University Health System

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DEPARTMENT OF PATHOLOGY
Administrative Policies and Procedures

COVID-19 Deaths and Autopsy, Protocol

EQUIPMENT:

1. **Personal protective equipment as follows:**
    1. **N95 masks**
    2. **Shoe booties**
    3. **Hair covers**
    4. **Blue body cover gowns or equivalent**
    5. **Plastic apron**
    6. **Gloves (double gloved)**
    7. **Cut gloves (to protect against blade injury)**
    8. **Face shields**

PROCEDURE:

I. **AUTOPSIES WITH NO CLINICAL HISTORY OF INFLUENZA-LIKE SYMPTOMS OR A DOCUMENTED NEGATIVE TEST FOR COVID-19**

A. Autopsy cases with no clinical history of influenza-like symptoms, but with a valid signed autopsy consent, and not under the jurisdiction of the Bexar County Medical Examiner's Office (BCMEO) or have been waived by the BCMEO, can be autopsied under routine universal precautions. No nasal/oral pharyngeal viral testing need be performed.

II. **AUTOPSIES WITH POSITIVE INFLUENZA-LIKE CLINICAL HISTORY**

A. An autopsy can be performed using routine universal precautions with appropriate personal protective equipment for patients that have a positive clinical history of influenza-like respiratory symptoms, a valid signed autopsy consent, and not under the jurisdiction of the BCMEO or have been waived by the BCMEO,.

B. A "biopsy only" autopsy procedure may be considered on a case-by-case basis by the attending pathologist.

C. Notify microbiology prior to the start of the autopsy to determine if viral COVID-19 test swabs of the nasopharyngeal tract are available and/or indicated.

D. Note regarding transport of COVID-19 specimens if viral COVID-19 test swabs are available:

    a. Within the autopsy suite, primary containers should be placed into a larger secondary container.

b. If possible, the secondary container should then be placed into a resealable plastic bag that was not in the autopsy suite when the specimens were collected.
c. Workers receiving the biological specimen bag outside the autopsy suite or anteroom should wear disposable nitrile gloves.

III. UNIVERSITY HOSPITAL AUTOPSY PROTOCOL FOR COVID-19 POSITIVE CASES

A. Autopsies can be performed on decedents with a laboratory confirmed positive COVID-19 viral test result and a valid signed autopsy consent that do not fall under the jurisdiction of the BCMEO or have been waived by the BCMEO.
B. The attending pathologist will assess confirmed positive COVID-19 cases on a case-by-case basis to ascertain the medical necessity of conducting an autopsy. The attending pathologist may opt to perform a biopsy-only procedure.
C. Autopsies on decedents with COVID-19 can proceed in a similar fashion to an autopsy on a decedent with tuberculosis using Standard Precautions, Contact Precautions, Airborne Precautions with eye protection (e.g. goggles or a face shield), and sharps safety precautions in accordance with CDC protocols. Many of the following procedures are consistent with existing guidelines for safe work practices in the autopsy setting.
    1. Autopsies are performed in the University Hospital autopsy suite, which meets CDC engineering control recommendations for COVID-19 cases (i.e. negative pressure room, externally exhausted, greater than 12 air changes per hour)
    2. A portable HEPA filter has been placed in the autopsy suite to provide further reduction in aerosols.
    3. Use N95 masks
    4. COVID-19 is a respiratory virus spread by respiratory droplets and, because deceased persons do not cough or sneeze, the main infectious risk posed to autopsy personnel is via the generation of aerosols. Therefore, aerosol-generating procedures (AGPs) should be avoided for suspected and positive cases of COVID-19. Use of shears or a manual saw as an alternative cutting tool to the oscillating bone saw is recommended.
    5. The need for brain extraction will be assessed on a case-by-case basis by the attending pathologist, preferably restricted to those cases with CNS abnormalities prior to death. Brain extraction will be done with a protective protocol to decrease aerosolization (head and saw contained within a clear plastic bag/shroud for cutting of the skull to contain aerosols).
    6. Allow only one person to cut at a given time.
    7. Limit the number of personnel working in the autopsy suite at any given time to the minimum number of people necessary to safely conduct the autopsy (preferably 2 or fewer).
    8. Doors to the autopsy procedure room should be kept closed at all times.

9. Record the name of ALL personnel that enter the autopsy procedural area during the time of autopsy, including morgue staff, on the grossing sheet with date and time.
10. Do not use compressed air and/or water under high pressure for cleaning, or any other methods that can cause splashing or might re-aerosolize infectious material.

IV. COLLECTION OF FIXED COVID-19 AND INFLUENZA-LIKE AUTOPSY TISSUE SPECIMENS

A. The preferred specimens would be a minimum of eight blocks and fixed tissue specimens representing samples from the respiratory sites listed below in addition to specimens from major organs (including liver, spleen, kidney, heart, GI tract) and any other tissues showing significant gross pathology.
B. The recommended respiratory sites to collect include:
   1. Trachea (proximal and distal)
   2. Central (hilar) lung with segmental bronchi, right and left primary bronchi
   3. Representative pulmonary parenchyma from right and left lung
C. Viral antigens and nucleic acid may be focal or sparsely distributed in patients with respiratory viral infections and are most frequently detected in respiratory epithelium of large airways. For example, larger airways (particularly primary and segmental bronchi) have the highest yield for detection of respiratory viruses by molecular testing and immunohistochemistry (IHC) staining. 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.
D. Collection of tissue samples roughly 4 mm in thickness (i.e., sample would fit in a tissue cassette) is recommended for optimal fixation. The volume of formalin used to fix tissues should be 10x the volume of tissue. Place tissue in 10% buffered formalin for ***three days (72 hours)*** for optimal fixation.
E. As usual, residents will review organs after fixation and are responsible for microscopic evaluation and writing up the case.

A note:
COVID-19 and the SARS-CoV-2 virus are not fully characterized and there is still much to learn about the pathologic effects and causes of death in these patients. We will investigate these areas of concern while taking the utmost precautions to protect employee health and safety. The autopsy service has the unique ability delve deeper into the pathogenesis of this disease, more so than what we are able to do in a living patient. In this way, autopsy professionals are poised to make a truly meaningful contribution to our understanding of this novel disease by observing the invaluable information the dead provide to help us better serve the living.

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This protocol is subject to ongoing revision as circumstances change.

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