FORENSIC AUTOPSY PROTOCOL

OFFICE OF THE
CHIEF MEDICAL EXAMINER
State of Maryland
ROUTINE ADULT AUTOPSY PROTOCOL

INVESTIGATORS:
Fill out Body Shipping/Receiving Record, sign it, and have body transporter sign it.

Put body on tray/cart and weigh the body on the scales in the garage. Make sure scale is set to the proper weight/accurately zeroed. Measure the length (be sure to compensate for any abnormal body position) and record all information onto the plastic ID band and body receipt including the case number. Recover jewelry and money (personal effects) and retain in Investigator’s safe or give to the autopsy supervisor. If the deceased has valuables (jewelry, cash, etc.), place these valuables in a plastic bag and seal. Put a label on the plastic bag and have this placed in the safe. Medication that accompanies the body must remain with the body.

Move body onto a cart into the autopsy room or admissions refrigerator.

AUTOPSY SERVICES:
After receiving the case number, prepare the autopsy form and diagrams and add the name and information on the Daily Conference Sheet. Prepare required number of labels as follows: deceased’s name, case number, date of autopsy, age, sex, height and weight.

The basic autopsy requirements are two (2) blood labels, one (1) label each for bile, urine, vitreous, gastric contents, liver, kidney and 6 additional labels for micro and stock jars, fixed brain container and dictation paperwork. (Total 14 labels). Add to or delete from this number of labels as necessary.

If specimens for culture are necessary, additional labels will be required.

PATHOLOGIST:
Special evidence collection is determined by the pathologist and police investigator. A homicide case requires more evidence collection than the "routine" case workup. The decision to take x-rays and additional photos will be determined at this time. (Also note any requests by a field
investigator). An Evidence Receipt must be filled out on every case in which evidence is collected. Medication with the body must be documented and submitted with toxicology specimens.

**AUTOPSY PROCEDURE:**

Take an "as is" photograph as required (photographer).

Ensure all therapy is documented.

Therapy is to remain insitu until pathologist directs removal.

Undress the body, and check for pocket contents. Note where the items (rings, watches, necklaces, etc.) are located. If there are layers of clothing, note the order.

Clean the body (only after approval of pathologist). Another photo of the cleaned body may be necessary.

Instruct the photographer which photos to take.

Determine if specimens for culture are necessary. Cerebrospinal fluid samples should be taken before evisceration. The blood culture specimens can be taken during evisceration.

If strangulation is suspected, elevate the shoulders, then eviscerate the body, leaving the neck organs in place, and remove the brain. When the blood has stopped draining, layerwise dissection of the neck can begin.

Make an incision through the skin using a scalpel from the shoulders, inferiorly and medially to a point over the sternum in the midline at the level of the nipples. On females, make this incision under the breasts. Continue this incision inferiorly along the midline, around the umbilicus, to a point just superior to the pubis, taking care not to puncture underlying bowel. The incisions should form a Y-shape.
Deepen the incisions over the thorax down to the level of the rib cage, and in the abdomen through the peritoneum into the peritoneal cavity. Be careful not to incise the stomach, bowel, or bladder. Measure and note any peritoneal fluid. Obtain necessary culture specimens as appropriate. Note areas of hemorrhage or wounds and photograph as needed.

Reflect the skin and muscle of the superior thorax toward the head, from midline sternum superiorly to expose the clavicles. If strangulation is suspected, reflect the skin flap up to the clavicles only at this stage. Continue this reflection cautiously up the anterior and lateral neck to expose the strap muscles of the neck and finally the anterior protuberance of the thyroid cartilage (Adam’s apple). Be extremely careful not to cut through the skin of the anterior or lateral neck. Note that any CVP, Swann-Ganz, or other catheters that may have to be transected, are properly placed at this point. Also note (and photograph, if indicated) any hemorrhage in the neck region, internal or external.

Insert a clean needle into the subclavian vein and withdraw a sample of peripheral blood and place in a toxicology cup and note the volume on work sheet.

Using the scalpel or the Stryker saw, depending on the condition of the ribs, cut inferiorly through the sterno-clavicular junction and then inferiorly along a line just medial to the costal-chondral junctions on both sides of the rib cage. Take care not to cut too deeply.

Lifting one lower, lateral corner of the loosened "breast-plate" and holding the scalpel parallel to the under surface of the plate, begin to cut away the plate from the underlying attached diaphragm and mediastinal tissues. Make the cuts as close to the underside of the plate as possible so as to leave the pericardium and thymus intact and in place. Complete the removal of the "breast-plate".

Note and measure any pleural fluids and clots (record on worksheet). Photograph any obvious abnormalities or defects. Also take lung specimens for culture, if necessary. (Radiographically, bullets or foreign objects may seem to be in the heart or lungs, but may in fact, be loose in the pericardial or pleural space. Care should be taken in making sure these are not carelessly
aspirated in measuring the pleural/pericardial fluid. This can also apply to the peritoneal cavity.)
Place excess blood and blood clots in a colander to prevent loss of foreign bodies.

Note any visible defects in the pericardium. If present, do not destroy. Incise the pericardium
and expose the heart. When indicated, obtain heart blood for bacteriologic culture. Measure
any pericardial fluid and clots if present (note amount on work sheet). Aspirate a sample of
heart blood with a clean syringe and needle for toxicology and place in a toxicology container.
Examine the heart to determine if there are any congenital vessel abnormalities or heart injuries
present.

**Homicides:** In gunshot or stabbing cases, follow wound tracks with the organs in situ at this
time.

**Collect toxicology specimens:** Vitreous humor from both eyes (blood in the eye may alter
results), bile and urine (be aware that Foley urinary catheters have a fluid-filled retention bulb)
should all be collected with the standard 20 cc syringes and the total volume measurements noted
on the weight sheet. Blood is normally collected from the heart and subclavian veins as
described earlier. Bile and urine are collected before evisceration.

Begin the evisceration making longitudinal incisions just lateral to the larynx through the strap
muscles being careful not to cut the thyroid or incise the carotids. Locate the carotid arteries
on both sides and cut medial to the carotids freeing the underside of the larynx and esophagus
from the cervical spine. Both carotid arteries may be tied off as inferiorly as possible to aid the
mortician. Tie off the arteries with string and transect them at the sternal notch.

**PROCEDURE:** The tongue, hypopharynx and epiglottis should be excised in continuity with
the entire larynx and upper airway. This is best accomplished by ensuring that the primary "Y"
incision extends high up on the anterior aspect of the shoulder in such a way that, upon incision
through the skin and subcutaneous tissue, blunt dissection with one or two fingers may be used
beneath the skin flap up to the underside of the mandible around its entire anterior and lateral
circumference.
This is done with difficulty in the adult, but with sturdy fingers, may be accomplished even in an embalmed body without making it necessary to use the knife in that portion of the dissection which is not readily visualized. Upon freeing up this skin flap and reflecting it anteriorly with the fingers of one hand, a scalpel may then be introduced up toward the midline of the posterior border of the mandible, and thereafter sharp dissection continued laterally to and including the paravertebral tissues on one side, returning it back to the midline, reversing the direction of the sharp edge of the knife, and continuing across the midline to the opposite side of the neck, keeping the incision medial to the carotid arteries.

Upon completing this sharp dissection, a finger should be introduced up through the incision into the mouth to insure that the floor of the mouth has been cut around its entire anterior and lateral borders. If not, it should be re-incised until it is completely free. Upon freeing the floor of the mouth, a sturdy surgical instrument, preferably a toothed clamp or toothed forceps can be introduced up beneath the skin flap to grasp the anterior one-third of the tongue (not the tip as it will tear free). This is then reflected down with the skin flap reflected forward in such a way that, with the neck hyperextended, the posterior wall of the hypopharynx may be visualized. Upon this visualization, with sharp dissection, a cut is made across the posterior wall of the hypopharynx and into the underlying muscle, in order to allow the tongue and hypopharynx to be reflected inferiorly. This block then is continued by blunt dissection down through the neck, keeping the carotid vessels lateral, to the upper pleural reflection, where sharp dissection is then again needed in order to free up the neck block in continuity with the remaining thoracic structures.

If the knife is introduced carefully into the posterior wall of the mandible with the blunt edge directed anteriorly during the period of its introduction, and if the skin flap is maintained forward of this with the other two fingers (you may find it necessary to have someone help you in this portion of the procedure), there is no reason to buttonhole the neck in this procedure. BE CAREFUL NOT TO DAMAGE THE CAROTID ARTERIES. If nasogastric or endotracheal tubes are present, cut through them at this point. (A large pair of scissors is necessary. Do not use the new smaller sharp scissors to cut through thick tubing). Also attempt to keep the epiglottis intact with the larynx.
Continue freeing the trachea and esophagus from the spine. Note any CVP or Swann-Ganz lines, etc., entering the appropriate vessels and cut them at this point.

Note any lung adhesions and then make sure the lungs are loose within the pleural spaces. (Often diaphragmatic adhesions can be left intact). From the right side of the body, lift the left lung toward you exposing the left side of the vertebral column. With a scalpel, cut through the parietal pleura along the top of the spine. Repeat this procedure along the right side of the vertebral column. Using moderate downward traction on the esophagus/trachea cut between the vertebral column and the mediastinal tissues (esophagus and aorta), being careful not to cut the aorta. Continue this action down to the level of the diaphragm. Replace the thoracic and neck organs anatomically.

Next, using your hands for blunt dissection, free the urinary bladder from its anterior attachments to the abdominal wall and then work around laterally to free all the pelvic organs (rectum and bladder in the male; rectum, vagina, uterus and ovaries, and bladder in the female) within the pelvic cavity. Using a scalpel, cut down through the attachments of the pelvic organs as close to their outlets as possible. Use the symphysis pubis as a guide and be sure to retract on the uterus on a female so as to cut through the vagina distal to the cervix. (In rare instances it may be necessary to take the entire rectum, including anal orifice or the entire vagina and labia minora; these can also be done with the scalpel at this time). Having liberated the pelvic structures from their attachments, reflect them superiorly. At this time, cut the internal iliac arteries and veins (unless otherwise indicated) close to the bifurcation.

Again, using the hands for blunt dissection, go behind the peritoneum at the level of the common iliac artery and vein and begin pulling the peritoneum away from the abdominal wall all the way around posteriorly to the spine. Work towards the diaphragm. At the level of the kidney, be sure to dissect between the perirenal fat and the posterior abdominal wall to keep the kidneys with the other viscera. Continue this blunt dissection on both sides up to the level of the diaphragm.

Reflect the pelvic structures superiorly, and using a scalpel, expose the aortic bifurcation. With
a horizontal incision transect the aorta and vena cava 5 cm above the aortic bifurcation. Putting moderate traction superiorly on the pelvic structures, cut the aorta and vena cava away from the underlying spine all the way up to the level of the diaphragm. Replace the pelvic and abdominal viscera anatomically.

Using a scalpel, cut the diaphragm leaflets away from the lateral and posterior walls of the body around to the vertebral column, cutting as close to the body wall as possible.

Grasp the larynx/esophagus with moderate inferior traction and pull the thoracic organs toward the feet. Using a scalpel, sever any remaining attachments of the organ block to the vertebral column. Continue the downward traction and cutting until the entire thoracic/abdominal organ block is free. Place the organ block on the dissecting table.

The testes may be pulled up and through the inguinal ring before the organ block is removed or after the organs are removed by dissecting through the anterior abdominal wall. This should be done on all homicide cases.

At this point, all internal organs have been removed and are ready to be dissected.

**Removing the brain:** Prop the head up using a head block beneath the cervical spine. Make a scalp incision in the sagittal plane starting 1/2" behind the right ear at the level of the auditory canal, extending superiorly over the top of the head to the same position behind the opposite ear. Take your time in making this incision. It is very important that you make a single incision which does not extend beyond the posterior middle ear region.

Lift up a portion of the incised scalp, and using the scalpel, begin separating the scalp from the underlying calvarium. Considerable traction is often necessary to accomplish this: **DO NOT TEAR THE SCALP IN THE PROCESS.** Reflect the scalp anteriorly and inferiorly to a point about 3.0 cm above the level of the eyebrows on the forehead. Reflect below the occipital protuberance. Areas of hemorrhage or defects in the scalp that were not visible in the hair are now readily apparent and must be documented. Overlying scalp injuries must be shaved and
photographed as indicated.

With the scalpel, incise the temporalis muscles bilaterally along the line to be cut with the bone saw. The bone saw cut should start anteriorly just where the calvarium begins sloping down (the superior forehead area). If the cut is made too far down the forehead, frontal sinuses are encountered making it more difficult to cut. The saw cut should then extend laterally, through the cuts in the temporalis muscle incisions, to a point just above the mastoid processes on either side. Cutting further inferiorly again encounters thicker bone.

Now extend the saw cut posteriorly around the side and back of the calvarium to a point just above the occipital protuberance and then around the opposite side to meet the previous saw cut above the mastoid. A stair-step process should be made on each side of the skull (or in the frontal area) to aid the mortician in replacing the skullcap. Avoid cutting through any bullet or knife defects.

During the sawing of the calvarium, care should be taken to only saw into the calvarium as deeply as is necessary. Depth of cut is regulated by resting a hand on the calvarium and resting the saw shaft on it. (If done correctly, the dura should remain intact.) If brain swelling or subdural hematoma is suspected, place a suitable container under the head before sawing the calvarium to measure any fluid or blood that may leak from the skull. (Also the lack of cerebrospinal fluid can be indicative of brain swelling, etc.)

With the saw cut now complete, use the T-handled chisel to gently pry the calvarium away from the brain. Occasionally the calvarium will easily peel off the underlying dura but more frequently it is advisable to gently incise the dura with a scalpel along the line of the saw cut so that the calvarium and underlying dura are removed together.

The brain is now exposed: If the superior dura is still attached to the brain, remove it using the scalpel along the margins of the saw cut. Any subdural or subarachnoid hemorrhage must be documented. Using a sharp scalpel, gently sever any remaining attachments of the falx cerebri anteriorly.
**Gently** manipulate frontal lobes and olfactory bulbs out of the anterior cranial fossa. Note any abnormality to the optic nerves, internal carotids or hypophyseal stalk at this time. Sever these connections as close to the base of the skull as possible.

Gently lifting up on the temporal lobe on one side make an incision just through the tentorium separating cerebrum from cerebellum using the superior borders of the petrous parts of the temporal bones as a guide. Extend the incision in the tentorium from fairly far postero-lateral to anterior-medial at the region of the pons. Lift up the opposite temporal lobe and repeat the process on the other tentorium leaflet.

Using a sharp scalpel, while gently retracting posteriorly on the frontal portions of the brain, sever the cranial nerves attached to the immediate inferior portions of the pons and medulla. There should be enough exposure to do this; if not, be sure all attachments between the cerebrum and dura as well as the tentorium leaflets are severed.

Reach as far down the foramen magnum as possible with a long-handled scalpel and sever the spinal cord along with any remaining attachments including those cranial nerves leaving laterally from the pons and medulla. Gently remove the spinal cord/medulla/pons and cerebellum with the other hand. The brain, free of any dura, should come out. If not, gently replace the brain and sever any attachment and remove the brain.

With the brain removed, use a pair of dura pliers and strip the dura from the skull to expose any underlying defects that may be present.

Remove the pituitary gland and the sella turcica with a scalpel and place in the stock jar; noting any abnormalities.

Check for any cervical fractures or atlanto-occipital separations by removing the supporting head block and manipulating the skull and cervical spine. Look for any increased mobility, obvious subluxations, fractures, or hemorrhage. Incise neck ligaments as necessary.
GENERAL ADULT DISSECTION

1. Any variation of dissection is possible to show organ or system pathology. The method described here is only general.

During the dissection, note any abnormalities; hemorrhage, laceration, etc., and alter the dissection accordingly.

2. The organ block, with all internal organs attached, is placed posterior side up on the dissecting table.

3. Locate the inferior abdominal aorta from the cut previously made above the aortic bifurcation and incise superiorly to the aortic arch.

4. With small scissor, cut down the renal arteries noting any abnormalities.

5. Locate the inferior vena cava and incise superiorly to the diaphragm; cut down the renal veins again noting any abnormalities.

6. Separate the superior portion of the esophagus from the larynx and tie or clamp off. Separate the esophagus from the back of the trachea and from the aorta down to the level of the diaphragm. Leave the clamp in place.

7. Next, make a transverse cut through the aorta at the level of the diaphragm and the inferior pericardium. Place the heart and lungs aside for later dissection.
   a. To test for a saddle-type pulmonary embolus, the entire organ block, before any dissection has occurred, should be placed anterior side up on the table and an incision made in the proximal pulmonary artery close to the heart. This incision should be extended gently up the pulmonary artery to its bifurcation and then out to either lung into the lung parenchyma.
8. Return to the abdominal organs and place them anterior side up on the table. Lift the greater omentum towards the diaphragm and expose the duodenum. Place a clamp on the duodenum approximately 3 cm distal to the emergence of the duodenum.

9. Transect the small bowel just distal to the clamp and begin cutting the small bowel away from the attaching mesenteric root. Continue this down to the ileo-cecal junction. This will allow for complete examination of the small intestine. Note if an appendix is present on the cecum.

10. Continue cutting away the ascending colon from the underlying fascia taking care not to cut the underlying right ureter and further up towards the liver, the underlying flexure of duodenum. Cut away the transverse colon from the hepatic flexure across to splenic flexure and down the descending colon. Continue the dissection down to the rectum separating it from the more anterior structures, i.e., bladder and prostate in the male; bladder, uterus, vagina, ovaries in the female.

11. Remove the entire bowel, large and small; take appropriate histology sections and place in a bucket.

12. The bladder and other pelvic organs can now be separated by transecting the ureters. If the Genito-Urinary Tract is important, the bladder can be separated from other organs and maintained intact.

13. Remove the spleen: Be careful not to incise the stomach.

14. Next, begin cutting the liver away from the diaphragm superiorly and posteriorly. The right adrenal gland is very close to the posterior right lobe of the liver. Sever the portal vein and the left lateral attachments to the stomach. In cases where bile duct patency is important, the liver can be kept attached to the stomach/pancreas/duodenum block to demonstrate the pathology. If no pathology is evident or suspected, cut through the bile duct, hepatic artery and vein and remove the liver.
15. Grasp the esophagus with its clamp and cut through the diaphragm to the esophageal hiatus and cut the diaphragm away from the esophagus. Free the stomach up to the pylorus.

16. Grasp the tail of the pancreas and cut between its underside and the underlying kidney and adrenal. Continue this to the head of the pancreas and then free the attached duodenum from the pylorus to the previously placed duodenal clamp. This should free up the esophagus/stomach/pancreas and duodenum all in one block. The purpose of the clamps at esophagus and diaphragm is to insure the integrity of the stomach contents. Make a small incision on the greater curvature of the stomach and empty the contents into a graduated clean container. Note the quantity, and if possible, identify the contents (with special note for tablet residue).

17. Next, remove both right and left adrenals from the superior poles of both kidneys.

18. Next, incise down longitudinally through perirenal fat and renal capsule into the renal parenchyma. Using forceps, strip off the renal capsules and remove the kidneys.

19. Return to the heart/lung block. With the block anterior side down, cut down the posterior wall of the larynx and trachea.

20. Open the trachea all the way down into both main stem bronchi. Open the larynx and trachea and note any aspirated contents.

21. Grasp one lung and cut the pulmonary artery, pulmonary veins and main stem bronchi freeing the lung. Repeat on the opposite lung.

22. Cut the pericardium away from the heart and major vessels. Separate the trachea/larynx from the heart and aorta. Place the larynx anterior side up and remove the thyroid gland.
23. Remove the hyoid and thyroid bones for examination.

24. With the organs now dissected, weigh the following organs and note on the Autopsy Weight Sheet: lungs, heart, kidneys, brain, liver and spleen.

25. Appropriate histological tissue sections are taken as indicated which can include the following: lungs, kidney, heart, liver, spleen, stomach, pancreas, gallbladder, urinary bladder, prostate, testes, uterus, vagina, ovaries, appendix, brain, adrenals, large and small bowel, thyroid, bone (rib) and bone marrow.

26. A representative sample of all major organs should be placed in a labeled stock jar including, but not limited to, heart, lungs, liver, spleen, pancreas, gallbladder, kidney, adrenal, prostate/uterus/ovaries, bowel, hyoid bone, tongue, rib and brain sections (midbrain, cerebellum, cerebral cortex and basal ganglia, hippocampus, medulla and pituitary.

27. The brain may be examined fresh or retained, if indicated, and fixed for later dissection at the discretion of the pathologist. Suspend the brain in 20% formalin solution. A small section of cortex (uninjured) from anterior lobe or occipital lobe may be frozen in labeled tox container. Complete the neuropathology consult form.

28. The heart may be examined fresh or retained for immediate consultation (radiographic perfusion) or later detailed dissection, as indicated. Place in cloth bag labeled with wax pencil and complete consultation form.
PEDIATRIC AUTOPSY PROCEDURE

1. Check to see if total x-rays need to be taken.

2. Take cerebrospinal fluid culture. A cisternal puncture is the preferred method, however, it is recommended that the lumbar area be used first so that 2 sites are available in the event of a "bloody" tap.

3. The normal Y-shaped incision and skin reflection technique is used.

4. Remove the breastplate gently to prevent incision underlying structures.

5. Upon removing the breastplate, care must be taken not to incise the thymus lying between the heart and sternal notch in the midline.

6. With the breastplate removed, the routine cultures of heart blood and both lungs can be taken. With this completed, collect the routine toxicology.

7. Dissect the thymus away by severing its attachments to the anterior pericardium with a small pair of scissors. Continue this process superiorly. Immediately beneath the thymus, just below the sternal notch, is the innominate vein running from right to left horizontally. Care should be taken not to cut into it. Continue the dissection superiorly to obtain the cervical portion of the thymus. The thymus extends midway between the sternal notch and the lower border of the larynx, depending on the age of the child.

8. After removal of the thymus, open the pericardium completely to visualize all pulmonary arteries and veins, superior and inferior vena cava. Dissect the region of the arch of the aorta to visualize all superior branches without cutting into these vessels to check for vessel abnormalities.
9. In cases where the cardiac or vessel abnormalities are present, the normal evisceration is altered. Usually, further in situ dissection is needed to determine what kinds of abnormalities are present. Then ligatures are placed on the superior vessels, i.e. carotids, jugulars, and brachial arteries and veins, as far distal from the heart as possible. The vessels are then cut distal to these ligatures. The descending aorta, esophagus, and interior vena cava are tied off at the level of the diaphragm and severed distally. The heart, lungs, trachea and larynx are then removed (entire block) for further dissection and the remaining internal organs removed.

10. Inspect the intestines and abdominal organs in situ for abnormalities. Check to see that the appendix is in the lower right quadrant. Look at the dorsal root of the mesentery for rotational abnormalities. Be sure the umbilical vessels go to the appropriate places (liver, etc.). Also check the integrity of both leaflets of the diaphragm for herniation.

11. Evisceration can proceed including removal of the tongue (see Special Procedures for Infant and Children under 2 years of Age). Organ weights should include the thymus and combined adrenal glands.

12. To remove the brain, make the scalp incision posterior to the crown due to the lack of scalp hair.

13. Upon reflection of the scalp, the skull can be entered by very gentle use of the Stryker saw in older children where the sutures of the skull have joined and ossification is advanced.

14. In younger children and infants where the skull suture lines and fontanelle are open, a pair of scissors can be used along the middle, anterior-lateral and posterior lateral suture lines. These incisions open the skull into four sections which can be opened outward to expose the brain.

15. Once the brain is exposed, an open 4" x 4" gauze pad should be placed over the
cerebrum before attempting to sever the anterior brain attachments. This is to keep the extremely soft, sometimes liquid brain tissue in its approximate normal morphology. Handle the brain very carefully because of its soft consistency. The brain may then be fixed. (Note: It is recommended that infant brains be fixed due to their soft nature.)
SPECIAL PROCEDURES FOR INFANTS
AND CHILDREN UNDER 2 YEARS OF AGE

1. Inasmuch as the lungs of infants of this age often collapse quite readily upon opening the thoracic cage, it may sometimes be difficult to evaluate the degree to which is collapse is postmortem artefact or a real pathologic finding.

PROCEDURE: This procedure, which will insure that the lungs retain their degree of expansion following entry into the thoracic cage, is the simple mechanism of passing a double ligature around the trachea immediately below the lower border of the larynx. This should be pulled tightly in order to prevent air from escaping as the thoracic cage is entered, and should be accomplished prior to any sharp dissection entering the thoracic cage. The tie should be left in place until the pathologist has had an opportunity to examine the lungs.

2. There are several features about infants and child under 2 years of age which warrant a special neck dissection procedure. These include the possibility of tonsillitis, pharyngitis, and upper airway obstruction. This mechanism will also avoid the possibility that you may overlook an airway foreign body. This may not seem a very real possibility in a non-toddling infant, unless you are aware that somewhat older siblings, often toddlers, share their toys (marbles, jacks, nails, etc.) with the crib-bound infant prior to an age at which one would expect to find an airway foreign body within the hypopharynx. This will also allow the identification of larger foreign bodies which never gain access to the hypopharynx by virtue of their size, i.e., marshmallow, hot dog segments, etc.
SPINAL CORD REMOVAL

1. First, determine if brain and spinal cord must be removed together intact. If this is the indicated procedure, alter the brain removal technique so that the spinal cord is not transected and the brain is left anatomically in place with all attachments severed, including the dura until the spinal cord is free.

2. Use a Stryker bone saw with a 7.0 cm half-round blade for sawing the vertebral column.

3. After all the thoracic and abdominal organs have been removed from the body, use a scalpel to cut away the attachments of the right and left psoas muscles from the lateral aspects of the lumbar vertebrae.

4. Expose the costal-vertebral junctions as much as possible in the thoracic cavity.

5. Using the saw, make a transverse cut through the anterior portion of the disc separating the fifth lumbar vertebrae and the sacrum. Continue this transverse cut as far laterally as possible.

6. Starting in the thoracic region, make a saw cut as follows: holding the Stryker saw upright (blade down) with the blade angled approximately 45 degrees from the horizontal, begin a longitudinal cut on the lateral side of the thoracic vertebrae at the level of the costal-vertebral junction. Do not make the angle of cut too shallow as this will not expose the spinal canal. You should be able to feel a lessening of resistance when the blade enters the spinal canal.

7. Continue this longitudinal cut into the spinal canal inferiorly to the previous cut in the inferior-most vertebral disc. Then continue the cut superiorly into the cervical spine as far superiorly as possible, generally to the level of C3 or C4.
8. Make a similar longitudinal cut in the opposite lateral vertebral walls.

9. Be aware that the spine is curved and that the longitudinal cuts should maintain the same depth relationship to the anterior portion of the vertebrae along the entire cut. For instance, the cervical vertebrae are much smaller than the lumbar and adjustments have to be made to insure getting into the spinal canal.

10. Using the T-handled chisel or a longer bone chisel, pry up gently in and around the transverse cut in the lumbar disc until this portion of the anterior vertebral column is raised up enough to expose the cauda equina and distal spinal cord. Often the spinal cord is still attached via dura to this raised anterior portion of lumbar vertebrae. Use a scalpel to gently remove the cord and dura from this portion and lay it back down in the spinal canal.

11. Continue this process of gently prying the anterior vertebral bodies from the underlying dura, cord and posterior vertebral bodies all the way up to the furthest cervical vertebrae reached. This should form a continuous bone "flap" of anterior portions of all vertebral bodies exposing the spinal cord and dura in the spinal canal. Often, additional use of the bone saw is necessary but take care not to damage the cord with the saw blade.

12. The vertebral bone "flap" may now be removed by another transverse cut made at the most superior cervical spine reached.

13. Place a head block beneath the shoulder blades to assist in extending the neck backwards. The head should not be supported unless the brain and cord are to be removed together and the brain is still in situ.

14. With scalpel and forceps, begin removing the spinal cord and attached dura as far distal on the cauda equina as possible by severing the nerve roots coming off the cord.

15. Continue this process all the way up to the cervical spinal cord. Now, using the long-
handled scalpel, gently sever the nerve root attachments of the cervical spinal cord up to the level at which the cord has been transected at brain removal. If the brain and cord are to be removed together, care should be taken not to penetrate the brain. Also, the spinal cord dura is continuous with the dura lining the base of the skull so it is advantageous to cut the dura around the margins of the foramen magnum and free up the spinal cord dura as far down as possible.

16. If the spinal cord alone is being removed separately, it is best to gently retract on the free thoracic cervical portion and cut any remaining high cervical attachments and withdraw the cord this way.

17. If the brain and cord are being removed together, then the cord must be removed superiorly through the foramen magnum. Again, care must be taken not to stretch or tear the cord during removal.

18. Open the dura along the anterior surface of the spinal cord to allow improved fixation in cases where the cord is to be retained for later detailed fixed dissection.
INFANT DEATH PROTOCOL

Autopsy procedures will consist of the following:

I. Collect samples for microbiology studies:
   A. Bacterial cultures of
      1. Cerebrospinal fluid (In suspected meningitis cases obtain separate sterile tube of CSF for latex agglutination)
      2. Heart blood
      3. Each lung

II. Remove both middle ears removal bilaterally

III. Check patency of nares

IV. Excise the tongue, hypopharynx and epiglottis in continuity with the entire larynx and upper airway.

V. Collect routine toxicology samples.
MIDDLE EAR REMOVAL

1. After the brain and dura have been removed from the skull, locate the petrous portions of the temporal bones in the base of the skull (petrous ridges).

2. Locate the auditory nerve (VIII cranial nerve) where it enters the posterior medial portion of the petrous ridge. This is the medial border of the saw cut to be made.

3. The lateral margin is defined only by how far laterally the skull limits the cut.

4. Using a Stryker saw with a small quarter-round blade, make a transverse cut as deeply as the blade allows in the medial border as defined above and another transverse cut as far laterally as the skull allows.

5. Make a horizontal cut where the anterior portion of the petrous ridge blends into the middle fossa. Make another horizontal cut at the posterior margin of the ridge where it becomes the posterior fossa. These horizontal cuts should be angled towards each other to effect a "V"-shaped wedge of bone.

6. Use the T-handled chisel or a bone chisel to loosen the wedge of bone and remove.
POPLITEAL FOSSA DISSECTION

1. This procedure can be carried out to locate sources of pulmonary or other thromboemboli after the internal organs have been removed.

2. Before dissection, the iliac and internal iliac veins should be checked as a source of emboli. As a rough check, both legs should be elevated and an attempt made to express ("milk") the blood from the leg veins through the femoral vein into the pelvic cavity. This is only a rough evaluation of which leg veins exhibit venous occlusion, if any.

3. Roll the body over, anterior side down, and locate the popliteal fossae behind the knee joints.

4. Make a midline longitudinal incision from 10 cm above up to 10 cm below the fossa. Make another incision transverse from the lateral aspect of the fossa to the medial aspect. These incisions should extend into the underlying subcutaneous fat.

5. Reflect these skin flaps back from the underlying muscle.

6. Locate the roughly diamond shaped depression in the center of the fossa. This depression is bordered superiorly by the biceps femoralis and semi-membranous muscles and inferiorly by the plantaris and gastrocnemius muscles.

7. Through another transverse incision through this fossa, gently dissect through underlying fat to the popliteal vein which courses in the midline through the fossa.

8. Once located, gently incise the vein with a pair of scissors and open the vein carefully superiorly and inferiorly. The overlying musculature can be further incised to allow as much of the vein to be seen as possible.
9. If no thrombi are found in either popliteal veins, it may be necessary to continue the search into the femoral veins. These can be followed from their superior inguinal aspects as far inferiorly as necessary. This dissection should be done only if necessary, since the femoral artery may be cut in the process and an intact leg vein and artery system are much preferred by the mortician.
The following procedures will be followed if a regular homicide protocol is indicated. Any changes in this protocol will be made at the discretion of the pathologist in charge of the case.

EXAMINATION OF THE BODY FOR EVIDENCE COLLECTION

1. Examine the body and direct the collection of any significant trace evidence from the body, clothing, or from within the body bag. Place any such evidence collected in an appropriate envelope, mark the envelope with an abbreviated designation of the enclosed contents, and apply an evidence label. Care must be taken in the packaging of this trace evidence and as a rule, the use of filter paper or cotton gauze to wrap such evidence before placing it in the envelope is recommended.

2. The presence of paper bags on the hands of the deceased is an indication that a primer residue test is required and/or fingernails should be obtained. The investigator needs to remove them and swab the hands before undressing the body.

3. Undress the body and carefully spread out all items of clothing and worn jewelry or ornaments on a clean, dry surface to help facilitate examination for any significant markings or defects. Remove any pocket contents, making note where they came from, and lay these out to dry and be bagged up separately from the clothes for evidence.

4. Technique in the collection of evidence is important! Hair and nail samples may be taken before or after the body is undressed, however, the body must not be rinsed or cleaned until after all of the evidence is properly collected (except for fingerprints and a tube of blood).

5. X-rays will be taken if indicated.
6. Procedures for collecting evidence:

A. **Hair pullings from scalp:** Grasp firmly and pull several hairs at a time from the top and sides of the head (if the deceased is balding, take what is available). (Minimum 30 hairs total.)

B. **Pubic combing:** (Must be done before pubic hair pulling). Pass a new fine tooth clean comb through the pubic hair several times with an envelope positioned such that any debris or hairs will fall into it, then place the comb into the same envelope.

C. **Hair pullings from axilla and pubic areas:** Grasp hairs firmly and pull (disregard if not available or shaved off).

D. **Fingernail clippings:** Using the OCME nail clipper, which is packaged in a plastic bag, clip nails down to the nail beds (using a new nail clipper for each hand, clip each hand's nails into separate envelopes). Note any broken or damaged nails and/or tissue or blood under the nails. After the last nail is clipped, place the clippings in the evidence envelope with the nail clippings of that hand and seal the envelope. (Disregard if nails already maintained in an extremely short state).

E. **Oral swabs and smears:** Using 2 cotton-tipped applicators together, insert into the mouth and rub the gums and teeth thoroughly and, if possible, also rub the inner gums and teeth as well as the pharynx and palate; withdraw the applicators and with a gentle rolling motion, smear across the 2 microscopic slides previously marked. Air dry these slides and applicators.

Repeat this procedure with another set of 4 cotton-tipped applicators.
However, after withdrawing these, air-dry in an upright position. This set will be for DNA serology.

F. **Rectal swabs and smears:** Using 2 cotton-tipped applicators together, insert into the rectum and continue to gently push until approximately 3" to 4" within the rectum. Withdraw using a concentric, circular motion and with a very gentle rolling motion smear across the 2 microscopic slides previously marked and place these slides and applicators to air-dry.

Repeat this procedure with another set of 4 cotton-tipped applicators. However, after withdrawing these, air-dry in an upright position. This set will be for DNA/Serology evidence.

G. **Cervical/vaginal swabs and smears:** (As necessary, especially in rape-homicide cases). Carefully insert a plastic or metal speculum into the vagina and gradually open the vaginal cavity until moderate resistance is met. Using 2 cotton-tipped applicators together (or a wooden spatula), insert directly down to the cervix and swab the entire surface. Withdraw this sample and with a gentle rolling motion, smear across the 2 microscopic slides previously marked. Air dry these slides and applicators.

Repeat this procedure with another set of 4 cotton-tipped applicators. However, after removing these, air-dry in an upright position. This set will be for DNA/Serology evidence.

At this time, inspect the walls of the vagina for any sign of injury and document appropriately.

I. In all cases as above, take a total of six swabs and two slides from each area. Place four swabs into an evidence envelope for the police crime lab. Place 2 air
dried swabs into evidence envelope for toxicology (acid phosphatase).

7. Document by x-ray any injuries, missiles, or skeletal characteristics for identification purposes, as indicated. It is important that the corresponding case number and an orientating right or left marker be included on every radiograph.

8. External examination of the body may now proceed. Additional evidence to be gathered during the autopsy includes: blood for toxicology; blood for evidence; bile for toxicology; other samples of body fluids or tissues as requested.

DISPOSITION AND LOCATION OF EVIDENCE

1. Clothing and personal effects will be placed in paper bags only after thorough drying (use facility available) or ensure the police representative knows that the clothes are not dry. Fold down bag top, staple shut across bag cuff, and seal across cuff with an evidence label that correctly identifies the enclosed contents of that paper bag.

   A. Articles of clothing may be bagged together from a similar geographic body location (for example: shoes and socks together; pants, belt and underpants together; and shirt and undershirt together).

   B. Any items of clothing or personal effects that may contain defects from injury must be bagged separately, labeled and sealed accordingly.

   C. Personal belongings and valuables should be bagged together, labeled and sealed accordingly.

   D. Additional items that may need to be bagged, as determined by the case or requested by the pathologist include: the body transport bag; paper bags from hands; or any item received with the body from the scene (for
example: pillows, bed linens or blankets).

2. Hair samples, fingernails, swabs, smears, blood, fingerprints and any additional evidence must be carefully placed in the correctly marked envelope or tube and sealed with the correctly identified label (When possible the case of the bullet(s) should be marked with the decedent's initials before being placed in the evidence envelope).

3. Packaging of slides requires that they be placed in a slide box. Smears are sent to the Histology Department, via the dumb waiter, for special staining.

4. Place the following sealed evidence within an evidence bag to be signed over to the investigating agency: clothing, valuables, personal effects, hair samples, fingernail clippings, a set of swabs, a set of fingerprints and any additional evidence collected.

5. Location of Homicide Evidence:

   A. Evidence bag: clothing, body bag, personal effects, fingernail clippings, hair, scrapings, trace evidence, bullets, blood sport, one set of swabs, etc. are placed in a large plastic bag labeled with the investigating agency.

   B. Toxicology refrigerator: all toxicology specimens including one set of oral, rectal, and vaginal swabs.

6. All evidence contained in the evidence bags and envelopes should be entered, with the name and case number on the evidence receipt and this is signed by the pathologist and police representative.

**OCME FORENSIC PHOTOGRAPHY PROCEDURES**

The pathologist will determine what photographic documentation is needed for the particular
case. It is important that the photographs demonstrate the subject accurately. Ensure that no inflammatory or distracting artifact (especially blood spots, splatterings, or smears, dirty background, or stray tools) is present. Based on the guidelines for OCME Photography. The photographer on duty will take the necessary photographs.

I. Identification Photographs (B/W)

ALL CASES are photographed by the Autopsy Assistant assigned to that case, by use of the overhead camera in the discharge area.

II. Specific Photographs (B/W)

A. Accidents: work related, pedestrian
   1. Photo of body full length, as it is received at OCME (fully clothed)
   2. Body cleaned, front, full length, frontal view
   3. Body cleaned, back, full length, posterior view

B. Suicide: hanging, stabbing, shooting, jumping, autoerotic
   1. Hanging
      a. Photo of body, full length, as it is received at OCME (fully clothed)
      b. Photo of extended neck, with and without ligature
      c. Photo of face (ID)
   2. Stabbing
      a. Photo of body, full length, as it is received at OCME (fully clothed)
      b. Photo of individual stab wounds
      c. Photo of face (ID)
   3. Shooting
      a. Photo of body, full length, as it is received at OCME (fully clothed)
      b. Photo of individual projectile wounds
      c. Photo of face (ID)

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4. Precipitation (jumping/falling) from height
   a. Photo of body, full length, as it is received at OCME (fully clothed)
   b. Photo of body, full length, frontal and posterior views
   c. Photo of face (ID)

5. Auto erotic
   a. Photo of body, full length, as it is received at OCME (fully clothed)
   b. Photo of extended neck, with and without ligature
   c. Photo of face (ID)

C. Homicide:
   1. Photo of body, full length, as it is received at OCME (fully clothed)
   2. Photo of any wounds associated with the death
   3. Any materials (ligature, knife, etc.) used in the homicide that are available
   4. Photo of face (ID)

D. Unidentified Remains
   Polaroid (B/W) photographs are taken of all unidentified bodies in addition to permanent identification photo of face.

E. Autopsy Specimens:
   Specific organs or tissue may be photographed in color for depiction of a particular disease or injury.

F. Photographs of patterned injuries, knife or gunshot wounds should be marked with the case number and placed in the case folder.
EXAMINATION GUIDELINES

MOTOR VEHICLE - VICTIM IS OUTSIDE THE VEHICLE WHEN STRUCK (PEDESTRIAN)

1. Take picture of how body is received.

2. Examine exterior of body, clad as received.

3. Search for and remove special items of evidence, i.e., paint chips, glass, grease, etc. Individually package and label as to item and source for evidence.

4. Undress body carefully over plastic bag and air dry clothing.

5. Remove control samples from body for trace evidence. Individually package as indicated. Seal and label: hair from head, hair from axilla and hair from pubis.

6. Note particularly any patterned injuries which suggest body contact with a specific portion of the vehicle. Measure the distance of these above the heel or buttocks (allowing for shoes). Photograph front and back.

7. Photograph significant findings on dried clothing with identifying number and ruler in photograph. Individually package significant portions, seal and label.

8. Bag all clothing including individually packaged evidence. Close bag and place a seal on the outside including the investigating agency.

MOTOR VEHICLE - VICTIM IS INSIDE THE VEHICLE WHEN THE VEHICLE IS STRUCK:

1. Include carbon monoxide in toxicology request.
EXAMINATION GUIDELINES FOR UNIDENTIFIED REMAINS

1. Photograph overall body as received.

2. Take facial ID as received.

3. Wash body. Take several cleaned up facial ID photographs from different angles with number.

4. Describe in detail the identifying marks, scars, tattoos, etc., noting the exact location, size, content, etc. Note whether tattoo is professional or non-professional in appearance.

5. Take photographs of clothing and any other possible identifiable items (rings, necklaces, etc.). Check for initials on jewelry or clothes.

6. Photograph all tattoos and scars.

7. Fingerprint body, if possible.

8. Chart teeth. Consult Forensic Odontologist for dental examination, as indicated.

9. Order dental x-rays as necessary.

10. If remains are skeletonized, charred, or decomposed, consult Physical Anthropologist. Take additional x-rays, as necessary, for examination of the body.

11. If the case is a suspected homicide, follow the homicide protocol and collect evidence, as indicated.

12. If remains are skeletonized, store in special cardboard containers which are clearly labelled with pathologist's name and any special instructions, re: hold or release.

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TOXICOLOGY

1. General drug screen, driver drug screen, carbon monoxide and alcohol: blood x2, urine, vitreous, bile, liver, kidney, and stomach contents, if available on all cases.

2. Volatile solvent abuse or overdose: same as drug overdose plus (60 grams of brain and 60 grams of fat) (lung tissue in glass jar)

3. Toxic metals: same as drug overdose plus 100 scalp hairs and all fingernails.

PROCEDURE FOR OBTAINING SPECIMEN FOR CULTURE

TECHNIQUE: All specimens for cultures must be taken as soon as a body cavity is opened (pericardium etc.) ensuring that the site of needle puncture is away from a site that may have been contaminated by the opening of the cavity (eg. raise pericardium with clamp. Incise the pericardium and grip both sides of the window with a second clamp to prevent it touching the myocardium. An assistant may now use sterile needle and syringe to aspirate a sample).

1. HEART BLOOD: Insert a sterile hypodermic needle attached to a sterile syringe through the inferior vena cava and draw the blood by suction. Place a new needle on the syringe and inject the blood into the culture bottle. Invert the bottle gently a few times. This should be a 1:10 dilution when possible. We are currently using a 50 ml bottle, and therefore the maximum amount of blood should be 5 ml. Interfering factors in blood may not be sufficiently diluted out if more blood is added to the culture bottle. Less blood may be added to the culture bottle but never more than 5 ml. If an anaerobic and an aerobic blood culture are requested, use two separate blood culture bottles and obtain the blood in the same manner.

2. CEREBROSPINAL FLUID (CSF): The most reliable method of removing
uncontaminated CSF is by a cisternal tap. The following technique may be used on infants, children, and adults. Place the patient in a prone position with the neck flexed downward. Cleanse the skin midway between the mastoid bones by saturating several gauze sponges with Povidone-iodine and scrubbing the skin in a circular motion centrally to peripherally. Insert a sterile 18 gauge needle (attached to a sterile 20 cc syringe), bevel up immediately below the suboccipital notch; at approximately a 20 degree angle above the transverse plane (aim towards the nose). A distinct "give" will usually be felt when the needle pierces the dura. If bone resistance is felt, withdraw slightly. On infants, only 5 ml may be obtained. Do not pull on the plunger while withdrawing the needle as blood may be aspirated from the surrounding venous plexus. In suspected meningitis cases separate CSF obtained into two (2) sterile red top tubes, one is sent to State Health Department Lab for cultures while the other is sent to the University of Maryland Microbiology Lab for stat latex agglutination for bacterial antigens.

3. LUNG SWABS AND PREPS: Make incision with a sterile scalpel blade. Obtain material from interior of lung with culturette swab. Replace swab in plastic tube, penetrating the transport medium. Make slides for gram stain from each lung. Collect material from incision on a plain cotton swab, and roll it onto a glass slide. Label left and right slides. Place in cardboard container and label with yellow tape containing patient name and OCME number. If actual tissue is desired, remove a block about 1 cubic centimeter with sterile forceps and a sterile blade. Place the block in a sterile container.

4. OTHER FLUIDS: Use sterile technique and add fluid to a sterile tube. DO NOT put in blood culture bottle. Only blood goes in the blood culture bottle.

5. AEROBIC CULTURES FROM SOURCES OTHER THAN THE LUNG: Collect on culturette as for lungs. Make slides for gram stain, when possible, using a second swab.

6. ANAEROBIC CULTURES: Collect non-fluid material on anaerobic culturette. Material on normal culturette is unacceptable as fastidious anaerobic organisms may
immediately die. Collect fluids other than blood in sterile syringe. Expel all air in syringe inject into a vacuum tube. Insure that no air enters tube. Sources acceptable for anaerobic cultures include sites that are normally sterile such as: pleural fluid, blood, spinal fluid, cervix, and organs other than intestine. Also, material from deep abscess, draining wound, or sinus tract is acceptable. Avoid surface material when possible.

Without exception, laboratory specimens will be handled in the following manner:

The general rule is to call the individual laboratory section, i.e., general microbiology, virology, and tell them what organism is suspected and ask what specimens they need and the media required. Collect these specimens and route to the appropriate section.

If the organism is known, write this on the laboratory slip as certain precautions may be necessary.
PRECAUTIONS IN HANDLING INFECTIOUS DISEASE CASES AT AUTOPSY

1. All personnel will wear the following material during the course of an autopsy performed on a known or suspected infectious disease case:

   A. Disposable gloves (double gloves when appropriate)
   B. Complete scrub suit
   C. Disposable apron or gown
   D. Shoe covers
   E. Mask: In suspected cases of tuberculosis or other disease spread by aerosolization, all personnel (including observers) within the autopsy suite will be required to wear masks.

2. Any tissue saved from the body (this should be kept to an absolute minimum) should be appropriately labeled CAUTION - INFECTIOUS MATERIAL, including lab specimens.

3. A tissue burn will be scheduled as soon as possible after completion of the case. All infectious material will be burned at that time. The needle/scalpel blade container will be sealed and placed in the tissue burn, sealed in biohazard bag and placed in marked dumpster for University incinerator.

4. All materials will be double-bagged by the no touch technique including specimens collected for microbiology or virology.

5. Special attention should be paid to the external disinfecting of instruments and containers used in collection of autopsy tissues.

6. The instruments should be placed in a disinfectant solution for a minimum of two hours.
7. Before it leaves the autopsy room, the body should be sponged with a disinfectant solution.

8. The entire work area within the autopsy suite will be cleaned with disinfectant solution.

9. It is recommended that the respiratory tract and lungs from tuberculosis patients be preserved in 10% formalin after obtaining cultures for dissection at a later date.
GUIDELINES FOR X-RAY USE IN AUTOPSY SERVICE

The medical examiner in charge of the case should use their discretion as to the x-rays to be taken. The listing below is only a suggested guideline.

INFANT DEATH:

All suspicious infant deaths should be x-rayed to rule out hidden fractures of child abuse. They are not palpable in the extremities and even on film can be difficult to identify.

ADULT DEATH:

UNKNOWN CASES: Total body x-rays are done to aid identification and to identify old injuries. Dental x-rays are included.

BURN CASES: Suspicious cases should be x-rayed.

GUNSHOT WOUND CASES: X-rays may be taken at the discretion of the pathologist.

BOMBING CASES: X-rays are required to identify bomb parts that may be within the body. All victims of a mass disaster in which an explosive device is suspected such as TWA Flight 800 should be x-rayed for shrapnel.

SCUBA OR AIR EMBOLUS CASES: X-rays are recommended before opening the body to confirm air in the great vessels.
LABORATORY SAFETY IN THE AUTOPSY SUITE
GENERAL RULES

1. **NO SMOKING - THIS IS A NO SMOKING BUILDING.**

2. **NO EATING** - work areas, or where specimens are handled, storage areas.

3. Food may not be stored in the refrigerator in the Histology Lab.

4. Cosmetic application and hair brushing is not permitted in technical areas.

5. Keep your hands and other objects out of your mouth and eyes.

6. All used disposable needles and scalpel blades **must** be placed in the container provided for this purpose.

7. Wash hands frequently.

8. Never refill a permanent container with anything other than the material indicated on the label.

9. All laboratory materials and samples must be clearly identified and labeled.

10. In case of injury, notify supervisor immediately and fill out a Report of Injury when indicated.

11. The entire work area within the autopsy suite should be considered biologically hazardous and will be cleaned with bleach or other designated disinfectant after use.
The following guidelines apply to the death of a person in an emergency room or other health facility when the death is:

a. a medical examiner’s case  
b. presumed or suspected to be due to a communicable disease  
c. believed to be caused by an organism which has not been identified prior to the M.E.'s taking custody of the body.

1. Obtain blood and cerebrospinal fluid (CSF) samples which were collected prior to the initiation of treatment.

2. Request appropriate tests to identify the organism and its sensitivity to antibiotics. These include:
   
a. gram stain smears of blood/CSF  
b. blood and CSF cultures  
c. latex agglutination tests for bacterial antigens in CSF

3. If the local hospital lab cannot perform all tests ordered, locate outside labs which can perform them:

   Department of Health and Mental Hygiene: 225-6125  
   University of Maryland Hospital/Microbiology: 328-5536  
   Johns Hopkins Hospital: 955-6510 (9am-11pm)  
   955-6237 (11pm-9am)  
   (JHH can provide these services to other hospitals on a 24 hour basis)

4. Notify the OCME investigator or ME on call of initial sample’s status and of the tests
which have already been ordered and processed.

5. Assist in expediting the completion of the tests, both locally and in coordinating sample with outside lab, when necessary.

6. Assist in forwarding the isolate to the State Health Department for use in determining appropriate public health initiatives.

7. If no blood or CSF was drawn at the hospital (or prior to initiation of therapy), notify OCME investigator or ME on call of this fact.

**JUSTIFICATION:**

1. OCME needs to know the responsible organism in order to provide accurate documentation of cause of death.

2. The State Health Department needs accurate and timely information to effectively address public health concerns (i.e., prophylaxis therapy, vaccines).

3. To ensure accurate information in the media which will minimize inappropriate public response.