



Guidelines for performing neurophysiologic intraoperative monitoring (NIOM) on patients with suspected or confirmed COVID-19

Purpose: To provide the best possible care to patients with a suspected or confirmed COVID-19 infection while undergoing (NIOM) procedures in addition to maintaining the safety of NIOM staff during the performance of those procedures.

This document addresses NIOM management of patients who have a suspected or confirmed COVID-19 infection and need urgent surgery. Patients who do not fall into those categories will continue to be managed in the usual fashion.

Scheduling

1. All NIOM requests will be reviewed for COVID-19 isolation status using the isolation banner in Maestro Care.
2. If a surgeon requests NIOM for person under investigation (PUI) or positive for COVID-19, the medical necessity for NIOM will be reviewed by the NIOM medical director and attending surgeon.
3. If NIOM is deemed medically necessary the following modifications will be used by NIOM staff performing monitoring.

NIOM Modifications for procedures for patients with a suspected or confirmed COVID-19 infection:

2. All OR protocols including, but not limited to appropriate PPE use, when caring for patients with COVID-19 or those suspected of having COVID-19 infection should be followed. Follow the latest updates on OR COVID protocols on the Duke COVID Intranet site. Pertinent links for OR protocols and PPE are listed in the appendix of this guideline.
3. Limit the number of technologists involved with care of these patients. Ideally, only one, and no more than two, technologists should be involved with each case.
4. Technologist trainees who cannot be left unsupervised in the room should not be involved in these cases.
5. All non-critical supplies should be removed from the NIOM cart. Supplies needed for the case will be placed in a disposable bin on the cart. All fabric bags must be removed from the NIOM cart as well.
6. NIOM equipment should be positioned away from the air return vents and patient head when possible to reduce exposure.
7. The technologist should pause setup and retreat to anteroom/induction room for airway management/induction.
8. The technologist should leave the patient's room after termination of monitoring and removal of electrodes, before extubation. The anesthesiologist will extubate the patient alone in the OR if this is felt to be safe. If determined that the circulating nurse or surgeon should be present for patient safety, he/she can remain in the OR. The patient will then be recovered for at least 30 minutes while the air exchange occurs. If the patient is to be transferred to the ICU intubated, the patient can be transferred immediately. The post-operative neuro-exam does not need to be conducted in these situations.



9. CNP fellows should not be involved with NIOM in these patients unless it done remotely.
10. The ideal anesthetic for NIOM is not different for patients with confirmed or suspected COVID-19 infection. However, to avoid patient coughing/bucking (which can generate airborne material), the anesthesia staff may need to use drugs that are suboptimal for NIOM. In such cases, please optimize signals as much as possible with the additional anesthetics. If these drugs affect the NIOM, please discuss with the attending neurophysiologist and if appropriate, inform the surgical team. Once safe, please ask the anesthesia staff if the more typical agents can be used.
11. After the surgical procedure, please wipe down all equipment with bleach wipes. Disposables should be handled per routine protocol. Any materials left over from patient care should be disposed of even if unused. The NIOM machine should be left in the OR during the Tru-D UV light disinfection.

References:

1. Bowdle A, Munoz-Price LS. Preventing infection of patients and healthcare workers should be the new normal in the era of novel coronavirus epidemics. *Anesthesiology* 2020 (epub ahead of print)
2. Park J, Yoo SY, Ko J, et al. Infection prevention measures for surgical procedures during a Middle East Respiratory Syndrome outbreak in a tertiary care hospital in South Korea. *Sci Rep* 2020;10:325
3. Greenland JR, Michelow MD, Wang L, London MJ. COVID-19 Infection: Implications for perioperative and critical care physicians. *Anesthesiology* 2020 (epub ahead of print)
4. Chen X, Liu Y, Gong Y, et al. Perioperative management of patients infected with the novel coronavirus. Recommendation from the Joint Task Force of the Chinese Society of Anesthesiology and the Chinese Association of Anesthesiologists. *Anesthesiology* 2020 (epub ahead of print)

Appendix:

- A. Protocol for Perioperative Management of Urgent Surgical Procedures in Suspected or Confirmed COVID-19 Patients

This document addresses perioperative management of patients who are KNOWN or SUSPECTED (i.e. rule-out) COVID-19 positive and need urgent surgery. Patients who do not fall into those categories will continue to be managed in the usual fashion.

<https://intranet.dh.duke.edu/layouts/15/WopiFrame.aspx?sourcedoc=/Coronavirus%20Document%20Library/Clinical%20Guidance%20and%20Forms/Protocol%20for%20Perioperative%20Management%20of%20Urgent%20Surgical%20Procedures%20in%20Suspected%20or%20Confirmed%20COVID-19%20Patients.docx&action=default>

- B. **Instructions for Extended Use and Conservation of N95 Respirators and PAPRs Hoods Instructions for Extended Use of N95 Respirators and PAPR Hoods**



Note: The directions for the re-use of N95 respirators with contact precaution isolation are a deviation from our regular practices. These measures are being taken to conserve PPE as part of our COVID-19 response. This guidance may change. A contemporary version of the most current guidance can be found on the Intranet at:

<https://intranet.dh.duke.edu/Coronavirus%20Document%20Library/PPE/Instructions%20for%20Extended%20Use%20and%20Conversation%20of%20N95%20Respirators%20and%20APR%20Hoods.pdf>

C. Video of proper donning and doffing processes of PPE for inpatient care environments

<https://cepd.warpwire.com/w/gR4AAA/>