

Coronavirus Disease 2019 Autopsies and Personal Protective Equipment

To the Editor.—In February 2020, the facilities manager of our hospital was tasked with evaluating our morgue airflow for compliance with the Centers for Disease Control and Prevention (CDC) standards for coronavirus disease 2019 (COVID-19) autopsies.¹ The morgue had been built in 2015 to incorporate negative airflow that is exhausted to the outside of the hospital at a rate of 6 room air-exchanges per hour. After compliance was proven, the medical director of the laboratory approved the morgue for COVID-19 autopsies. Our pathology residents had safety concerns. Some asked: “Is it worth taking the risk to perform a known cause-of-death autopsy?” A frank and open discussion ensued between pathology residents and faculty. We decided that a pathologist who performs an autopsy is similar to a clinician who treats a patient in the clinic, and there is some risk of infection with both activities.² Our goal as pathologists is to explore the mechanism of the disease, which coincides with our responsibility to the community and to the family of the deceased. At the same time, we must ensure the safety of all the participants in the autopsy. Our senior resident (B.H.) had a video call with a frontline volunteer physician in Wuhan, China (personal communication, March 19, 2020) asking about the details of their personal protective equipment (PPE). Our Wuhan colleague recommended 3 complete layers of PPE (surgical scrubs [inner], full-body biohazard suit with hood [middle], and surgical gown [outer]) that exceeded the then-current CDC recommendation of 2 layers (surgical scrubs and apron), and he also recommended wraparound goggles to protect the eyes. He referenced the Chinese Healthcare Authority as having indicated that no infections of medical personnel in China ever occurred with such dress. Wraparound goggles were purchased from Home Depot (Home Depot Inc, Atlanta, Georgia). Otherwise, CDC PPE recommendations, including use of N95 respirators, gloves, boots, and plastic face shields, were followed (Figure), with the addition of postprocedure doffing of PPE with



A first-year pathology resident with full personal protective equipment (PPE), including an N95 respirator, face shield, coverall biohazard suit, surgical gown, double gloves over a cut-resistant glove, and boots. Laminar air flow about the autopsy table directs aerosols away from personnel.

showering. We made sure that autopsy participants were familiar with donning and doffing the PPE with practice drills before the actual autopsy. All resident and faculty pathologists contributed to our autopsy service without coercion. After 24 COVID-19 autopsies, 3 residents, 2 attending pathologists, and an autopsy assistant never had any symptoms and remain comfortable with the PPE measures.³

As we were prepared to start our first COVID-19 autopsy, we noted the recommendation of the Occupational, Safety, and Health Administration (OSHA) against performing autopsies on COVID-19 patients, noting the unknown hazards of transmission. We decided to proceed to perform autopsies, and now OSHA has dropped its opposition to autopsy of COVID-19 decedents, to mirror the CDC autopsy recommendations.

We recommend communication with all relevant departments and personnel before starting COVID-19 autopsies, including the inspection of morgue ventilation and of disinfection and cleaning procedures. Supplies such as formalin, appropriately sized specimen containers, and disinfectant need to be inventoried for sufficient availability.

We were unable to use an oscillating saw to open the skull because we did not have the vacuum shroud to

contain aerosols. Therefore, our initial autopsies lacked brain tissue.

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1. Collection and submission of postmortem specimens from deceased persons with known or suspected COVID-19, March 2020 (Interim Guidance). Centers for Disease Control and Prevention Web site. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-postmortem-specimens.html>. Accessed April 28, 2020.

2. Schwartz DA, Herman CJ. Editorial response: the importance of the autopsy in emerging and reemerging infectious diseases. *Clinical Infectious Diseases*. 1996;23(2):248–254.

3. Fox SE, Akmatbekov A, Harbert JL, Li G, Quincy Brown J Vander Heide RS. Pulmonary and cardiac pathology in African American patients with COVID-19: an autopsy series from New Orleans [published online ahead of print, May 27 2020]. *Lancet Respir Med*. doi: 10.1016/S2213-2600(20)30243-5

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Document Version Control in the Pathology Laboratory: Git Is an Open-Source Option

To the Editor.—Question GEN 20375 of the College of American Pathologists (CAP) Laboratory Accreditation Checklist requires that all laboratories have a document control policy in place “to manage policies, procedures, and forms that are subject to CAP accreditation.”¹ The document control