



Submitting Brain for Neuropathologic Examination: Cases Suspected of Creutzfeldt-Jakob Disease

Note: If there is any suspicion of Creutzfeldt-Jakob disease (CJD), the autopsy should be limited to the brain only and removal done in a closed system to minimize aeration, as outlined below. Exceptions to this should be very few.

Brain Harvesting

1. Follow Universal Precautions against conventional blood borne agents (Clinical and Laboratory Standards Institute (CLSI): Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline. 4th ed. CLSI document M29-A4. CLSI; 2014) except autopsy is limited to the brain only; cut-resistant gloves are preferable.
 - A. Wear a mask and eye shield, although there is no evidence that CJD is transmitted by aerosols or by non-penetrating mucosal contamination.
 - B. Confine all tissues and fluids (including running water) to the table. Placing a plastic sheet over the table may facilitate this.
2. Remove the calvarium using a closed system; this technique is described. (World Health Organization. WHO infection control guidelines for transmissible spongiform encephalopathies. Report of a WHO Consultation: Geneva, Switzerland: World Health Organization; March 23-26, 1999. Accessed March 14, 2025. <https://iris.who.int/handle/10665/66707>) To contain the aerosol even further, place a wet towel over the region of the skull incision. Cutting and sawing through the towel and underlying bone will trap any aerosol that forms.
3. When removed, the brain should be weighed and, if possible, photographed.
4. Take a 1-cm³ sample of 1 frontal lobe or frontal pole. Divide this portion in half.

Note: A frozen cube of tissue is highly desirable for confirming the presence of prion protein by Western blot. If it is not possible to prepare frozen tissue, place brain in a 15% buffered formalin/10% bleach solution, suspended by a thread under the basilar artery and fix for 7 to 10 days before shipping.
5. Place the fresh 1-cm³ tissue into 2 separate bags with identifying information (ie, patient name, autopsy number, date). Freeze and store in -70 °C freezer.
6. Place the remaining (uncut) specimen in a 15% buffered formalin/10% bleach solution, suspended by a thread under the basilar artery and fix for 7 to 10 days before shipping.

Shipment of Tissue and Frozen Specimens

Tissue Specimens

Use Mayo Clinic Laboratories Central Nervous System Consult Kit (Supply T633).

Note: Ship only after the brain has been fixed in formalin/bleach solution for 7 to 10 days.

1. Label each of the 4 bags provided with CJD stickers.
2. Wrap the fixed specimen in formalin-soaked towels and double-bag for shipment.
3. Place in ambient Styrofoam container, and adhere a CJD sticker on the lid.

Frozen Specimens

1. See Step 4 and Step 5 under Brain Harvesting for specific details.
2. Put a layer of dry ice on the bottom of the second Styrofoam container. Double-bag the frozen specimens and place on dry ice. Add additional dry ice on top of the specimens. Adhere a CJD sticker on the lid.

Shipping Instructions

1. Ship all specimens Monday through Thursday by overnight carrier to:
Mayo Clinic Laboratories
Attention: Neuropathology Working Group
3050 Superior Drive NW
Rochester, MN 55905
2. Call Mayo Clinic Laboratories at 800-533-1710 and indicate that you have a STAT/Expedite specimen being sent. Indicate the tracking number (if known).

Questions: Call Mayo Clinic Laboratories at 800-533-1710 and ask for the neuropathologist on call at extension 4-3887.