



Testing UV-C Lighting Technology to Improve
Rural Transit Systems

“Safer & Healthier Public Transit Rides”

Daniel Currier, VTrans

Cody Plante, Dartmouth College

The Problem

March 11, 2020 COVID Hits

- COVID-19 Pandemic Hits the USA
- Need to sanitize public transit vehicles to combat the spread of viruses
- Lack of research replicating real-world conditions to support procurement decisions

WHO Declares COVID-19 a Pandemic



WHO Director-General Tedros Adhanom Ghebreyesus addressed the media Wednesday and asserted that he now thinks it is appropriate to characterize COVID-19 as a pandemic.



Project Background & Development

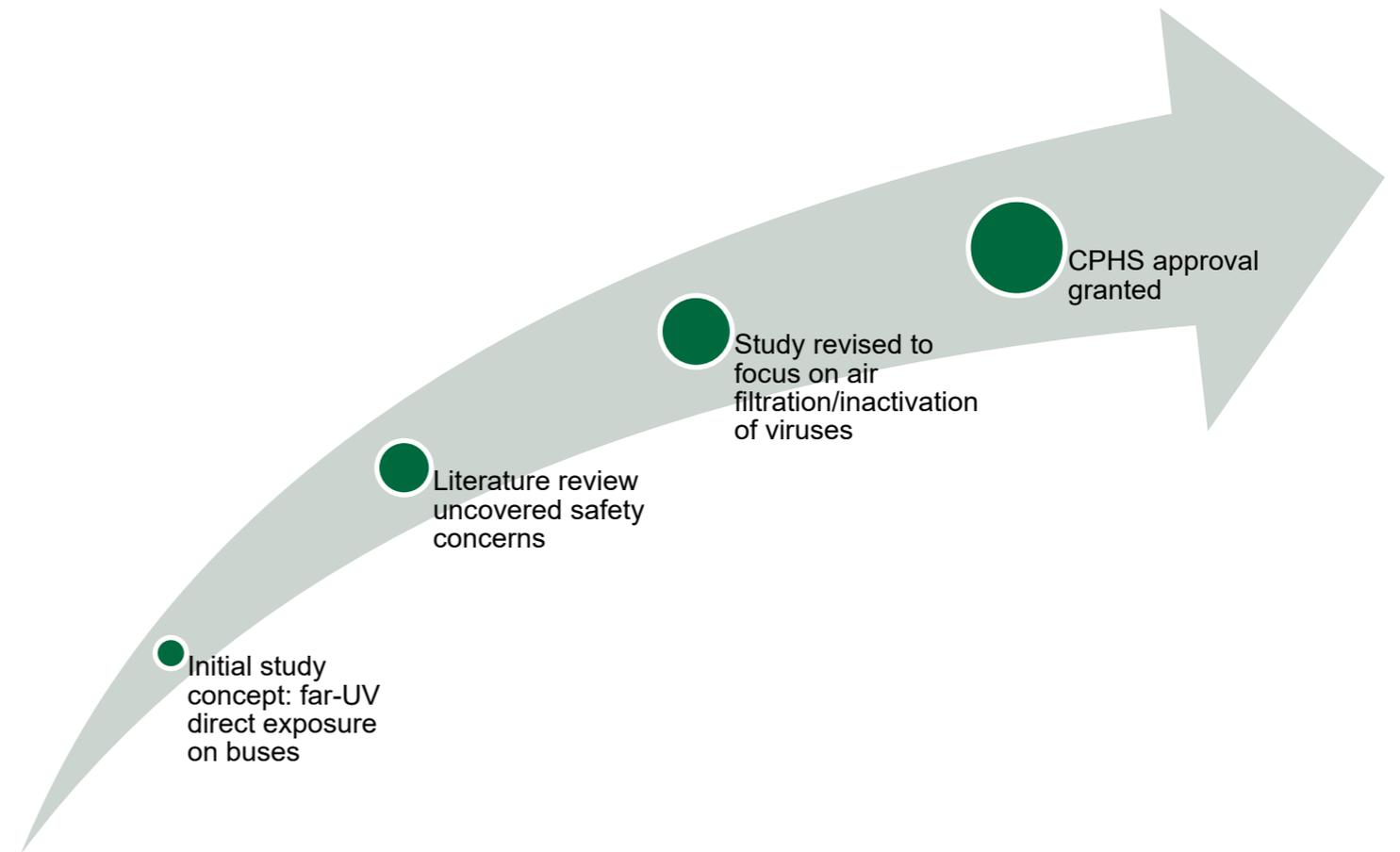
ED Ideas worth spreading



1,942,529 views | David Brenner • TED2020

Can light stop the coronavirus?

- Columbia's David Brenner makes claims about the safety and efficacy of far-UV light



The power of light, which Brenner sees as the power of physics, has the potential to be a genuinely new weapon in the fight against the SARS-CoV-2 virus as well as next year's influenza virus and the next pandemic virus



Surface Testing & Real-World Experiment

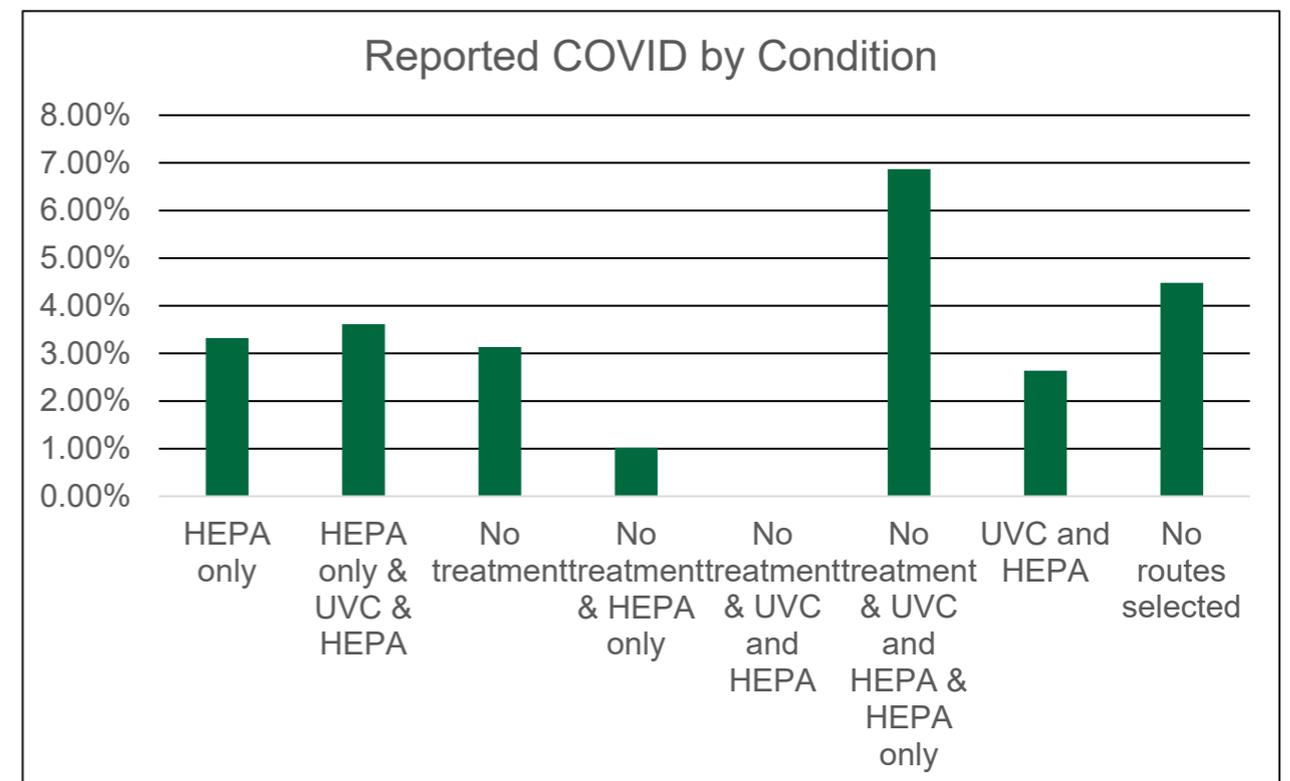
Surface Testing (all treatments effective against RNA viruses)

- Hand-held UV Lamp
- BSC Germicidal Lamp
- Far-UVC Lamp

Real-World Data Collection & Preliminary Analysis

- Over 500 Research Participants
- Over 3,000 Surveys Collected
- Preliminary analysis indicates no significant main effect in any treatment condition

Treatment (5 min Exposure)	PFU/ml
BSC Germicidal Lamp	Not Detected (<10)
Hand-held UV Lamp	Not Detected (<10)
Black UVC Lamp	Not Detected (<10)
White UVC Lamp	Not Detected (<10)
Negative Control	6.3 x 10 ⁶



Next Steps

Step 1

- Surface testing with new viruses and adjusting parameters (distance & time)

Repeat Surface Testing with New Viruses

LCMV

JUNV

Influenza

VSV (to have a like virus in both data sets)

Move to BSL3: SARS-CoV-2

- Original WA-1 strain
- VOC
- WA-1
- Delta
- Omicron

Step 2

- Move into UVM's Bio-safety Level 3 (BSL3) facility and conduct surface experiments with a variety of SARS-CoV-2 strains





Thank you!