Two-Part Webinar: Modelling Infection Risk from Indoor Aerosol Exposure to SARS-CoV-2

Summary: The COVID-19 pandemic has highlighted the urgent need for improved methods of risk assessment for airborne transmission of infectious disease in public and residential indoor spaces. Such settings rely either on natural ventilation, which is often weather dependent, or on HVAC systems typically designed and operated for comfort rather than infection control. In attempt to fill this need over the past several months, numerous quantitative tools have been developed by a variety of scientists and engineers to model the risk of indoor occupancy during the pandemic. While these tools all incorporate ventilation as a primary control measure, they differ in their inclusion of epidemiological aspects, in how emission sources are represented, and in how risk is calculated based on a time-dependent exposure to infectious aerosols. They also differ in terms of their platform, target users, and overall degree of technical complexity.

For these tools to be widely used and drive policy and/or regulatory change, they must be applicable to a diverse building stock, validated by real-world epidemiological studies, and apply the most up to date scientific knowledge of aerosol fate and transport and human infectivity. They must also be easy to use and understand, contributing towards a broader understanding of "airborne transmission" and improved scientific consensus surrounding its importance in public, non-hospital settings.

Objective: The objective of this two-part webinar is to provide a platform for developers to summarize their risk assessment tools so that they may be better understood and compared by potential users among the ISIAQ community. The panel format of the webinars will facilitate exchange of information and ideas and encourage active participation by the audience in a technical dialogue. Identification of limitations and future areas for improvement will be discussed.

Format: The webinar will be presented in two (2) groups to accommodate all time zones, and each webinar will be 2 hours in length. Each webinar will begin with a pre-recorded video containing an introduction by Professor Morawska, followed by **5-minute** presentations of each tool by the author(s) present at that webinar session. This video will be approximately 35 minutes long and will be followed by a 30-minute discussion and Q&A period with the tool developers present at that session. Following this discussion component, a second ~35 minute long video will be played containing 5-minute presentations from the developers who are ***not*** present at that particular session. The webinar will then conclude with a second, 20-minute discussion and Q&A period, focusing on comparisons between the tools and recording questions for the developers in the other session. A technical query sheet for each tool that summarizes key aspects will be posted on-line to the ISIAQ web page prior to the webinars.

Part 1: Europe-Asia Option - Monday November 30, 2020, 6 AM UTC

Co-Chairs: Professor Giorgio Buonanno, PhD, University of Cassino and Southern Lazio, Italy
Brad Prezant, VA Sciences – Australia

1. VUE COVID-19 Analyser (bprezant@gmail.com)
2. Personal Relative COVID Risk Modelling Tool (matti.jantunen@janding.fi)
3. COVID-19 Multi-rooms Calculator (livio.mazzarella@polimi.it)
4. Air Exchange Estimator for Infective Aerosol Prevention, (d.hennings@eclim.de)
5. RESET Index: Real-time Aerosol Infection Estimator (agreen@reset.build)
6. Indoor Scenario Simulator (michael.riediker@scoeh.ch)

Part 2: US-Europe Option – Wednesday December 2, 2020 5 PM UTC

Co-Chairs: Professor Jose L. Jimenez, PhD, University of Colorado-Boulder
Alex Mikszewski, PE, The City University of New York Building Performance Lab

1. COVID-19 Aerosol Transmission Estimator & Monte Carlo Version (jose.jimenez@colorado.edu)
2. Harvard-University of Colorado Boulder Portable Air Cleaner Calculator for Schools (shelly.miller@colorado.edu)
3. Airborne Infection Risk Calculator (amikszewski@cunybpl.org)
4. The SAFEAIRSPACES COVID-19 Aerosol Relative Risk Estimator, (hoomanp@uoregon.edu)
5. Indoor Aerosol Exposure-Infection Risk Modeling based on the Mollier Chart (fahmi.yigit@virobuster.com)
6. Work and Personal Predictors of COVID-19 Transmission Risk (paul.anand@open.ac.uk)
7. Fate and Transport of Indoor Microbiological Aerosols (FaTIMA), (lisa.ng@nist.gov)