

Semel Electroencephalography Research Standard Operating Procedure

Summary

This SOP applies to electroencephalography (EEG) research conducted at the Translational Research Center for Neuropsychiatry (TRCN) and Staglin Center for Cognitive Neuroscience (CCN). This SOP operates within, and abides by, the more general SOPs for both [TRCN](#) and [CCN](#). These procedures may occur in one of three testing spaces: CCN (C7-439D, C7-439D1, C7-439D2), A-floor EEG laboratories in Semel (A7-458, A7-454, A7-442, A7-438), or 2-nd floor EEG laboratory (27-446) in Semel. Deviations that take into consideration unique aspects of these three locations are clearly articulated as appropriate.

EEG Testing Protocol

A. General Procedures

- a. All staff and participants will wear masks throughout the entire protocol.
- b. Staff will remain 6ft from the participant and will administer only those activities in close proximity that can be done in <10 min.
- c. All interactions between individuals that occur within <6ft of physical space will require individuals to additionally wear face shields, disposable gown, and latex/nitrile gloves, and will be limited to <10 min in duration.
- d. Repeated interactions between individuals that occur within <6ft of physical space will be separated by breaks of 15-20 min.
- e. As all of the EEG testing facilities are <250 sq. ft, only one individual will be present in the testing room, except for brief, necessary interactions to position, guide, or assist the participant and/or operate the data acquisition hardware and computer.
- f. Upon entry to the EEG facility, staff and participants must leave personal belongings, including keys and phone, in a safe storage box.
- g. Upon entry to the EEG facility, staff and participants must use hand sanitizer containing at least 60% alcohol.
- h. A paper log will be posted in the EEG facility. Staff must log the date and time the participant underwent EEG, identify the PI of the study, and provide the coded subject number assigned to the participant. No personally identifiable information may be written down on the log.

B. Application of EEG Recording Electrodes

- a. During application of EEG recording electrodes, one staff member and participant will be within 6 ft of physical space, and subject to PPE and time restrictions ([c.f., A. item c](#)). The entire procedure will be performed in <10 min.
- b. Application of EEG recording electrodes will be performed outside of the EEG recording suite in order to ensure >250 ft.sq. per individual. This will be performed in one of the following locations, whichever is closest to the EEG recording lab: Semel A-floor deck (outdoor space), A-floor and 2nd-floor Semel Conference rooms (A7-418/A8-221, 27-418/28-221), or CCN Staglin common space (C7-439).
- c. The cap containing EEG electrodes will be placed on the participant's head from the back, with the staff member behind the participant, thus eliminating close face-to-face contact.
- d. Any additional electrodes will be placed on the skin directly using double-sided adhesive electrode collars.
- e. The participant must wear a face mask with over-the-ear loops at all times, with the mask adjusted as to fit under or over the EEG cap.

C. Checking of Impedances

- a. Some EEG protocols may require checking of the EEG electrode impedances, an additional protocol following the initial [Application of EEG Recording Electrodes](#). This step requires that one staff member and participant will be within 6 ft of physical space, and will be subject to PPE and time restrictions ([c.f., A. item c](#)).
- b. The entire procedure will be performed in <10 min.
- c. This procedure may, in some cases, be performed in tandem with [Application of EEG Recording Electrodes](#) where total time <10 min. If it is performed as a separate procedure, a 15-20 min interval will separate the two interactions.
- d. During checking of impedances, the staff member will make adjustments to the positioning and contact of EEG sensors on the scalp, while checking the screen readings on a computer.

D. Data Acquisition

- a. After [Application of EEG Recording Electrodes](#) and [Checking of Impedances](#), staff will begin data acquisition.
- b. During data acquisition, the staff member will not be present in the EEG recording room. Only the participant (and possibly one parent, in case of infants/toddlers) will be present in the EEG recording room.

- c. For two-room testing set-ups, where a participant room is physically separated from the examiner control room, the staff member will be in an adjacent control room and will speak to the participant through a microphone or door. The control room in the CCN facility and 2nd-floor EEG facility are adjacent to the EEG recording room, separated by an air-locked door, with both rooms subject to negative pressure ventilation. In the A-floor EEG facilities in Semel, the testing rooms are single rooms. Two rooms in the A level allow for 6 foot distance between participants and examiner. However, we will also replace the curtain that surrounds the participant with plexiglass for a more safe barrier between the two. New separate control rooms in the A-floor EEG facilities will be considered, and we are currently exploring three options with Evelyn Cederbaum, Semel coordinator: A7-449 (control room) for EEG rooms A7-458 and A7-454; A7-450 (control room) for EEG room A7-454; A7-438 (control room) for EEG room A7-442.
- d. For infant testing on the A level, we will provide parents with detailed instructions via a video and written materials to facilitate their infant's testing, including minimizing movement, redirecting attention to the screen, preventing pulling of the EEG net, and wetting electrodes to reduce impedances during testing. This will prevent the examiner needing to approach the infant during testing, maintaining a 6 ft distance once testing begins.

E. Removal of EEG Recording Electrodes

- a. During removal of EEG recording electrodes, one staff member and participant will be within 6 ft of physical space, and subject to PPE and time restrictions ([c.f., A. item c](#)). The entire procedure will be completed in <5 min.

F. Clean Up & Sanitation

- a. All electrodes and caps must be immediately cleaned according to already established procedures. Once cleaned, all electrodes and caps must be disinfected using Clorox Healthcare Hydrogen Peroxide Cleaner and Disinfectant (CHHPCD). CHHPCD is listed by the EPA site as effective against SARS-COV-2 with an exposure time of 2 minutes. Therefore, caps and electrodes must be submerged for no less than 2 minutes in CHHPCD after each use, rinsed with cool running water, and then hung up to air dry. ***There are other cleaners that might be recommended for electrodes/caps from different manufacturers.
- b. During clean-up staff must wear full PPE including face shields, disposable gown, and latex/nitrile gloves.
- c. All plastic blunt syringes used to apply electrolyte to EEG sensor holders and disposable electrodes must be disposed of after each use and may not be reused.

- d. There will be a mandatory 30-min gap in between each booking to thoroughly clean and sterilize all surfaces (chair, computer, input devices, doorknobs, handles, etc.) following established [TRCN](#) and [CCN](#) SOPs.