

Specimen Submission Guidelines for Pathologic Evaluation of CNS Infections

Histopathologic changes in tissues and the pathogens that cause acute meningitis or encephalomyelitis may be distributed focally and sparsely in the central nervous system, and the predilection site for infection may vary among different organisms. Collecting multiple representative portions of CNS tissue, as well as tissue samples from any other organ system with inflammatory cell infiltrates, ensures the best chance of detecting the causative agent. Performance of specific immunohistochemical, molecular, or other assays will be determined using clinical and epidemiologic information provided by the submitter and the histopathologic features identified in the submitted tissue specimens.

Collection of Tissue Specimens

The preferred specimens include paraffin blocks of involved CNS tissue, or representative tissues in formalin (i.e., wet tissue). Fresh-frozen tissue may also be submitted for culture and molecular-based assays. Representative tissue specimens from each of the following sites should be obtained and submitted for evaluation:

1. Cerebral cortex (frontal, parietal, temporal, and occipital)
2. Brain stem (midbrain, pons, medulla) and spinal cord
3. Cerebellum
4. Basal ganglia, thalamus, hypothalamus, and hippocampus
5. Meninges

Submission of Specimens

Paraffin-embedded tissue blocks

In general, this is the preferred specimen and is especially important to submit in cases where tissues have been in formalin for a significant time. Prolonged fixation (>2 weeks) may interfere with some immunohistochemical and molecular diagnostic assays.

Wet tissue

If available, we highly recommend that unprocessed tissues in 10% neutral buffered formalin be submitted in addition to paraffin blocks.

Unstained slides

Although not optimal, if paraffin blocks are unavailable it may be possible to utilize unstained sections cut at 3–5 microns (10 slides per block) for immunohistochemistry and special stains but *not* molecular diagnostic assays (e.g. PCR).

Fresh-frozen tissue

Send separately on dry ice.

Electron Microscopy (EM) specimens

Samples fixed in glutaraldehyde and held in phosphate buffer. Sample containers are filled to the top with phosphate buffer and sent on wet ice. Do not freeze. Epoxy-embedded tissues are also accepted.

Specimen shipping information: Please contact your state health department and state public health laboratory to coordinate shipment of specimens to CDC for further testing.