Corona Protocol Tech Labs Network Institute

Introduction
To minimize the risk of exposure to the Corona virus in the Tech Labs of the Network Institute in the NU building on the VU campus, this document tries to identify general and specific issues and their preventive measures.
As all research done at the Tech Labs is human-based, participants will always be a part of this research. The Tech Labs need to take care to protect both its lab workers, the test leader(s) and the participants of experiments as best as possible.
This document outlines specific solutions for within the Tech Labs and must be seen as an addition to the general measures in the Netherlands and on the VU campus at the time of writing.

This protocol has been setup by the Tech Labs of the Network Institute of the VU University in collaboration with Paul Goossens (Beta Science VU), Nynke van der Laan (Tilburg University), Federation of Medical Specialists, Rob Schuurman (virologist), Colette Polak (legal VU) and many others.

Update 1.5 changes in measures and the Delta-variant
Delta-variant
As the Delta-variant is much more infectious than the Alpha-variant (the previous prevailing variant in the Netherlands) and vaccination does not protect against transmission and transmitting, running multi-participant experiments in the Tech Labs carries a significantly increased risk of infecting dozens of people through use of the Tech Labs.
In experiments with a large number of participants an infected participant without any symptoms will most likely infect the test leader. The risk will depend on the experimental setup. The test leader can then easily infect at least 20 to 30 other participants, depending on the setup.
Because of this the Tech Labs Corona Protocol will dictate additional measures explained below. All the other measures will still apply too.

Measures
As of the end of September 2021 several changes in the national and VU Corona measures were implemented. Most important is the release of the 1.5m distancing and no longer needing to wear face masks on campus. To avoid additional risk of the Tech Labs being the source of a contamination flare, some changes in protective measures are implemented.

Distance
In contrast with national measure 1.5m distance will remain mandatory in the Tech Labs. Only when an experimental setup makes maintaining distance impossible, the distance rule can be relaxed (see also Face masks).
Actions: Keep 1.5m distance unless absolutely not possible

Face masks
Face masks are strongly advised at all times. Face masks are mandatory in the Tech Labs when conducting experiments with more than 20 participants on a one-by-one basis or an experiment with more than three concurrent participants or when 1.5m distancing is not possible. The exception
is when using equipment that does not function properly when wearing a face mask. This decision will be made between the researcher and the Tech Labs.

**Actions:** Wear face masks unless equipment prohibits this.

**Corona Check**

Participants will need to show a prove of vaccination or negative test using the official Corona Check application (https://coronacheck.nl/nl/) or a paper printout with a certified data no older than 24 hours. Upon arrival the participant either shows the paper proof or starts the Corona Check application in the presence of the test leader and present the test leader with the QR-code. This is to avoid presenting the test leader a screen shot of a QR-code of someone else to avoid showing proof of being safe. The test leader will use the official Corona Check Scanner application to scan the QR-code. A participant will only be allowed access to the labs and participate in an experiment is the Corona Check Scanner application shows this participant is safe.

**Actions:** Check each participant for a valid Corona Check QR-code

**Self-testing test leaders**

Because the test leader is the main contributor to any spreading of Corona in the Tech Labs, the test leader needs to perform a Corona self-test at least once a week, but when seeing participants daily it is advised to perform a test every day! The Tech Labs will try to have a number of self-tests ready to use in the labs, but test leaders are requested to order them for free themselves at zelftestonderwijs.nl

**Actions:** Test leaders perform a self-test weekly, Daily if possible.

**General measures**

In general, the Tech Labs follow the national measures as formulated by the RIVM, mainly:

1. If a person has any symptoms, they are not allowed into the Tech Labs and cannot participate in any research
2. No hand shaking
3. Washing hands frequently
4. Sneezing and coughing in your elbow

**Actions:** If experiencing symptoms you must stay home.

However, since these national guidelines are meant for day-to-day situations, they may not be sufficient for specific situations. Every situation needs special additional considerations to minimize infection and the spread of the Corona virus.

Ad 1. Symptoms

Where possible, participants of experiments at the Tech Labs will be ask about any symptoms (see Appendix 1) prior to their travel to the VU. They will be instructed not to travel to the VU if they have any symptoms. When present the visitors will complete and sign a form stating they are free of any relevant symptoms. If they do have any symptoms, either self-stated or observed by Tech Labs workers or the test leader(s), they will be refused access to the Tech Labs and will be asked to leave the campus.

Ad 2. No handshaking

As per national Corona measures.
Ad 3 & 4. Hygiene
Visitors to the Tech Labs will be asked to wash their hands before entering a lab facility (see below).
Specifics Tech Labs

The general measures (previous paragraph) will also apply to the Tech Labs. In addition, the Tech Labs will:

- Display signs (Appendix 3) in and around the lab area remembering visitors to:
  - Return home if they have any symptoms
  - Wash their hands
  - Remain at 1,5m meters from others
  - Follow any indicated walking paths and other spatial indicators
- Where applicable, place markers that indicate entrances and exits of specific labs (see below).
- Mark locations for participants where they can put personal belongings, stand, sit or otherwise use the available lab space
- Will make (alcohol-based) disinfecting hand gel available in a safe way
- Supply visitors with any protective materials if needed (see below)
- Supply test leader(s) with any protective materials if needed (see below)
- Supply Tech Labs workers with any protective materials if needed (see below)
- Disinfect equipment and surfaces that will be used and touched after each use, using alcohol based-wipes or spray
- If needed provide self-tests that must be carried out before entering a lab space or participating in an experiment

Actions: Clear signage
Actions: Have protective material in stock
Actions: Keep handled surfaces clean

Arrival and Waiting area

The coffee corner on the 7th floor of the B-wing will also be the waiting area for visitors to the Tech Labs.

Currently the area around the high table can hold four (4) people. If a labs space can safely accommodate more than four people, separate arrangements will need to be made with the visitors. They preferably have to arrive on a one-by-one basis at the designated lab and be seated before the next visitor will be allowed in. The same process in reverse must be applied after concluding such a multi-person experiment.

The toilets at the waiting area will be used for visitors to wash their hands using normal soap. The waiting area will also be used to fill-out the pre-trial survey about sickness symptoms and any other forms needed for research. There will be at least a laminated instruction sheet outlining the general rules and the use of the symptoms check and personal information forms. If needed, there will also be a laminated sheet showing different hand sizes (small, medium and large) so participants can measure the size of the disposable gloves they need.

Normally the test leader will check the participants vaccination status using the Corona Check (Scanner) applications. Only safe participants will have access to the Tech Labs and the experiment. Optionally: this will also be the location where the participant will conduct a Corona self-test. Only correctly executed negative tests will allow the participant to enter the labs and participate in the experiment.

Actions: Participants must wait at the coffee corner
Actions: Participants receive pre-test information and instructions at the coffee corner
Actions: Participants must show a valid Corona Check QR-code
Cubicle Lab

Note: As of this moment (version 1.5) multi-participant cubicle-style research is not permitted because of the additional increased risk for contamination. Please contact the Tech Labs for details and your specific research needs!

The Cubicle Lab (which can be located in several forms at any of the three lab spaces on the 7th floor of the NU building) is by definition a lab that offers workstations for multiple participants arranged in semi-closed off spaces using large room divider screens. The number of participants can range from one to twelve under normal circumstances and depending on which room is used. Each cubicle will have a poster reminding the participants not to touch their face, cough and sneeze into their elbows and remain seated and ask for help if needed.

Actions: Multi-participant experiment are not allowed. Contact the Tech Labs.

Room 7B20 (Cubicle Lab)
By using 1,8m high (1,6m long) room dividers, participants can be seated next to each other. The normal maximum is eleven participants. In all situations face masks are strongly advised. When using this lab with more than one participant or it is not possible to maintain 1.5m distance, face masks are mandatory.

Actions: Wear face masks whenever possible
Example of minimum number of participants (7B20) using 3m circles for personal space and 1,5m path for walking.

Example of maximizing the space (7B20) using 3m circles for personal space and 1,5m path for walking.

Room 7B49 (Game Cell Lab)
By using 1,8m high (1,6m long) room dividers, participants can be seated next to each other. The maximum is 10-12 participants. In all situations face masks are strongly advised. When using this lab with more than three participants or maintaining 1.5m distance is not possible, face masks are mandatory.

**Actions:** Wear face masks whenever possible
Example of minimum number of participants (7849) using 3m circles for personal space and 1,5m path for walking.

Example of maximizing the space (7849) using 3m circles for personal space and 1,5m path for walking.

**Game Cella’ Lab**
The largest lab facility, the Game Cella’ Lab, does not have any specific issues. In all situations face masks are strongly advised. With more than three concurrent participants or it is not possible to maintain 1,5m distance the use of face masks is mandatory.

**Actions:** Wear face masks whenever possible
VR-based research
Using Virtual Reality equipment raises an additional issue concerning the spread of the virus. Especially the VR headset needs extra attention to prevent risking participants infecting each other. The average VR experiment can handle up to eight participants a day (per setup) and at each trial a participant will wear the headset for five to 15 minutes. During the use, sweat and evaporation of eye fluids will enter the inside of the headset and condense onto the insides of the headset. This could lead to contamination if not prevented or cleaned. For special protective measures see below.

Staying clean
To minimize the spread of the virus via surfaces, the Test Leader and/or Tech Labs crew will ensure any repeatedly touched surfaces in the Tech Labs will be disinfected regularly. These will include:
- Door handles. At least several times a day (if in use) or after use
- Tables. After each use.
- Chairs. Hard surfaces after each use.
- Any equipment the participant(s) touched with bare-skin or might be exposed to any bodily fluids. After each use.
- Pens used for filling out forms. After each use.
- Laminated forms with instructions for participants. After each use.
- Any non-disposable protection material. After each use.

Actions: Clean handled surfaces

Personal protection measure will be changed when needed:
- Facemasks will be renewed after no more than 4 hours (1).
- Disposable gloves will be thrown away and replaced by fresh ones either when changing rooms or whenever the wearer deems it necessary.

Actions: Keep protective material new

Furthermore, both the Tech Lab crew, the test leader(s) and any participants that will use any Tech Labs equipment will need to disinfect their hands regularly with alcohol-based disinfectant. This is especially important for hard to clean items such as keyboards, mice, headsets, controllers, etc.

Waste bins with lids (remote control or foot control) will be placed at several locations. At least one in each lab space.

At the entrance of both labs there will be a dispenser with disinfecting gel so participants can disinfect their hands.

The Tech Labs crew in their supporting role, will also take care of their personal hygiene by washing their hands after coming in and after any trial of an experiment. They will wear disposable gloves when interacting with participants and equipment used by participants.

Equipment used for development will be personal for as long as needed. If for some reason having personal equipment is not possible, the equipment will be disinfected after each use and stored in the storage room using disposable gloves.

The ventilation system of the NU building will be running at 100% 24-7 and the air-slots in the lab space will be open permanently to ensure the optimum of airflow through the labs. Officially the VU states that the default ventilation capacity of the NU building and its rooms is enough to ensure a
proper flow or fresh air and removal of old air. It is recommended by the Tech Labs to ventilate the lab space between sessions. The actions and airing times will depend on the room used and the number of people (ie the type of experiment)\(^1\).

- **Cubicle Lab room 7820**
  - Used as cubicles: door open, ventilate for 30 minutes
  - Used as VR room: door open, ventilate for 15 minutes

- **Game Cellar’ Lab room 7849**
  - Used as cubicles: door open, ventilation windows open, ventilate for 15 minutes
  - Used as VR room: no additional ventilation necessary

- **Office room 7837**
  - Used as 3 cubicles: ventilation windows behind the cubicles open, ventilate for 15 minutes
  - Used as VR room: ventilation windows behind the cubicles open, no additional ventilation time necessary

**Note:** these are all suggested actions.

**Actions: Ventilate after use whenever possible**

**VR equipment**

Replaceable and easy to clean faux-leather coverings for the VR headsets will be used. These can easily be removed after a trial and cleaned properly before being used again, if necessary. Participants of VR experiments will have to use so called ‘hairnets’ to cover their hair. This will reduce the changes of transmitting virus particles through the equipment.

For additional protection, sheets of cling film can be used between the participants face and a VR headset. This way there is no transmission of any bodily fluids (sweat, eye fluids, nose and mouth) into or onto the headset (see below).

For normal cleaning of VR headsets the Tech Labs use UV-C light. It is NOT deemed to be as effective as using cling film, because of the way the equipment (VR headsets, keyboards, mice, controllers, etc) is build. See Appendix 2 for more information on the use of UV-C light.

If using a headset with build-in eye tracking is needed, it is not possible to use cling film as this disrupts the eye tracking signal. In that case the use of UV-C light is the only option.

The err on the safe side, the use of the UV-C box is mandatory after each use of a VR headset.

**Actions: If possible use cling film to cover the VR headset. After every use, use the UV-C box to clean the headset.**

**Instructions**

Any test leader who will run an experiment and will be the main contact for the participants, will need to receive instructions on correctly applying the Tech Labs Corona measures. Someone of the Tech Labs crew will instruct the experiment leader(s) what to do, what not to do and make sure they can explain the rules and the protocol to the participants.

If anyone runs (is responsible) an experiment in the Tech Labs without this training, the experiment will be suspended immediately.

---

\(^1\) The ventilation times are estimates. No reliable data is available on the amount of ventilated air or the time to ventilate.
Checks and rules

During each experiment, Tech Labs crew can and will inspect on the proper use of this protocol. Minor issues will be discussed with the test leader(s) and will be rechecked soon after. Major issues will also be discussed but can lead to an immediate suspension of the experiment based upon the judgement of the Tech Labs crew.
If an experiment is suspended, access to the labs will be revoked and only after the Tech Labs crew is convinced the issue is resolved will the access be reinstated and is the experiment allowed to resume.
Protocols
Note that when multiple experiments are running at the same time, some additional space restriction may come into play. Guiding rule here will be the maximum number of people in each space (waiting area 7th floor B-wing, office 7B37, Cubicle Lab 7B20 and Game Cell’s Lab 7B49).

Test leader – Generic rules
1. Disinfect hands whenever entering a lab space.
2. Store personal belongings out of the way in a safe place.
3. If using any other space beside the lab spaces, the test leader should take care of equipping this area with the right stuff (think bins, tables, etc) and take care of cleaning anything after the participant is done.
4. At the end of a day:
   a. Sanitize the table of the experiment leader.
   b. If using VR headsets, clean each headset using the CleanBox (see Appendix 2)
   c. Clean any pens used, using disinfectant spray of wipes. Also clean the box that held the pens.

Participants – Protocol Arrival, Waiting area and departure
1. Before coming to the campus, participants fill out an online form or reply to an email. This form will explain the current measures (including the general RIVM measures – see above) at the Tech Labs for participating in an experiment, ask questions about the participant’s health and point out any other relevant practical or legal issues. Only after answering the questions and agreeing to comply with all the measurements, the participant will be invited to participate. If the participants indicates that (s)he experiences any of the Covid-19 symptoms, they will not be invited to participate in any experiment at the Tech Labs. Participants are also instructed that they should install the Corona Check application on their cell phone and finish the registration process so they are able to show a valid QR-code when they arrive at the Tech Labs.
2. The participant receives an invitation to participate at a specific date and time. They are asked to arrive about 10 minutes before the start of their trial. They receive instruction (separate document) as to how to reach the Tech Labs Waiting Area on the 7th floor and what measures are in place in the building.
3. Upon arriving in the Waiting Area (at the coffee corner on the 7th floor B-wing of the NU building), the participant is asked to wash their hands in the adjoining toilets.
4. The participant takes place at the high table at the coffee corner.
5. Depending on the situation there will be info-sheets on the table in the Waiting Area explaining what is expect from the participant or the test leader will welcome the participant and explain the protocol and experiment.
6. Participants are asked to fill-out several form(s). This will at least be a form asking the standard health questions (Appendix 1).
7. A cleaned pen will be present at each seat in the Waiting Area.
8. If the participant has any symptoms or refuses to fill out the health and personal information form, the participant will be refused to participate and be asked to leave the waiting area.
9. If applicable, the participant is asked to measure and remember their hand-size based using the Hand Size Measure chart.
10. The Test Leader will ask the participant to visibly start the Corona Check application and show the National QR-code. The Test Leader will then use his own cell phone and the Corona
Check Scanner application to scan and check the QR-code on validity. Only once the Scanner app approves the QR-code the participant is allowed to participate.

11. If the Corona Check Scanner application shows an invalid QR-code or shows the participant is not deemed safe, that participant is asked to leave the Tech Labs area and will not be allowed to participate in the experiment.

12. The participant is guided to the lab space for the trial.

13. Afterwards the participant is asked to leave the Tech Labs area and not wait around.

14. The test leader uses disinfectant wipes (or spray) to clean the chair, table, and info sheets used by the participant.

15. The test leader drops the pen used by the participant in a separate box to be cleaned at the end of the day.

16. The test leader places new forms and a clean pen on the table and writes down the current date on these forms.

**Protocol cubicles**

*Note: As of this moment (version 1.5) multi-participant cubicle-style research is not permitted because of the additional increased risk for contamination. Please contact the Tech Labs for details and your specific research needs!*

The test leader will have the experiment set up in the lab and checked that everything was cleaned as per protocol.

1. The test leader picks up each participant one-by-one from the Waiting Area and leads them to the lab space.

2. Inside the lab the participant disinfects their hands using the sanitizing gel provided.

3. The test leader points the participant to their location and asks them to take a seat. Personal belongings such as bags and coats need to be placed on the floor inside the cubicle.

4. The test leader asks the participants to wear the facemask that is on the desk to minimizing transferring the virus via equipment.

5. The test leader tells the participants that no one is allowed to “just” walk away during or after the experiment but should ask the test leader for help.

6. The test leader starts the experiment.

7. After the trial the test leader guides the participants out of the lab space (not forgetting their personal belongings) one-by-one and asks them to leave the Tech Labs area.

8. During exiting the lab space the test leader shows how to safely remove and dispose of the facemask.

9. The participants then safely removes their facemask and places them in the waste bin near the exit.

10. After the trial the test leader will:
    a. Use a disinfecting wipe or spray per cubicle to clean the chair and table.
    b. Use a disinfecting wipe or spray per cubicle if a participant coughed or sneezed during the trial.
    c. Place a new facemask on the desk.
    d. Use a disinfecting wipe or spray to clean the door handles, if deemed necessary.
    e. Reset the computers for the next trial.
    f. Recommended ventilation after each trial:
        i. Room 7B20: open the door and ventilate for 30 minutes.
        ii. Room 7B37: open the ventilation windows behind the cubicles, ventilate for 15 minutes.
iii. Room 7B49: open the door and ventilation windows, ventilate for 15 minutes

Optional
In an emergency, the test leader or a Tech Labs worker may have to approach the participant within 1.5m. In such a case the test leader (or lab worker) will wear a PPE set consisting of a mask\textsuperscript{2}, disposable gloves and a disposable apron. After use, the face shield will be disinfected with wipes and the gloves and apron will be disposed of.

Optional
If a participant coughs or sneezes during the trial (and is not wearing a facemask) the monitor will be wiped with disposable non-detergent, non-alcohol wipe. The mouse and keyboard will be removed and replaced with clean ones. The possibly infected ones are cleaned and stored in a special location for at least one week before using again.

\textsuperscript{2} Recent research suggests that Face Shield are extremely ineffective. 
Protocol VR research
The test leader will have the experiment set up in the lab and checked that everything was cleaned as per protocol.

1. The test leader picks up the participant(s) and leads them to the lab space.
2. Inside the lab the test leader points out the Personal Belongings Crate. The participant has to put items such as a coat, backpack, mobile phone, etc into the crate.
3. The participant disinfects their hands using the sanitizing gel provided.
4. The participant will wear a face mask unless the equipment prohibits it and then only not when using said equipment.
5. The test leader explains the experiment and the steps that will follow to get ready for the experiment.
6. If there is a pre-test survey:
   a. The test leader points the participant to the survey computer. The participant takes a seat.
   b. The participant is asked to wear the facemask that is on the desk.
7. If there is no pre-test survey or after the pre-test survey:
   a. If this is a sit-down VR experiment, the test leader shows the participant to his/her location and ask them to be seated.
   b. If this is a walk-around VR experiment the test leader shows the participant to the Setup table and, if applicable, asks him/her to stand on the marker.
8. The participant is asked to wear the hairnet over their head. The test leader can show by example how to do this, making sure to cover their hair and ears.
9. The test leader explains how to wear the headset if applicable with the cling film protective layer or a short instruction video is played.
10. If using a wireless setup: The participant picks the battery and clips it to their clothes or a belt.
11. The participant then picks up the headset (headband is in the upright position) and push the headset against their face making a good seal.
12. The participant then pulls the headband down and tightens the headband by using either the top straps or the back turn knob, or both.
13. The participant then clamps the headphones to their ears.
14. The participant should be able to see the handheld controllers (if needed) and will be asked to pick them up.
15. In a sit-down setup if a game controller is used it will be in the center of the desk and the participant will be able to pick it up (feeling their way).
16. In a walk-around setup the test leader approaches the setup table from the other side and rolls it out of the way. Telling the participant that he/she is going to move the table.
17. The test leader now starts the experiment.
18. Afterwards, in a walk-around setup the test leader positions the setup table in front of the participant. Telling the participant that he/she is going to move the table.
19. The participant is asked place the controller(s) on the table in front of them.
20. The participant then loosens the headband by turning the knob on the back counterclockwise.
21. The participant then carefully flips the headband up while holding on to the front of the headset.
22. The participant then carefully removes the headset from their face and places it on the Setup table upside down.
23. If used and if the cling film sheet did not remain attached to the headset, the participant is asked to carefully remove it from their face and deposit it in to the waste bin.
24. If used and if the cling film sheet does remain attached to the headset, the test leader will remove this later.
25. If there is a post-test survey, the participant is asked to move to the survey computer and take a seat. The participant wears a new facemask during the survey.
26. During exiting the lab space the test leader shows how to safely remove the facemask.
27. The participants is asked to safely remove their facemask and place them in the waste bin near the exit or in the area where they are.
28. The participant picks up their personal belongings and is asked to leave the Tech Labs area.
29. The test leader will do the following:
   a. If needed: Disinfect the door handles using wipes or spray
   b. Disinfect the Personal Belongings Crate using wipes or spray
   c. Remove any mice, keyboard or controllers from the Survey Table or desk and disinfect using wipes or spray
   d. If used: Carefully remove the cling film from the headset (if still on) using a pair of scissors and drop it into the waste bin. If the inside of the sheet touches the gloves, the gloves must be thrown away and replaced with new ones!
   e. Remove the headset and disinfect it on the outside using wipes
   f. Open the headband by turning the rear-knob
   g. Open up the headphones
   h. If this experiment used Eye Tracking inside the HDM, the headset will be placed in the CleanBox for disinfection. See below.
   i. Disinfect the Setup Table or desk using wipes
   j. If the next participant uses glasses and the add-in subscription lenses for the HTC Vive can be used (+2, +1, -1, -2 dioptric), the test leader will replace these, remembering to:
      i. Either disinfect hands before
      ii. Or use disposable gloves
   k. Replace the used facemask, gloves (if used) and cling film sheet. See Appendix 5.
   l. Recommended ventilation after use:
      i. Room 7B20: open the door and ventilate for 15 minutes
      ii. Room 7B37: open the ventilation windows behind the cubicles, no additional ventilation period necessary
      iii. Room 7B49: open the ventilation windows, no additional ventilation period necessary
   m. If using the wireless setup:
      i. Check the battery and replace if needed. Charging the old one.
      ii. Check if the battery is on and the green light is lit on the remote on top of the headband.
   n. If using controllers:
      i. Charge them when not using for an hour or more.
      ii. Turn the controllers on before the participants enters.
30. The test leader will then set everything up for the next participant

**Using UVC light with the CleanBox**
After using a VR headset it is disinfected using the CleanBox for 1 minute (UV-C light). Extra care will be taken when cleaning the headset with wipes.
Note that the headset needs to be prepared with the special hydrophobic liquid prior to use! This liquid will be reapplied after each experiment is done (all the participants have run a trial).

1. Open the CleanBox
2. Hang the HMD on the white cone in the middle of the CleanBox with the display down
3. Make sure the HMD is centered from the front and the side
4. Guide the wire (if any) through the slot in the bottom of the CleanBox
5. Make sure nothing is between the inside of the HMD and the white cone
6. Check if the door of the CleanBox closes properly
7. Make sure the CleanBox is turned on (backside)
8. Check to see if the LED in the top left is on and its color is green
9. Press the Activate button in the top left for 2 seconds until the LED becomes RED
10. The CleanBox will now irradiate the HMD with UVC light for about 1 minute.
11. After cleaning make sure your hands are clean (use the disinfectant gel) or use disposable gloves, carefully remove the HMD (noticing the wire) and place it on the experiment table for the next participant.

Optional
In an emergency the test leader or Tech Labs worker may have to approach the participant within 1.5m. In such a case the test leader (or lab worker) will done a PPE set consisting of a mask, disposable gloves and a disposable apron. After use the face shield will be disinfected with wipes and the gloves and apron will be disposed of.

Optional
If a participant coughs or sneezes during the trial (and is not wearing a face mask) the monitor will be wiped with disposable non-detergent, non-alcohol wipe. The mouse and keyboard will be removed and replaced with clean ones. The possibly infected ones are cleaned and stored in a special location for at least one week before using again.

3 Recent research suggests that Face Shield are extremely ineffective.
Equipment and disposables needed
Basic list is equipment needed.

- 3 Closed waste bins. Preferably with automatic or foot control.
- 2 Large roll of papers in a dispenser for drying.
- 2 Sets of disinfectant hand gel with a pump or handle.
- Pre-cut cling film rolls.
- Several boxes if disposal gloves in several sizes. Amount depends on number in box.
- VR-goggle mount (DIY).
- At least 100 “Hairnets”, preferably 250.
- 6 Packages with cleaning wipes (soap).
- 6 Packages with disinfectant wipes (70% alcohol).
- Boxes of disposable face masks.
- Boxes of disposable gloves in different sizes.
- Face shields for test leaders and lab workers.
- Disposable aprons.
- Large roll of marking tape for floor.
- Remote temperature tool for measuring visitor’s temperature.
- A CleanBox for UV-C disinfecting of headset.

VR extra’s
- Faceguard foam replacement 16mm: 53eu (set of 2) (https://vrcover.com/product/htc-vive-pro-foam-replacement-16mm/)
Checklists

**Pre-test checklist Cubicle Style research**

- Room dividers in place between each desk?
- “Don’ts” poster present in each cubicle?
- Table with masks and gloves (all sizes) present?

**Post-test checklist Cubicle Style research**

- Each cubicle empty? No masks, gloves personal belongings left behind?
- All worn masks and gloves in the bin?
- All desks cleaned with disinfectant?
### Pre-test checklist Virtual Reality Style research

| ○ | Personal belongings table present? |
| ○ | VR equipment table present? |
| ○ | Table with masks (if using survey), hair net and gloves (all sizes) present? |
| ○ | VR headset present on the table, head strap flipped open and placed upside down? |
| ○ | Cling film sheet correctly attached to the headset? |
| ○ | Optional: controllers present on the table? |
| ○ | Extra cling film present? |

### Post-test checklist Virtual Reality Style research

| ○ | VR headset on the table? |
| ○ | Cling film properly (!) disposed of in bin? |
| ○ | Gloves, hair net and masks (if used) disposed of in bin? |
| ○ | Personal belongings crate empty? |
| ○ | Personal belongings crate cleaned with disinfectant? |
| ○ | VR table cleaned with disinfectant? |
| ○ | End of day: VR headset cleaned in UV-C CleanBox? |
Appendix 1 - Survey symptoms and Personal information forms

If one of the questions of the health check is answered with YES, the participant may not come to the Tech Labs. The visit must be postponed until each question can be answered with NO. The personal information can be used for contact tracing in case of a contamination that can be led to the Tech Labs.

Forms are in English and in Dutch.
### Health Survey (English)

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you had one or more of the following (mild) complaints in the past 24 hours or at the moment: rhinitis (stuffy nose), coughing, shortness of breath, fever (from 38 degrees Celsius) and/or an inexplicable loss of taste and/or smell?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Do you currently have a roommate / house member with a fever and/or shortness of breath complaints?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Have you had the coronavirus (diagnosed with a laboratory test) and was it diagnosed in the last 7 days?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Do you have a roommate / house member with the coronavirus (diagnosed with a laboratory test) and did you have contact with this roommate / house member less than 14 days ago while he/she still had complaints?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Are you in home isolation because you have had direct contact with someone diagnosed with the new coronavirus?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### Personal Information

<table>
<thead>
<tr>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full name</td>
</tr>
<tr>
<td>Telephone number</td>
</tr>
<tr>
<td>Email address</td>
</tr>
</tbody>
</table>

Note: This information will be safely stored and only Tech Labs workers have access.  
Note: This information will only be used for Contact Tracing in case of an officially reported Covid-19 contamination that can be led to the Tech Labs in a period you participated in an experiment at the Tech Labs.  
Note: This information will be destroyed two weeks after participating in an experiment at the Tech Labs.
Gezondheidsonderzoek (Nederlands)

<table>
<thead>
<tr>
<th>Vraag</th>
<th>Ja</th>
<th>Nee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heeft u in de afgelopen 24 uur of op dit moment last van een of meer van de volgende (milde) klachten: neusverkoudheid, hoesten, kortademigheid in rust of bij lichte inspanning, koorts (hoger dan 38 graden) en/of een onverklaard reuk- of smaakverlies?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heeft u een kamer- of huisgenoot met koorts of kortademigheid?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heeft u het Coronavirus gehad (vastgesteld door een officiële test) en was de diagnose in de afgelopen zeven dagen?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heeft een kamer- of huisgenoot het Coronavirus (vastgesteld door een officiële test) en bent u in contact gekomen met hem/haar in de afgelopen 14 dagen terwijl hij/zij nog klachten had?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bent u in thuisisolatie omdat u in contact bent geweest met iemand besmet met het Coronavirus?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persoonlijke Informatie

<table>
<thead>
<tr>
<th>Persoonlijke Informatie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volledige naam</td>
</tr>
<tr>
<td>Telefoonnummer</td>
</tr>
<tr>
<td>Emailadres</td>
</tr>
</tbody>
</table>

NB: Deze informatie wordt veilig opgeslagen en is alleen toegankelijk voor Tech Labs medewerkers.
NB: Deze informatie zal alleen worden gebruikt voor Contact Onderzoek in het geval van een officieel bevestigde Covid-19 besmetting die teruggeleid kan worden naar de Tech Labs in de periode waarin u deelnam aan een onderzoek in de Tech Labs.
NB: Deze informatie zal vernietigd worden na twee weken na deelname aan een onderzoek in de Tech Labs.
Appendix 2 – UV-C

UVC light is defined between 200-280nm. Far UVC light is defined between 200-222nm.

UVC light is dangerous for organic material including human skin and retina. Exposure **must** be avoided. UVC light is block by most materials included transparent glass.

There are special UVC boxes available from CleanBox (quote needed) that irradiate equipment in a safe box using 265nm UV light.

Disadvantage of using light is that there needs to be a clear line-of-sight between the light and the surface that needs to be cleaned. VR-goggles have multiple groves, openings and corners that make this line-of-sight not 100% guaranteed. Bounced light (hard with matte black plastic) is considerably less effective. Some indicate that plastics do suffer (age) under repeated exposure to UV light. It is unclear is the eye tracking hardware (LEDs and camera) can be damaged by the UVC light.

Exposure to kill SARS (according to a medical article) needs to be at least 15 minutes, although the Clean Box manufacturer says 60 seconds is enough.
Appendix 3 - Signs

Corona Measures

GO HOME if you’re experiencing any of these symptoms!

- Fever
- Cough
- Shortness of Breath

- Wash your hands frequently
- Cough and sneeze into your elbow
- Don’t shake hands
- Keep 1.5m distance
- Follow the paths

Tech Labs

General Corona measures poster to be displayed at multiple places in the Tech Labs.
Corona Measures

- Avoid touching eyes, nose or mouth
- Sneeze & cough in your elbow
- If you need to leave, remain seated and call the test leader

Tech Labs

Reminder poster for inside each cubicle.
Appendix 4 – Removing protective clothing

Take off the gloves without contaminating yourself, using the plucking and sliding mechanism:
- Basic rule when pulling out is: dirty against dirty and clean against clean.
- Grab the outside of the glove with your fingers.
- Take off the glove and hold it in the palm of the hand.
- Slide with two clean fingers under the other glove.
- Pull out the glove and throw the gloves away immediately.

Instruction use mouth mask:
- Grab mask by the elastic bands and place it around the ears.
- Make sure the mask fits well, press the nose clip.
- Test the mask by blowing, and see if there is not too much air leaking along your face.
- Wear the mask for a maximum of 3 hours and don’t touch it again.
- Replace the mask if it is very wet.
- You take off the mask by only gripping the elastic bands.
- Throw the mask in the waste bin and do not touch it unnecessarily.
- Apply hand hygiene: wash your hands or disinfect them.
HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE)

EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator after leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES
   - Outside of gloves are contaminated!
   - If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
   - Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
   - Hold removed glove in gloved hand
   - Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
   - Discard gloves in a waste container

2. GOGGLES OR FACE SHIELD
   - Outside of goggles or face shield are contaminated!
   - If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
   - Remove goggles or face shield from the back by lifting head band or ear pieces
   - If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

3. GOWN
   - Gown front and sleeves are contaminated!
   - If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
   - Unfasten gown ties, taking care that sleeves don’t contact your body when reaching for ties
   - Pull gown away from neck and shoulders, touching inside of gown only
   - Turn gown inside out
   - Fold or roll into a bundle and discard in a waste container

4. MASK OR RESPIRATOR
   - Front of mask/respirator is contaminated — **DO NOT TOUCH**!
   - If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
   - Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
   - Discard in a waste container

5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE
Appendix 5 – Protecting VR headset

- Start by disinfecting your hands

Step 1

Place the cling film sheet flat on a table.
Place the headset left-right centered.
Pickup the lower edge of the sheet, pulling it underneath the strap, towards the front.
Now grab the lower edge from the top and pull it towards the top of the headset.
Check to see the sheet is nicely stretched over the lens area.

Step 2
Now pull the upper edge of the sheet tightly over the front of the headset.

Step 3
Use two pieces of Scotch tape to stick the front and back edges of the cling film sheet together. Grab the lower corners of the sheet on the left and right sides of the headset and pull these forward against the headset.

Step 4
Step 5

Removal of the cling film

- Gloves need to be worn whilst removing the cling film from the headset.
- Remove the cling film and tape using a pair of scissors.
- **Do not let the outside of the cling film touch the headset!**
- Dispose of the used cling film sheet carefully.
- Dispose of the gloves.
Summary of scientific research on Corona


“Corona-like viruses can persist on surfaces for up to one month.”
“Corona will persist in a closed non-ventilated space for at least 30 minutes.”


“Ocular fluids has been proven to contain Corona virus particles.”


“Transmission through person-to-person contact through respiratory droplets by breathing, sneezing, coughing, etc., as well as contact through hand-mediated transfer from contaminated fomites (contaminated surfaces)...”


- Infection by coughing, sneezing, talking, singing via droplets or aerosols within 1m of an infected person.
- Infection occurs when the virus reaches mouth, nose or eyes.
- Corona virus particles remain infectious for at least days on fomites. Infection can occur via fomites and subsequent touching of mouth, nose or eyes.
- “However, fomite transmission is considered a likely mode of transmission for SARS-CoV-2, given consistent findings about environmental contamination in the vicinity of infected cases and the fact that other coronaviruses and respiratory viruses can transmit this way.”
- “SARS-CoV-2 transmission appears to mainly be spread via droplets and close contact with infected symptomatic cases....or were in enclosed spaces for approximately one hour or more with symptomatic cases, such as in places of worship, gyms,...” – this would apply for lab spaces as well, particularly in situation where multiple participants are present.
- Studies suggest that up to 44% of the infections occurred before symptoms appeared.
- “Given that infected people without symptoms can transmit the virus, it is also prudent to encourage the use of fabric face masks in public places where there is community transmission[1] and where other prevention measures, such as physical distancing, are not possible....However, masks must be used as part of a comprehensive package of preventive measures, which includes frequent hand hygiene, physical distancing when possible, respiratory etiquette, environmental cleaning and disinfection.”
De Medische Specialist:
https://www.demedischspecialist.nl/sites/default/files/Leidraad%20persoonlijke%20bescherming%20in%20de%20%28poli%20%29klinische%20setting%20vanwege%20SARS-CoV-2.pdf