Human Subjects Testing in the COVID Era

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TRB mid-year ACH60 meeting
September 2, 2020
Unique Environments
Unique Environments

→ Unable to social distance
→ On-board experimenter(s)
→ HVAC systems vary between sims and on-road vehicles
First, the principles...it’s mostly about breathing bad air

→ Masks contain YOUR Droplets—aerosolization
Face shields reduce your risk

- Protect your eyes, nose and mouth
- Also reduces surface contamination
- Best protection to wear both mask and shield
NADS Dome a Unique Challenge

- HVAC
- Environment
- Acoustics
- Experimenter
Consulting Infectious Disease Experts

Prof. Loreen Herwaldt, MD—University of Iowa
  • Professor of Infectious Diseases, COVID-19/SARS-CoV-2 expert

Prof. John Conly, MD—University of Calgary
  • Past president of Canadian Infectious Disease Society

Members of WHO Panels on Infectious Diseases
Letter with Nine Recommendations

August 10, 2020

Daniel McGehee, PhD
Director
National Advanced Driving Simulator
College of Engineering
University of Iowa

Dear Dr. McGehee:

With regard to our conversations and consultations with infectious disease experts on the transmission of the novel coronavirus in the in-vehicle context, there are a number of measures that can be taken to reduce the transmission of the virus. Before I begin, please keep in mind that we are learning new information almost daily, so we will keep in contact as conditions change. What we know and expect today may be different tomorrow. I appreciate that you have a highly trained and professional staff that makes executing and sustaining these measures possible.

Several infection prevention principles apply to the simulator and on-road vehicle cabs:
Recommendation 1 and 2

- Participants shall wear three-layer surgical masks
- Experimenters shall wear three-layer surgical masks
- If experiments require an unmask face, exclude on-board personnel if possible
Recommendation 3/9

Keep utterances to a minimum between experimenter and participant
Recommendation 4/9

Keep fans on low speed
Recommendation 5/9

→ Open windows/sunroof for fresh air
Recommendation 6/9

→ Install High Efficiency particulate arrestance (HEPA) filters in HVAC systems
Recommendation 7/9

→ Use CDC appropriate cleaning protocols on all surfaces including windows in the vehicle or simulator cab before/after each participant

Recommendation 8/9

→ Pre-screen participants before and at arrival for the standard COVID-19 symptoms

→ https://www.cdc.gov/screening/index.html
Recommendation 9/9

→ At arrival conduct external temp checks and ensure that they are not above 100º F
→ If they are above 100º F, send them home and advise to contact their healthcare providers if other symptoms
A note about barriers

- Some concerns about crashworthiness issues that may outweigh COVID risk
- Glare
- These are all very small…
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Summary

1. Participants shall wear three-layer surgical masks. If experiments require an unmask face, exclude on-board personnel if possible.
2. On-board experimenters should wear three-layer surgical masks and face shields.
3. Keep utterances/talking to a minimum in the vehicle.
4. Keep cooling fans on low speed.
5. Open windows/sunroof for fresh air.
6. Install Hepa filters in HVAC systems.
7. Use CDC appropriate cleaning protocols on all surfaces including windows in the vehicle or simulator cab before/after each participant
8. Pre-screen participants before and at arrival for the standard COVID-19 symptoms.
   https://www.cdc.gov/screening/index.html
9. At arrival conduct external temp checks and ensure that they are not above 100º F. If they are above 100º F, send them home and advise to contact their healthcare providers if other symptoms.
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