volume: 5 mL blood

Collection:

BLOOD:

Venipuncture for patients greater than 26 weeks gestation OR greater than 2 weeks of age:

Prep with CloraPrep Sepp® Applicator with 2% CHG

1. Disinfect the stopper of the Lavender top tube (EDTA) with 70 % alcohol. Allow to dry.
2. Break the Sepp® ampule to release the 2% CHG.
3. Apply the CloraPrep® solution using a back-and-forth friction scrub for 30 seconds.
4. Allow the area to dry for 30 seconds.
5. If the site must be touched during venipuncture, disinfect the gloved fingers.
6. Collect 5 mL of blood and aseptically inoculate the Lavender top tube (EDTA).
7. Gently invert the tube 4-5 times to mix contents.
8. Forward unprocessed whole blood promptly at ambient temperature only.

Prep with CloraScrub™Swab with 3.15% CHG

1. Disinfect the stopper of the Lavender top tube (EDTA) with 70 % alcohol. Allow to dry.
2. Open the Chlorascrub™Swab package, do not unfold wipe.
3. Apply the Chlorascrub™ wipe using a back-and-forth friction scrub for 15 seconds.
4. Allow the area to dry for 30 seconds.
5. If the site must be touched during venipuncture, disinfect the gloved fingers.
6. Collect 5 mL of blood and aseptically inoculate the Lavender top tube (EDTA).
7. Gently invert the tube 4-5 times to mix contents.
8. Forward unprocessed whole blood promptly at ambient temperature only.

Venipuncture for patients less than 26 weeks gestation AND less than 2 weeks of age:

Prep with 2% tincture of iodine:

1. Disinfect the stopper of the Lavender top tube (EDTA) with 70 % alcohol. Allow to dry.
2. Scrub venipuncture site with 70% alcohol for 1 minute using the

	Frepp® applicator. Allow to dry. **3.** Using the Sepp® applicator, apply 2% tincture of iodine to site starting at the center and moving outward in concentric circles. Allow to dry, approximately 30 seconds. **4.** If the site must be touched during venipuncture, disinfect the gloved fingers. **5.** Collect 5 mL of blood and aseptically inoculate the Lavender top tube (EDTA). **6.** Gently invert the tube 4-5 times to mix contents. **7.** Forward unprocessed whole blood promptly at ambient temperature only. **8.** Following collection, remove the iodine using the Frepp® applicator or an alcohol pad. **Line Draw (All ages):** **1.** Prep catheter port by scrubbing the hub for 30 seconds using chlorhexidine gluconate (CHG) and allowing to dry. **2.** Aseptically collect 5 mL of blood through the injection port. Blood may be collected without first drawing a discard. **3. Aseptically inoculate the Lavender top tube (EDTA). Forward unprocessed whole blood promptly at ambient temperature only.**
Transport/Storage:	**Onsite collections**: Transport to the laboratory immediately at room temperature. **Do Not** refrigerate. **Do Not** centrifuge. **Offsite collections:** Do not refrigerate, store at room temperature. **DO NOT Centrifuge.** Specimens must be promptly transported to the laboratory, with the next available courier, not to exceed 24 hours from the time of collection. However, delayed transport causes a delay of test results.
Sample Rejection:	Clotted specimen; specimen not submitted in appropriate transport container; improperly labeled specimen; insufficient volume; external contamination. If an unacceptable specimen is received, the physician or nursing station will be notified and another specimen will be requested before the specimen is discarded.

Interpretive

Reference Range:	No Virus Isolated
Critical Values:	All positive results will be called to the physician or nursing unit
Limitations:	● Yield of CMV from this specimen may be high in patients with acquired immune deficiency syndrome (AIDS), but significantly lower in non-AIDS patients. CMV antigenemia or molecular techniques are more sensitive tests for the detection of CMV in blood. ● Blood (serum in particular) is generally not a good specimen from which to recover viruses. ● A negative result does not eliminate the possibility of viral infection.

Methodology: Inoculation of peripheral blood cells or serum onto cell cultures (either shell vials or tube cultures); identification of virus by cytopathic effect (CPE) and monoclonal antibodies.

Additional Information: White blood cells can be a source of CMV, and serum has been reported to be a source of enterovirus. A recent study has shown that culture of two separate blood specimens increases the sensitivity of detecting CMV in transplant patients.

References:

Cook, JH, and M Pezzlo (2010). Specimen receipt and accessioning. Section 1. Aerobic bacteriology, 1.2.1-4. In HD Isenberg (ed) Clinical Microbiology Procedures Handbook. American Society for Microbiology, Washington DC

Miller, J Michael (1999) A Guide To Specimen Management in Clinical Microbiology, American Society for Microbiology, Washington DC

Miller, J Michael, and HT Holmes (1999) Specimen Collection, Transport, and Storage In PR Murray et al, (ed), Manual of Clinical Microbiology, 7th edition, American Society for Microbiology, Washington DC, pg 33-104

Griffiths, PD, and VC Emery (2002). Cytomegalovirus In DD Richman et al., (ed.), Clinical Virology, 2nd edition, American Society for Microbiology, Washington DC, pg 447-449

Updates:

3/2/2009: Updated collection information for venipuncture options.
3/25/2010: CPT Updates
6/16/2010: Line draw preparation update
11/20/2014: Added offsite information