



Considerations for Reopening Epilepsy Centers in Light of COVID-19

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There is significant variability in how COVID-19 is affecting epilepsy centers across the United States. Epilepsy organizations have worked together to draft this document to advise directors of epilepsy centers and other neurologists who provide epilepsy care regarding key considerations as they plan to reopen their centers to provide inpatient and outpatient services. These services include admission to an Epilepsy Monitoring Unit (EMU) for characterization of seizures and spells, as well as epilepsy surgery and outpatient EEG and clinic visits. In many cases, an admission to the EMU will be elective, but critically needed to provide an accurate diagnosis and effective treatment for a patient's epilepsy or seizures. Epilepsy surgery, while usually not an urgent treatment, significantly reduces morbidity and mortality, and should be offered when benefits outweigh risks. Ultimately, each center will need to evaluate these factors in light of their particular situation and availability of resources. At all times, centers should act with the goal of ensuring patient and provider safety and should maintain the safety and quality practices required by the NAEC accreditation process.

Centers should establish a centralized process or committee to periodically review these considerations for re-opening as local circumstances evolve. Committee members could include center director, administrative director, representative from hospital administration, incident command or infection control, nursing supervisor of EMU, clinical neurophysiology/EMU laboratory director, and EMU Coordinator. Minutes of committee meetings or written policies and procedures should be created to document decision-making and evolving practices.

Discussions with patients about the risks and benefits of epilepsy monitoring, other testing and epilepsy surgery should include information to assess and balance risks of potential COVID-19 exposure as compared to risks of waiting or delaying testing and procedures, including surgery.

Considerations for Reopening of Epilepsy Monitoring Units

- Prior to reopening their EMU, Epilepsy Centers should review guidance released by the Centers for Disease Control and Prevention (CDC), the Centers for Medicare and Medicaid Services (CMS), and their state and/or local government Department of Health. Since guidance is likely to change, it is important to periodically recheck these recommendations and reassess a center's policies.
- Centers should adjust operations to ensure patient safety as well as quality of care if there have been significant changes in staffing, facilities, or policies as a result of the COVID-19 pandemic. Essential personnel may include trained epilepsy nurses, in-room patient observers for high risk patients, and trained personnel for 24/7 monitoring. Location and number of EMU beds should be adequate for continuous observation and rapid response to seizures and other events, sufficient ICU beds should be available for management of seizure emergencies, and adequate OR staff and facilities for surgical complications if invasive evaluations are performed. Centers with changes should consider adjustments such as reducing volume of admissions/cases and slowly ramping up admissions or surgeries as resources return.
- Facilities should also prioritize the safety of clinicians and staff at epilepsy centers, many of whom are in close physical contact with patients throughout their service or admission.

Personal Protective Equipment

- Recommendations will vary based on local incidence of COVID-19 as well as availability of resources. In particular, whether COVID-19 testing is available for patients prior to admission will impact the need for PPE. Inpatient testing upon admission that creates a period of time during which a patient may be considered a PUI should also be considered when planning for PPE needs.
- To restart elective admissions, PPE supplies should be adequate for normal infection prevention techniques rather than adapted PPE for crisis.
- For protection, patients, staff, and visitors should wear face masks during both inpatient and outpatient procedures. Guidance on specific types of face masks during procedures should be guided by hospital policy.
- For inpatients, face masks should be worn by patients and visitors when in public areas per hospital policies. When patients (and visitors if permitted on-site) are in their own hospital rooms, masks may be removed except during electrode placement and maintenance or other prolonged face-to-face interactions (e.g. neuropsychological testing, in-room patient observers).
- For inpatients, staff should wear masks during all interactions. If available, surgical masks are strongly preferred, especially when pre-admission COVID-19 testing is not performed or there are significant delays between COVID-19 testing and admission.
- For procedures on the mucous membranes including the respiratory tract, staff should utilize appropriate respiratory protection such as N95 masks and face shields. Special care should be exercised during the care of postictal patients, especially if using oral suction or airway maintenance, and during procedures requiring the use of pressurized air, like application of electrodes using collodion.
- To prevent delays in postictal care, appropriate PPE (i.e. N95 masks and face shields) should be immediately available to staff as they enter patient rooms.
- EMU staff should be trained in proper type and use of PPE.
- Policies for conservation of PPE should be reviewed and adapted as needed for the EMU environment.

Facility Considerations

- Epilepsy centers should implement measures to facilitate social distancing, such as minimizing time in waiting areas, spacing chairs at least 6 feet apart, adjusting staff workspaces so they can maintain social distancing, maintaining low patient volumes, and restricting visitors.
- If there have been significant changes in facilities, such as location/arrangement of rooms, policies and procedures should be carefully assessed and adjusted to ensure safety of patients and visitors and staff and quality of care/studies.
- Centers should consider extending lab hours (such as for evenings / weekends) for outpatient procedures to limit number of patients and staff in lab and waiting area at one time.
- For inpatients, centers should consider the impact of restrictions of visitors/observers on patient safety and comfort. Children and patients with communication deficits, intellectual disabilities, or behavioral issues may require a caregiver to be present during monitoring. Policies should address screening patients for the need for caregiver supervision as well as testing and masking procedures for caregivers and visitors.

Staffing

- Staff should be screened for symptoms of COVID-19 according with CDC recommendations, CMS, and local health department guidelines, and if symptomatic, they should be tested and follow hospital policy regarding return to work.

- If a facility has separate areas (units or zones) for patients diagnosed with and/or under investigation for COVID-19, facilities should minimize staff traffic between these areas and other parts of the facility.
- For detailed guidance, centers should review recommendations Technologist Safety & Staffing, and Physician Staffing released by ACNS ([available here](#)) and ASET ([available here](#)).
- Centers should establish procedures that limit the number of staff who come into contact with a given patient, i.e., minimizing the number of nurses that respond to a clinical event; using telehealth services to perform rounding, so only one physician is in the patient's room and the rest of the staff are participating remotely.
- For EEGs, centers should evaluate the risks and benefits of activation procedures, especially hyperventilation, which increases both duration of direct exposure by technologists to patients and may be an aerosolizing procedure. Hyperventilation should be restricted to high-yield cases, such as children suspected of absence or other generalized epilepsies.

Supplies and Equipment Maintenance and Cleaning

- Centers should follow CDC and facility guidelines for cleaning and disinfecting spaces and equipment.
- For video-EEG equipment cleaning and maintenance refer to [ACNS Guidelines](#) and [ASET Guidelines](#).
- Disposable electrodes are recommended for use if possible, with disposal of all single use items such as measuring tapes, marking pencils etc. Sterilize reusable electrodes between use or follow manufacturer instructions for cleaning, then disinfect using approved high-level disinfectants such as a diluted sodium hypochlorite solution (100 ppm) for 60 minutes¹.
- The use of collodion in long-term EEGs should be considered to ensure technical integrity and minimize the number of times an EEG/Neurodiagnostic technologist needs to fix electrodes, except in patients who are diagnosed or under investigation for COVID-19. If the use of pressurized air to dry collodion cannot be avoided, extra care should be taken during its use. Other electrode adhesives, such as EC2 paste, may be substituted for collodion.
- Adequate availability of surgical and respiratory care supplies should be confirmed prior to any planned procedures, including any support personnel needed (e.g., vendors needed to support electrode implantations, neurostimulation devices, and surgical procedures). Adequate medications for management of seizure emergencies and status epilepticus should be easily available and accessible.

COVID-19 Testing

- All patients, visitors, and staff must be screened for potential symptoms of COVID-19 prior to entering the facility for inpatient and outpatient visits and procedures. Initial screening should consist of questions regarding symptoms and exposure; temperature monitoring may be included.
- Subject to local conditions and adequate testing capability, the highest possible levels of safety for patients and staff require patients to be screened by laboratory testing before care. It is preferred that patients be tested via rapid tests just before admission. If this is not possible, then patients should self-isolate between outpatient COVID-19 testing and their date of admission.
- Centers should carefully evaluate the medical necessity and risks and benefits to patients and staff of providing services to patients when testing is not possible, or results are not yet returned.
- Staff working at facilities should be regularly screened (questions, temperature, and, if available, laboratory testing) per hospital/institution protocol.

¹ Anna M. Bonner & Petra Davidson (2020) Infection Prevention: 2020 Review and Update for Neurodiagnostic Technologists, The Neurodiagnostic Journal, 60:1, 11-35, DOI: [10.1080/21646821.2020.1701341](https://doi.org/10.1080/21646821.2020.1701341)

- Patients undergoing any surgical procedures, including phase II (intracranial) video-EEG monitoring, must be tested pre-admission.
- For patients admitted to the hospital and their visitors/observers, screening (symptoms and/or temperature) should be an ongoing process that is repeated at daily intervals during their stay.
- Testing of patients for outpatient procedures (imaging, EEG, etc.) using rapid point-of-care testing can be considered if testing capability is adequate to meet demand.
- Testing prior to discharge to care environments other than the patient's home should follow hospital policies.
- Centers should monitor all COVID-19 test results (both pre-admission and any patients requiring testing during admission) and adjust admission policies if needed.

Patient Scheduling and Case Prioritization

- Centralized triage of admissions and surgeries can help to ensure that decisions are made in a consistent manner for all patients. Centers should establish a prioritization policy committee or workgroup to include at least the medical/ surgical director(s), Lead Neurodiagnostic Technologist or Neurodiagnostic Manager of the EMU, epilepsy coordinator, epilepsy nurse(s) to develop a prioritization strategy appropriate to the immediate patient needs. Triage decisions should balance the risk of COVID-19 (based on local environment) with the risks of delaying the planned procedure for each patient. Each center should consider having a written algorithm for triage, and individual decisions should preferably be managed centrally (EMU medical director or designee, or committee).
- General principles should take into consideration patient's safety (risk of morbidity and mortality from epilepsy) and the likelihood that management would be changed based on the result of the intervention (such as admission for long-term monitoring or neuropsychological testing). Patient selection for admission should be considered on a case by case basis.
- An example of a triage policy created for pediatric patients can be found [here](#).
- Considerations include:
 - Previously cancelled/postponed surgical cases
 - Urgency of surgical cases – based on seizure burden/disease severity, potential for changes in management based on testing/intervention, potential impact to testing/intervention on reducing seizure burden/disease severity
 - Potentially progressive diseases where testing will impact management, e.g., infantile spasms
 - For presurgical evaluations:
 - Readiness of patient to proceed with surgery
 - Availability of ancillary testing – e.g., imaging, neuropsychological testing
 - For all inpatient admissions, vulnerability of the patient (and family members) to COVID-19 is also a consideration. For example, in elderly patients or those with significant comorbidities, the benefits of the hospitalization must be weighed carefully against the potential for exposure to COVID-19.
- The EMU length of stay will vary depending on the reason for admission and the findings during monitoring.
- All facilities should continually evaluate their regional incidence of COVID-19 cases and should be prepared to cease non-essential procedures if there is a surge.
- Because unexpected surges in COVID may occur, epilepsy centers should have plans for adjusting admission schedules, and for rapidly but safely restarting antiepileptic medications and discharging EMU patients if hospital capacity is exceeded.
- Steps will likely be necessary to reassure patients and families and staff of safety of returning to clinics and centers for visits/procedures.

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