

CNI Service Center Standard Operating Procedures During the COVID-19 Pandemic September 27, 2021

Introduction

The Center for Cognitive and Neurobiological Imaging (CNI) at Stanford University is a shared facility, dedicated to research and teaching in cognitive neuroscience. The center is located on the lower level floor of Building 420. The CNI provides neuroimaging facilities and related resources for researchers and students in the cognitive and neurobiological sciences. The core instrument provided by CNI is a research-dedicated 3T MRI scanner. The purpose of this document is to describe procedures for the safe operation of the CNI facility during the later stages of the COVID-19 pandemic when vaccination has been widely adopted. The policies and procedures discussed in this document were developed to be consistent with the requirements of the Environmental Health and Safety policies and with the Human Subjects Research policies at Stanford University.

Overview of CNI Workspace

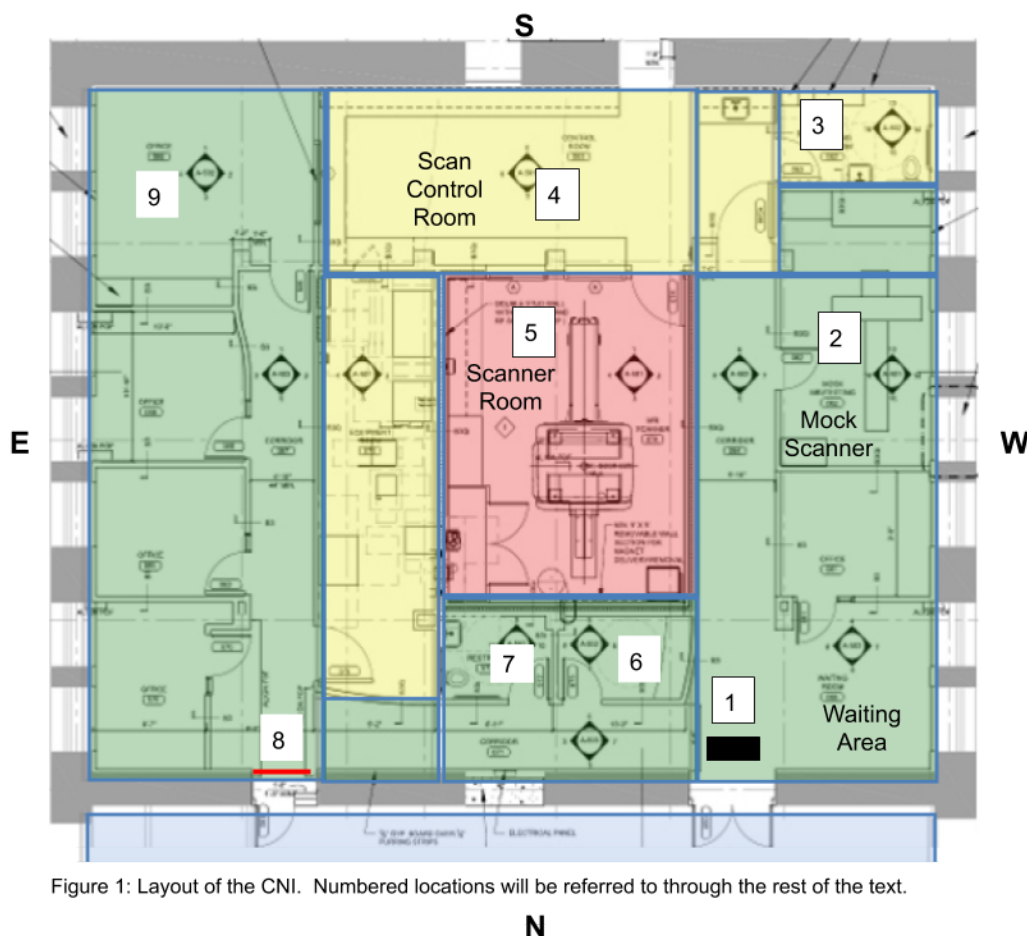


Figure 1: Layout of the CNI. Numbered locations will be referred to through the rest of the text.

Figure 1 illustrates the CNI layout that will be used while operating in COVID-suppression mode. The numbered Stations refer to the following locations:

- Station 1: Main entry. A table will be present with hand sanitizer, procedural masks and Nitrile gloves available.
- Station 2: Mock scanner room.
- Station 3: Changing area, bathroom.
- Station 4: Scanner control room. Hand sanitizer, and Nitrile gloves available at the sink area.
- Station 5: Scan room.
- Station 6: Testing room.
- Station 7: Bathroom
- Station 8: Secondary entry to CNI - not to be used, please use the main entry only.
- Station 9: Conference room.
- Station 10: Room A15, study room outside CNI in “Stanford Prisoner” corridor (not shown in Fig. 1)

Overview of Daily Workflow

1. The CNI will operate with the current mask guidance in place for general University operations. At the date of this document, this includes universal masking anywhere indoors, except for individuals alone in their private offices. External users of the CNI are all sharing common spaces, so this does not apply to them, even if they are scanning alone in the MRI control room. Everyone must wear a mask at all times.
2. We expect the university will relax mask guidance again in the future, allowing fully vaccinated individuals to optionally not wear a mask indoors. In this situation, CNI users or research subjects meeting this criteria may optionally not wear a mask. The exception is that all research subjects undergoing an MRI scan **must** wear a mask when inside the MRI scanner.
3. Each morning the Stanford University Janitorial service will clean CNI, paying special attention to disinfecting commonly touched surfaces.
4. On the day of their scan, researchers must have confirmed they meet Stanford’s requirements for employees coming into work prior to arriving at CNI. This will be facilitated by the use of the Stanford HealthCheck Form <https://healthcheck.stanford.edu/>.
5. One or more researchers will greet their subject. Please note that University guidelines for external (non-Stanford affiliate) participants require they be met in an outdoor location.
 - a. The researcher will offer hand sanitizer to their subject and give them a procedural mask. Note: scan participants must be provided an **MRI-safe** mask. This is a regular mask from which the CNI staff has stripped the metal ribbon, or is a new type of mask that uses a plastic (not metal) nose ribbon. The metal ribbons are mildly ferromagnetic--not enough to cause a projectile hazard, but will create substantial image artifacts! An accompanying guardian should be provided a regular disposable mask if necessary.
 - b. Researchers will confirm the answers for the subject that will have been collected during pre-screening on the [CNI screening form](#). A single additional visitor, such as a parent or guardian, will be allowed only if necessary to accompany a participant. This visitor must also be screened with the [CNI screening form](#).
 - c. A contactless temperature measurement of the subject and any visitor will be taken.
 - d. If the subject (or visitor) presents with a temperature over 100° or has any COVID19 symptoms, researchers will not scan the subject and escort them from CNI premises while maintaining social distance. Researchers should then cancel their scan booking in the CNI scan scheduler and are then free to leave.
 - e. Assuming no contraindications, signatures will be collected on the screening forms and they will be deposited into the collecting box.
 - f. The participant will then be instructed to change into disposable scrubs in the changing area/bathroom at Station 3. A disposable bag will be provided for their clothes and belongings.

- g. Any accompanying guardian may accompany the subject to the changing room but must otherwise remain in the waiting area.
6. The researchers will then fill out the MRI screening and consent forms, perform any necessary tests or acclimatization at Stations 2, 6, or 9, and then scan the subject. Hand sanitizer will be available at each station and researchers will instruct the subject to frequently clean their hands when moving from one station to another. The sink area in Station 4 will always be available for additional hand washing and glove changing. Maintain social distancing as much as possible.
7. Researchers are welcome to use face shields when interacting with subjects if they would like – we have a supply available but ask that you not dispose of them but keep them for future scans.
8. **Note: Scan participants must wear their MRI-safe mask throughout the entire scan.**
9. **Glove use:** Gloves are recommended whenever interacting with the subject in the scan room, and we recommend they also be used during cleaning. Gloves should not be worn when exiting the CNI. Gloves may be worn in the control room and waiting area, but frequent hand washing or sanitizing is an acceptable alternative and will help preserve our supply of gloves.
10. After completion of the scan, the researchers will instruct the subject to return to the changing room to change back into their clothes. Used gloves, masks and other trash can be disposed of in the normal trash container. ONLY in the event of items being visibly contaminated with bodily fluid do they need to be disposed of in the biohazard container in Station 3 or 6.
11. Researchers will perform the cleaning procedures outlined below at each of the stations they or their subject have utilized and escort the participant out of the facility.
12. Researchers should reserve in advance any of the stations they will be using on the CNI calendar to ensure no overlap between groups (Scan room, Testing Room, Mock Scanner, Conference Room, CNI Lobby and Room A15).

Additional Stage-Dependent Requirements

Stanford University has adopted a plan of phased resumption of research activities. These stages provide guidelines for general research as well as many specific guidelines for clinical and non-clinical human subject research. The definitions of these stages and guidelines are in a state of continual evolution so we will not describe them here but refer all PIs and users to the [Research Recovery Plan](#). It is the responsibility for all PIs to be sure they know what the current stage of research recovery is, and how that impacts human subject research. The CNI will also do its best to make sure that notable changes in the research stages are communicated to all users.

Cleaning Procedures for Each Station

Lysol Wipes are intended to be the primary instrument used to disinfect all stations. Please note the EPA recommends a 2-minute contact time for the active ingredient to kill SARS-Cov2 -- this means you need to make sure the surfaces are moist enough not to dry out within that period. Please use your best judgment of making sure you refresh your Lysol Wipes as needed, but please also try to use them as efficiently as possible -- they are a **precious** resource! We also will be using Sani-Prime Germicidal spray (3-minute contact) and Swiffer Dry Wipes for disinfecting the scanner bore. Please note that you should spray your towel first and then wipe, rather than spray the surface as this can cause some aerosolization of any surface virions.

Please also note that **ALL** supplies are **ONLY** for the internal use at CNI. Under no circumstances should researchers remove supplies from CNI for their lab or personal use outside CNI.

Station 2: Mock Scanner Room

1. Use disinfecting wipes to clean hard surface areas around the table cushion, all over the head coil.

2. Place clean linens on the table cushion and the base of the head coil. Remove and place used linens in the hamper located in the mock scanner room.

Station 3: Changing area and bathroom

1. Dispose of any used temporary clothing bag.
2. Please put any used disposable socks in the regular trash – **not** the Biohazard bin. Cotton scrubs go in the appropriate laundry basket in the control room.

Station 4: Scanner control room

1. Use disinfecting wipes to clean the console keyboard and mouse, surrounding desk surfaces, microphone buttons and control surfaces of the video switch, serial trigger box, FORP and stereo. Also wipe down chair arms.
2. If after the scan, wipe down any other areas you have touched including MRI safe glass frames, lens storage door, etc.

Station 5: Scan room

1. Following steps to be completed **before scanning each subject**.
 - a. Place fresh linens on the MRI table and inside the scan coil.
 - b. Wipe the inside of the scan coil with disinfecting wipes, and hard surfaces of MRI table next to subject.
 - c. Use sanitary covers for any pads to be placed next to subject.
 - d. Please ensure the scanner fan is on at the highest setting the subject is comfortable with, but we recommend no lower than setting 1.
2. Following steps to be completed **after scanning each subject**
 - a. Clean the MRI table with disinfecting wipes.
 - b. Clean all used pads and positioners with disinfecting wipes. Notify Laima if any are torn or fraying.
 - c. Clean any coil used inside and out with disinfecting wipes.
 - d. Clean all ancillary equipment that was used such as bellows, plethysmograph, earmuffs with disinfecting wipes.
 - e. Clean all common surfaces such as door handles and scanner buttons.
 - f. If time permits, use Swiffer pole and Swiffer Dry Sweeper Pads soaked with Sani-Prime spray to clean the MR bore from entry up to the interior air vent. Please leave the scanner fan **ON** in order to air out the scanner bore.

Station 6: Testing room

1. Use disinfecting wipes to wipe down the table surface and chair arms.
2. If using any supplies from the filing cabinet, be sure to wipe down both the supply container and any handles that were touched.

Station 9: Conference Room

1. Use disinfecting wipes to clean door handles, conference table, chair arms.
2. We recommend keeping the conference windows open (there is a block limiting opening to 6" or less) whenever present.

Station 10: Room A15

1. Use disinfecting wipes to clean areas that have been touched such as door handles, conference table, chair arms, etc..
2. Users may borrow the key outside Laima's office for access to A15.

Requirements for Researcher and Subject Participation

Researchers must be diligent in screening subjects prior to enrolling them in a study, and they must screen again 24-48 hours in advance of the planned scan time. Screening requirements include:

1. Researchers must be familiar with signs of COVID19 as described on [Stanford Health Alerts](#). When pre-screening subjects, they will use the [CNI screening form](#) for the subject and any other planned visitor.
2. Researchers will be in control of choosing their participants based on their IRB approval documents and subject to the particular stage dependent requirements under which CNI is operating. The consent process must explicitly explain that a decision to participate - or not - will not affect employment, and PIs cannot take consent from their own direct reports.

Requirements for Reinstatement of Scanning Privileges at CNI

1. Prior to resuming scanning privileges at CNI, researchers need to complete the following:
 - a. Review the online training material and complete the quiz posted on the CNI Wiki website "Getting Started" page. This material covers the information outlined in this document as well as Stanford's recommendations for employee screening as to whether they can come in to work.
 - b. Complete the [EHS training](#) on COVID19 hygiene best practices.
<https://ehs.stanford.edu/training/ehs-2470-covid-19-hygiene-best-practices>

New Scanner Scheduling Policies & Procedures

1. Users will be liable for normal cancellation fees (10% of equivalent scan fee) under normal cancellation policies.
2. We no longer require a ½ hour gap between subject scans. However, if you have IRB approval and are scanning a vulnerable population (such as unvaccinated children) you may continue to book a single ½ hour block of time using the COVID mitigation grant in advance of your scan to allow more ventilation time and time for extra thorough cleaning such as a scanner bore wipe-down in advance of your scan.

SOP Modifications when Scanning Phantoms Alone

1. All of the procedures required for the researchers will stay the same for initial entry.
2. Researchers will need to clean frequently touched surfaces around the scanner (including coils and phantoms under test) and console prior to scanning. Researchers do not need to wipe down the bore of the scanner.
3. Researchers need to clean all surfaces they have touched after scanning.

SOP Modifications for EEG Experiments

1. EEG experiments may be run separately in the mock scanner room, Room A15, or integrated with the MRI exam.
2. All of the procedures required for the researchers will stay the same for initial entry.
3. Face shields will also be required for researchers working in close proximity to the subject.
4. EEG electrode placement
 - a. *Head circumference measurements*: The head-size of the participant will be measured using a measuring tape that is cleaned with an alcohol swab right before being used.
 - b. The EEG Net appropriate for the patient's head size will be selected and soaked in a solution of baby shampoo and sodium chloride salt in water for 10 minutes. If needed, the participant

will be asked to clean their scalp using disposable pads and either ethyl alcohol or witch hazel to reduce sebum on the scalp and face.

- c. The electrodes will be placed by the researcher wearing full PPE including gloves, cloth mask, face shield and disposable smock as the testing involves brief, but close contact with the participant while placing the electrodes (5-10 min) and removing them (1 min).

5. *EEG data collection in mock scanner room or Room A15*

- a. During the recording session, the researcher and the participant will both be masked. In addition, a safe social distance of greater than 6 feet can be maintained during the experimental recording at all times. The testing typically takes no more than 30-45 minutes.
- b. To begin data collection, participants will be seated in front of the experimental computer monitor.

6. *EEG data collection in conjunction with an MRI scan*

- a. To retrieve any needed supplies any EEG supplies stored in the mock scanner room, users should check the CNI calendar to book time for this retrieval activity in the mock scanner room to prevent any unintended simultaneous use of the mock scanner by independent groups.
- b. For the EEG/MRI exam - After the application of EEG net to the research participant, the participant and the researcher will follow the procedures for MRI scanning as described earlier in this document.

7. After the EEG or EEG/MRI exam is completed, the EEG net will be removed by a researcher wearing full PPE (duration ~1 minute).

8. Post-session close-out. The EEG Net will be disinfected after every session via a 10-minute soak in Control Type-III cleaning solution which is EPA approved for COVID-19 disinfection. The solution's strength is checked frequently using manufacturer-provided color strips. The EEG net will be rinsed with warm water 5 times, followed by soaking in a Type-III disinfectant solution for 10 minutes. It is then rinsed again with warm water 5 times and left to air dry in a clean dedicated place accessed only by essential researchers performing the experiments.