

## **MORGUE:**

Autopsy precautions for all autopsies:

### **Highly Infectious Cases:**

Limit traffic and potential exposure when performing highly infectious cases, including Mycobacterium tuberculosis (TB), AIDS, Hepatitis and C.J. Procedures and precautions are the same, except for the procedures for fixing C.J. tissue and CJ disease cleanup (see section specific to CJ disease which follow these rules). Prosectors should contact staff when they are requested to autopsy these patients. There is routine staff attendance and supervision at these procedures.

- a. The Pathologist is to review the chart, ascertain the adequate permission, and mentally ascertain the approach that he will use in performance of the autopsy, although all autopsies are approached with Standard precautions.
- b. Morgue personnel are to be instructed in the special precautions needed due to the state requirements for the appropriate labeling of possibly infectious bodies.
- c. Apparel, including hair covers, **masks**, goggles, splash suits (including head covers, shirts, pants, and shoe coverings) are to be worn during the autopsy and disposed of in plastic bags after completion of the autopsy. The prosector should double glove before the autopsy and at the completion of the autopsy remove the outer gloves first, inspect the inner gloves for tears, cut, or external staining and then remove the inner gloves and discard. No tissues, jars, or specimen containers are to be handled after gloves have been removed. If cuts are found in the gloves, inspect the hands for cuts or lesions, if found, report the exposure via the employee accident procedure and report immediately to employee health (or emergency room).

**Excerpt from APIC Text of Infection Control and Epidemiology – Postmortem Care:**  
"OSHA determines performance of an autopsy on a known or suspected case of tuberculosis to be a **"high hazard"** procedure requiring personnel to use approved respiratory protection. In areas where TB is prevalent and the health history is unknown, respiratory protection is prudent, especially for medical examiner's cases."

- d. One autopsy assistant will assist the prosector in the autopsy room, but no other personnel will be admitted without the permission of the prosector. All individuals with permission to be in the autopsy room will be properly attired. Because of this requirement of proper attire and the expense of the suits, the number of individuals should be at a minimum.
- e. The detail of dissection is at the discretion of the prosector, but dissection at the autopsy table should be minimal with removal of organs,

and careful slicing so that fixation will be adequate. All tissues removed are to be fixed in 10% formalin for 5-7 days before further dissection, and the morgue personnel are to change the formalin at day 3 for optimal fixation. Prosectors are encouraged to take small pieces of tissue for histology at the autopsy table for best fixation rather than taking pieces from the large pieces later. It is not required that the entire liver, spleen, or grossly normal organs be fixed, but representative slices should be fixed for subsequent review staff. Any tissue not saved is to be placed in double plastic bags and placed in the body cavity prior to sewing the body.

f. It is recommended that the Stryker saw be used only to open cranium , and the ribs should be cut with the rib cutter thereby decreasing the bone dust aerosols.

g. The cranium is to be opened by the autopsy assistant and the saw and cranium are to be placed in a clear plastic bag before any cutting is done. By placing the head and saw in the bag ( a hole is placed in the bag for the saw cord), aerosols of bone dust are kept to a minimum. The brain, after removal, is fixed in 10% formalin prior to neuropathologic examination.

h. At the completion of the gross dissection, all tissues not fixed are double bagged and placed in the body cavity and the body cavity and cranium are closed with sutures to minimize fluid loss. The body is rinsed with copious amounts of water, which is allowed to drain into the sewerage pipes.

**For known highly infectious cases: The body is then placed in the zippered polyethylene body bag (exception: stillborn who are wrapped in a small shroud), placed on a roller, and labeled with an appropriate label--CAUTION-TB, AIDS, HEPATITIS, etc. The body is then placed in the body refrigerator and a sign placed on the door with an appropriate label--TB, AIDS, HEPATITIS, etc.**

i. The prosector may leave before the final body preparation is completed, but he is to remove the protective clothing before leaving the morgue premises, and all protective clothing is to be placed in the plastic bags for proper disposal.

j. All instruments are to be washed with soap and water and then soaked in a 1/10 dilute bleach solution for at least four hours. The table and outside of the formalin storage containers are to be washed with soap and

water and then flooded with a 1/10 dilute bleach solution. Bleach is added to the mop bucket, and the floor mopped with this solution. After cleaning the room, the autopsy assistant is to remove his protective clothing, place it in a plastic bag, and dispose of properly with the other clothing worn by the prosector.

k. Material removed from the patient (i.e. catheters, IV. tubing, etc.) are to be placed in the plastic bags for disposal -- Sharps must be placed in the sharps container.

l. For known highly infectious cases, after the instruments, containers and room is cleaned , a sign is placed on the door restricting admittance for a 24 hr period (except for the autopsy assistant who is to remove the instruments from the bleach solution after 4 hrs.).

m. The plastic bags are labeled as contaminated and are placed in the refrigerator for subsequent disposal (i.e. cremation).

n. After fixation of the tissues for 5-7 days, they may be further examined and dissected in the small autopsy room. When the prosector is through with the tissues and there is no need to save the tissue further, it is to be placed in double plastic bags, labeled, and prepared for disposal according to MCLA policy.

o. Barrier clothing for performance of these autopsies is available from the autopsy assistants on request. The materials are stored under lock to prevent theft.

p. When funeral homes request the remains on highly-infectious cases, morgue personnel are to inform the funeral director of the disease state of the deceased, so that appropriate body wraps may be brought for transport.

**Excerpt from Infection Control Manual – Bioterrorism Surveillance  
Unexplained illness and deaths:**

Pathologist are expected to notify the Administrator on Call (AOC) for findings (autopsies, histopathology, or microbiology), **suspicious** for or **confirming** a bioterorism-related agent.

#### **Post-mortem Care**

Pathologist will be notified of patients expiring with suspected or confirmed biological agent. In the event that many people expire within a short period of time the city's Coroner's will provide refrigeration and or assume responsibility for deceased victims. Hospital pathologist should not perform autopsies unless Office of Public Health (OPH) authorizes the procedure. All authorized autopsies will be performed in accordance with Standard Precautions, including the use of masks and eye protection and Transmission Based Precautions.

#### **HISTOPATHOLOGY:**

##### **Safety Regulations for the Sectioning of Unfixed Tissue for Frozen Section:**

1. Handle all tissues with gloves. Work on a surgical drape which is to be discarded later in the orange bio-hazard bag. (Or returned to surgery if they desire.)
2. In very unusual cases, with staff approval, (such as an AIDS patient with cryptococcus infection), the tissue block may be heated in a beaker of formalin until steaming or near boiling. If this technique is performed, it should be done in a fume hood or with adequate ventilation. This pasteurizes the tissue.
3. Section the tissue as usual in the cryostat. Aerosols used for fast freezing are contraindicated and are not used.
4. Mount sections on slides prepared with poly- L-lysine. Press the slide firmly against the section on the frozen-section-knife-surface.
5. Clean up and sterilize instruments and contaminated surfaces as follows:
  - a. Cryostat - Daily wipe all surfaces with a towel or sponge which has been soaked in absolute ethanol.
  - b. Cryostat Knife Holder - monthly soak in pan of ethanol for 15 min.
  - c. Dissection instruments - Daily soak in 1/10 dilute bleach for 15 min. then wash well in tap water.
  - d. Bench surfaces- Daily use standard bench disinfection technique (see page 2.7).

##### **Additional section-specific instructions for handling cases of suspected Creutzfeld-Jakob disease (from patients with a history of subacute or chronic dementia).**

Formalin fixation alone is ineffective in reducing the infectivity of the transmissible agent of Creutzfeld-Jakob disease (CJD). Methods of tissue decontamination previously recommended such as autoclaving, sodium hydroxide or bleach may not be effective or may produce extreme cytologic artifact and are not acceptable for histologic purposes.

Specimens immersed in formalin alone, phenol/ formalin or phenol / formic acid have higher infectivity levels than those with formic acid / formalin

pretreatment. The addition of a one hour formic acid immersion step in the handling of tissues from any patient with subacute or chronic dementia of unknown etiology appears to be the most effective method thus far for both effective reduction in infectivity and preservation of histological detail.

Gloves and protective eye shields are to be worn at all stages of handling suspected tissues, including sectioning and staining procedures. All suspect tissues should be considered infectious throughout all procedures— including fixation, embedding, sectioning staining and mounting.

1. At autopsy: Clean and sterilize the autopsy table and instruments using 1/10 dilute bleach— soaking for at least one hour.
2. Then autoclave instruments for at least 60 minutes at 132° C (min).

2. In the Histopathology lab:

Prior to tissue processing

- a. Place autopsy tissues and brain biopsies from patients with subacute chronic dementia of unknown etiology in 10% neutral buffered formalin for 48 hours.
- b. Place the fixed tissue sections (not more than 4-5 mm. in thickness) in 50-100 ml of formic acid (>96% ACS grade) for one hour.
- c. Re-immerses the tissues in 10% buffered neutral formalin for 48 hrs, followed by tissue processing.
- d. If tissues are positive for CJD, the brain is cremated.

Processing:

- a. After sectioning of paraffin blocks, wipe the exterior of the microtome and flotation bath with 1/10 dilute bleach and rinse with water.
- b. Fluids must be steam autoclaved for at least one hour at 132-134° C per the normal biohazard procedure. We routinely autoclave wastes for 90 minutes.
- c. Decontaminate the work area and instruments with 1/10 dilute bleach (not diluted) for at least one hour, wash well with water and dry.
- d. As usual, place trimmed wax shavings, gauze and gloves in the biohazard wastes for steam autoclaving prior to disposal.
- e. Place paraffin blocks and slides in sealed bags (or other containers) labeled with regard to the possibility of CJD. Label slides as infectious.