CASE STUDY

Roger Williams University Students Model Significant Risk Reduction of Airborne SARS-CoV-2 Transmission with Visium Far-UVC

Roger Williams UNIVERSITY

INTRODUCTION

Public Health students at Roger Williams University in Bristol, Rhode Island, conducted a year-long study evaluating the impact of Far-UVC technology on reducing airborne pathogen transmission.

Under the direction of Dr. Jacob Bueno de Mesquita, Associate Professor of Public Health, the team assessed Visium Far-UVC fixtures in a 572 sq. ft. classroom. Using the Wells-Riley model, their analysis found a substantial reduction in modeled infection risk when Far-UVC was applied.

Visium Far-UVC light fixture with clear Ushio Care222 Kr-Cl Excimer Lamp Module.

The Study

The scenario modeled an 8-hour exposure period in a classroom containing an infectious “super-shedder”—someone emitting a high concentration of viral particles. Four ceiling-mounted Visium fixtures ran continuously throughout the day.

To evaluate occupant exposure to Far-UVC (222 nm), students used colorimetric dosimeters and radiometers.

(continued)

The Results

Results showed:

- 90% whole-room inactivation of SARS-CoV-2 B in under 4 minutes
- Infection risk over 8 hours:
  With Far-UVC: 4%
  Without Far-UVC: 45%

Visium fixtures operate silently at just 14 watts each. The four-device setup boosted the classroom's air cleaning capacity from 3 ACH (air changes per hour) to 39 eACH (equivalent air changes per hour)

- with no added noise
- virtually no visible light
- and minimal energy consumption.

Operating the four fixtures continuously costs approximately $0.30/day.

Viral Control Effectiveness

Expected rate of air cleaning => 39 eACH (avg fluence of 0.876µW/cm^2

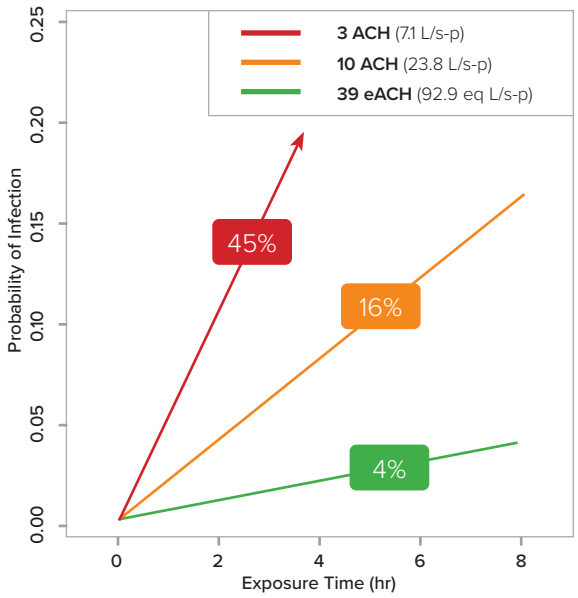

Fig. infection risk (%) after 8 hr with 1 infectious person shedding 100 ID/hr

**Using Wells-Riley model*

Low (4%) infection risk from a high infection person

*Risk reduced 41% compared with decent ventilate space after 8 hr sharing the air.

Conclusion

Funded by a grant from Rhode Island INBRE for Biomedical Research Excellence, the study concluded that:

"Far-UVC mitigates viral transmission at a level unparalleled by [traditional] airflow and filtration methods and should be deployed widely."

Expert Commentary

"This was an exciting project that demonstrated a significant estimated reduction in airborne infection risk using Visium Far-UVC fixtures," said Dr. P. Jacob Bueno de Mesquita. "[We have demonstrated] that Visium can transform high-risk indoor environments into safer spaces."

Contact & Next Steps

Ready to learn how Visium can transform your spaces?
Find information about Visium and its applications at Visium.one.