

Recommended Biosafety and Infection Control Practices in Autopsy Lab Keeping in View Autopsy of Confirmed or Suspected COVID 19 Case

Prof. Arif Rasheed

Department of Forensic Medicine, Services Institute of Medical Sciences, Lahore.

Biosafety is the most significant measure for medical & paramedical staff who are in contact with human remains with confirmed or suspected COVID-19, or other infectious diseases.

Autopsy Precautions and Procedures

Medical & paramedical staff who have contact with human remains, including those performing autopsy and collecting or handling specimens, are at risk for exposure to infectious agents, such as SARS-CoV-2, that may be present in tissues, blood, and other bodily fluids of the deceased person. Additionally, personnel might be exposed to residual surface contamination. Autopsy should be undertaken by using appropriate biosafety measures and procedures. All autopsy facilities should have written biosafety policies, site-specific risk assessments, and procedures, and all participating personnel should receive prior training in policies and procedures.

- Autopsy room must have a precautionary sign posted on the entry door (e.g., “Autopsy in Progress”, “Authorized Personnel Only”, “SARS-CoV-2 Awareness”, “Proper PPE Required”).
- Personnel must wear appropriate PPE.
- Number of personnel working in the autopsy suite and on the human body should be limited to the minimum number of people necessary to safely conduct the autopsy.
- Use a biosafety cabinet Class II or higher for the handling and examination of specimens and other containment equipment whenever possible.
- AGPs such as use of an oscillating bone saw should be avoided for confirmed or suspected COVID-19 cases. Consider using hand shears as an alternative cutting tool. If an oscillating saw is used, attach a vacuum shroud to contain aerosols.
- Use caution when handling needles or other sharps; (e.g. never recap, bend, or cut needles), and dispose of contaminated sharps in puncture-proof, labeled, closable sharps containers.
- A register including names, dates, and activities

of all workers participating in the postmortem care and cleaning of the autopsy suite should be kept and available for future follow up, if necessary. The names of custodial staff entering after hours or during the day, should also be included in the register.

- Cleaning and disinfection procedures of the autopsy room, surfaces, and equipment must be performed below.

Engineering Control Recommendations and Facility Design for Autopsies

Autopsies on decedents with confirmed or suspected COVID-19 optimally should be conducted in Airborne Infection Isolation Rooms (AIIRs). If not available, other autopsy suites with adequate air-handling systems may be used. These rooms must:

- Maintain negative pressure relative to surrounding areas with no air recirculation to adjacent spaces.
- Provide a minimum of 6 air changes per hour (ACH) for existing structures and 12 ACH for renovated or new structures.
- Have air exhausted directly to unoccupied areas outside the building.
- Have local airflow control in place (i.e., laminar flow systems) directing air from around the autopsy table downwards and away from personnel.
- Have a Certified Class II Biosafety Cabinet.

Work surfaces should have integral waste containment and drainage features that minimize spills of body fluids and wastewater.

In addition, doors to the autopsy room should be kept closed except during entry and egress. Entry and egress should be limited to prevent interruptions in airflow. A portable high-efficiency particulate air (HEPA) recirculation unit could also be placed in the room to provide further air filtration. If use of an AIIR or HEPA unit is not possible, the procedure should be

performed in the most protective environment possible. AIIR room air should never be recirculated in the building, but directly exhausted outdoors, away from windows, doors, areas of human traffic or gathering spaces, and from other building air intake systems.

The following combination of PPE is recommended for autopsy procedures:

- Surgical scrub suit worn under impermeable gown or apron with full sleeve coverage
- Double surgical gloves interposed with a layer of cut-proof synthetic mesh gloves
- At a minimum, a NIOSH-approved disposable N95 respirator should be worn; however, due to the likelihood of generation of contagious aerosols during various autopsy procedures, powered air-purifying respirators (PAPRs) equipped with N95 or HEPA filters are recommended.
- o PAPRs should be considered for personnel who cannot wear N95 respirators because of facial hair or other fit limitations.
- o PAPRs with high efficiency filters may provide increased comfort during extended autopsy procedures.
- o When respirators are necessary to protect workers, employers must implement a comprehensive respiratory protection program as per international standards.
- Eye protection such as goggles or face shield that covers the front and sides of the face

- o Proper eye protection must be selected to ensure that the N95 respirator does not interfere with the correct positioning of the eye protection, and the eye protection does not affect the fit or seal of the respirator.

- o Protective eyewear (e.g., safety glasses and the face shield) without gaps between glasses and the face to protect eyes from splashes and sprays.

- Surgical caps.

- Shoe covers with non-slip tread.

PPE should be worn following required don, use, and doff protocols to avoid self-contamination and to mitigate risk of carrying the virus outside the autopsy suite or adjacent anteroom.

After removing PPE, discard the PPE in the appropriate laundry or waste receptacle. Reusable PPE (e.g., goggles, face shields, and PAPRs) must be cleaned and disinfected according to the manufacturer's recommendations before reuse. Immediately after doffing PPE, wash hands with soap and water for 20 seconds. If soap and water are not available, an alcohol-based hand sanitizer that contains 60-95% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water before using alcohol-based hand sanitizer. At all times avoid touching the face with hands. Ensure that hand hygiene facilities are readily available at the point of use (e.g., at or adjacent to the PPE doffing area).