

A DATA-DRIVEN APPROACH

# 5 Questions

## Assessing in-air pathogen transmission indoors

1

### SPACE

#### What size is the space?

Once infectious droplets and particles are exhaled, they move outward. Thus, the risk for infection increases with proximity and decreases with distance – corresponding with square footage of an indoor space.<sup>1</sup>

2

### OCCUPANCY

#### How many people are in the space?

Once you know the size of an indoor space, consider the number of potentially infectious people within. The more people in a space, the greater the risk of airborne pathogen transmission.

3

### BEHAVIOR

#### How are the people behaving in the space?

Are people in the space exercising? Singing? Laughing? Wearing masks? Behavior will affect in-air pathogen transmission – both increasing the likelihood of in-air pathogens being inhaled and exhaled.<sup>2</sup>

4

### TIME

#### How long are individuals occupying the space?

Another crucial consideration is the duration people spend within a space. The more time people spend in a space, the more potential exposure they have to in-air pathogens. And the less time they spend in a space, the less their potential exposure.

5

### AIR EXCHANGES

#### How often is the air in the space “exchanged?”

The final factor to consider while assessing the risk of in-air pathogen transmission is air exchanges. How frequently is the air in a space rotated (or changed) with new air? While the standards for adequate ventilation are stringent, in-air pathogen risk will correlate directly to the frequency of new air changes.<sup>3,4</sup>



<sup>1</sup><https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/sars-cov-2-transmission.html>, <sup>2</sup><https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/sars-cov-2-transmission.html>, <sup>3</sup><https://www.medrxiv.org/content/10.1101/2021.03.17.21253800v1.full-text>, <sup>4</sup><https://www.nature.com/articles/d41586-021-00810-9#ref-CR3>

Find out more at [thermofisher.com/aps](https://thermofisher.com/aps)