

Collection

- Collect appropriate volumes of CSF in sequential order into four sterile, screw capped tubes consecutively numbered 1 to 4; three tubes are sufficient for pediatric testing
- Lumbar puncture samples: use tubes provided in the standard pre-packaged lumbar puncture kits or CSF collection kits
- Non-lumbar puncture samples: use sterile 15 mL Sarstedt tubes (AHS 62.554.002)
- If numbered tubes are not available, number each tube as per collection order (1, 2, 3, or 4)

Volume Requirements

- Refer to the table (page 2) for required volumes
- Testing is delayed when insufficient volume of CSF is received, and/or specimens are not collected into separate numbered tubes
- **Indicate testing priority on the requisition** to prevent delays for specimens with insufficient quantity
- Refer to the CLS Guide to Laboratory Services [Alphabetical Test Directory](#) for specific test information

Ordering/ Requisition Requirements

- Ensure all required information is complete; include applicable patient history
- **IMPORTANT:** Indicate if CSF sample is known or suspected for **CJD**

Specimen Labelling Requirements

Label each tube with:

- Patient's first and last name
- Personal Health Number (PHN) or Regional Health Record Number (RHRN)
- Date and time of collection
- Specimen source (CSF and i.e. lumbar, shunt, EVD)
- Tube identification number (1, 2, 3, 4) indicating order of collection

Specimen Handling and Transport

- Take CSF specimens **immediately** to the laboratory after collection; the pneumatic tube system may be used for transport to the laboratory
- **Do not** refrigerate
- **Do not** leave specimen on the reception counter; give directly to laboratory staff

Laboratory Staff only

- Transport specimens for Microbiology testing **STAT** to the Microbiology laboratory
- CSF specimens with **CJD requests:** follow Transportation of Dangerous Goods (**TDG**) protocol and CLS Biological and Chemical Exposure Response Plan (**BCERP**) procedures
- Refer to the CLS Guide to Laboratory Services [Alphabetical Test Directory](#) for specific test information

[Rationale for Specialized Microbiology CSF Tests](#) * see page 2

Questions? Call the Laboratory Information Center at 403-770-3600

Cerebrospinal Fluid (CSF) Collection Guidelines

Collect in Tube #1-4	Routine Test Request	Minimum Volume Required per Test		Additional Test Requests	Minimum Volume Required per Test	
		Adults/Children	Neonates		Adults/Children	Neonates
#1 Hematology ¹	Refer to Note 1	1.0 mL	0.5 mL			
#2 Microbiology	Aerobic C&S includes Gram Stain	1.0 mL	N/A	Cryptococcal Antigen	1.0 mL	0.5 mL
	Anaerobic² C&S Includes Aerobic Culture and Gram Stain	1.0 mL	0.2 mL	Fungal Culture³ , includes Cryptococcal Antigen and Calcofluor White Stain	3.0 mL	1.5 mL
				Acanthamoeba⁴ culture	10.0 mL	N/A
#3 Reference Microbiology* Esoteric Testing	Refer to minimum volumes required for specific test requests; also refer to: CLS Guide to Laboratory Services Alphabetical Test Directory			AFB⁵ Culture , includes special stains	3.0 mL	N/A
				Viral Culture⁶	0.5 mL	0.2 mL
				Viral PCR⁶	1.0 mL	0.5 mL
				West Nile Virus⁶ (WNV)	1.0 mL	N/A
				Creutzfeld-Jacob Disease⁶ (CJD) (14-3-3 Protein)	3.0 mL	N/A
#4 Hematology and Chemistry	Cell Count/ Differential	1.0 mL	0.5 mL	Flow Cytometry	2.0 – 10.0 mL	1.0 mL
	Total Protein	0.2 mL	0.1 mL	Cytopathology⁷	2.0 mL	1.0 mL
	Glucose	0.2 mL	0.1 mL	Immunoglobulin Index	0.2 mL	N/A
				Oligoclonal Banding (Electrophoresis – serum sample also required)	3.0 mL	N/A
				Albumin	0.2 mL	0.1 mL
				Lactate	0.2 mL	N/A
				pH	0.5 mL	N/A
			Lactate dehydrogenase	0.2 mL	N/A	

Notes

- Hematology will determine testing to be performed from Tube #1; may be contaminated or contain excess blood.
- Place CSF for **Anaerobic** culture into a tube containing anaerobic transport medium (i.e. PRAS).
- Submit up to three subsequent CSF samples for **Fungal culture** from patients suspected of chronic meningitis to definitively rule out a fungal etiology.
- Place sample for Acanthamoeba testing into a separate sterile calibrated tube containing Pages Amoeba saline and transport to the laboratory within 1h of collection.
- Submit up to three subsequent CSF samples for AFB culture from patients suspected of chronic meningitis to definitively rule out a *Mycobacterium* infection
- Specialized viral tests should not be done unless the patient has an elevated CSF Total protein and the CSF WBC cell count is increased. Collect CSF samples for viral PCR, West Nile Virus or CJD testing into **separate tubes** to avoid contamination. Common viral pathogens detected by PCR include Herpes viruses (primarily HSV) and enteroviruses.
- Cytopathology CSF Specimen Collection <http://www.calgarylabservices.com/lab-services-guide/anatomic-cytopathology/cytopathology-specimen-collection/cerebrospinal-fluid.aspx>