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# In-air pathogen surveillance solution

Fast and highly reliable insight into the safety of indoor air for schools

**ThermoFisher**  
SCIENTIFIC



# Help protect your staff and your students with confidence.

- Get insight into in-air pathogen presence to monitor and improve safety protocols
- Complement individual screening programs
- Identify risk to help keep students in school
- Invest in a solution that's easy to use with minimal training

## About Thermo Fisher Scientific

Thermo Fisher Scientific Inc. is the world leader in serving science, with annual revenue exceeding \$30 billion. Our Mission is to enable our customers to make the world healthier, cleaner and safer. Whether our customers are accelerating life sciences research, solving complex analytical challenges, improving patient diagnostics and therapies or increasing productivity in their laboratories, we are here to support them. Our global team of more than 80,000 colleagues delivers an unrivaled combination of innovative technologies, purchasing convenience and pharmaceutical services through our industry-leading brands, including Thermo Scientific, Applied Biosystems, Invitrogen, Fisher Scientific, Unity Lab Services and Patheon. For more information, please visit [www.thermofisher.com](http://www.thermofisher.com).



# The situation

Leaders of schools are confronted by a vast array of new and urgent questions.

## Critical questions:

- How do we go back to school safely?
- Are we doing everything we can?
- How can we give our students more confidence?
- Are containment strategies effective?
- Are cleaning procedures appropriate and effective?
- Where are the high-risk areas?

There have been lockdowns and closures, restrictions and recommendations, and ever-changing protocols.

**The outcome: mitigation with mixed results.**

The path forward begins by identifying pathogens where they're most easily spread—indoor air.

## The need for environmental surveillance

Schools often serve under-vaccinated populations, and because the Delta variant is more contagious than previous variants (including infecting the vaccinated) schools must implement layered strategies, including screening, masking, cleaning, disinfection, ventilation, and environmental surveillance.<sup>1</sup>

Environmental surveillance complements the insight you already gain from individual testing, **enabling you to better assess the safety of schools.**

## Understanding in-air pathogen transmission

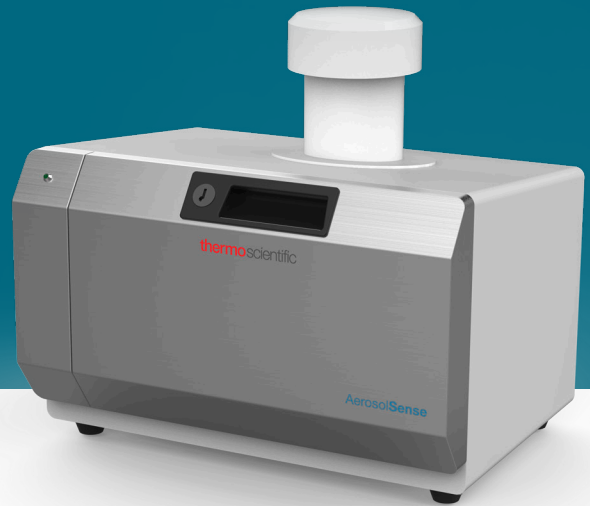
The world's most contagious diseases are spread by in-air transmission. According to WHO, this is defined as "The dissemination of droplet nuclei that remain infectious when suspended in air over long distances and time."<sup>2</sup> In other words, it's the sneezing, coughing, talking, or breathing from one infected person that releases pathogens into the air to then be inhaled by another person. Examples include influenza, tuberculosis, and coronavirus.

Research has shown that the smallest very fine droplets and aerosol particles that carry in-air pathogens are small enough to remain suspended in the air for minutes to hours. This means pathogens can remain in the air of a room and be inhaled long after an infectious person has left the room.<sup>3</sup>

## The 3 principal modes of in-air pathogen transmission

1. Inhalation of air carrying very small fine droplets and aerosol particles containing pathogens.
2. Deposition of pathogens carried in exhaled droplets and particles onto exposed mucous membranes (e.g., "splashes and sprays," such as being coughed on).
3. Touching mucous membranes with hands soiled by exhaled respiratory fluids containing pathogens.<sup>4</sup>

Now it's possible to  
**identify Flu A/B,  
SARS-CoV-2** and/or  
**RSV** in indoor air.



Bring confidence back to school with environmental surveillance using the AerosolSense Sampler.

- Communicate to employees, parents, and students that you're mitigating risk with innovative technology—inspiring increased confidence in you and your institution.
- Whether you're thinking about different strains of COVID, or whatever outbreak could be next... right now, you can invest in something that you can use to help protect your organization later.
- If you know what's in the air you can act more quickly and appropriately, helping to keep your staff and students safer—while confirming that your protocols are working.

### Thermo Scientific™ AerosolSense™ Sampler

Our new pathogen surveillance solution delivers timely and highly reliable insight into in-air pathogen presence so you can monitor and improve your safety protocols.

The AerosolSense Sampler acts right where you need it – in the air – sampling indoor air in classrooms, cafeterias, hallways, dormitories, and other indoor spaces. By sampling and PCR testing indoor air, you're identifying SARS-CoV-2 right where it's spread.

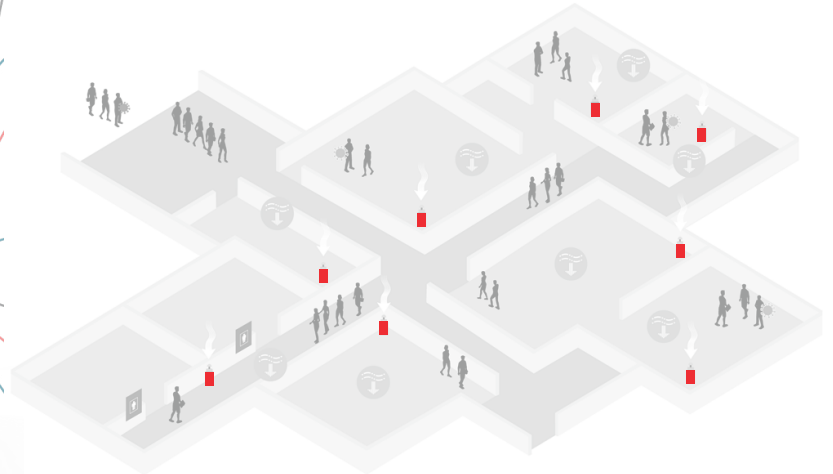
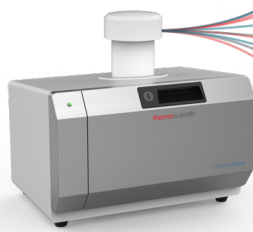


# Help **protect** your students, your staff and your communities in **three simple steps**

01

## COLLECT SAMPLE

Position the sampler on a flat, unobstructed surface and insert sample cartridge.



02

## REMOVE & REPLACE SAMPLE CARTRIDGE

After sampling cycle remove sample cartridge and place in biohazard bag to send to lab.



RESULTS WITHIN  
24 HOURS

03

## SEND SAMPLE CARTRIDGE TO LAB FOR TESTING

Verified multiplex diagnostic kits available for testing:

- Applied Biosystems™ TaqPath™ COVID-19 Combo Kit
- Applied Biosystems™ TaqMan™ SARS-CoV-2, FluA, FluB RT-PCR Assay Kit
- Applied Biosystems™ TaqMan™ SARS-CoV-2, Flu A/B, RSV RT-PCR Assay Kit

Results:

- On-site lab: ≤ 4h result availability
- Thermo Fisher Scientific testing services: ≤ 24h result availability



# Enable early decision making

The **AerosolSense Sampler** combines capabilities in aerosol capture technology with genetic science to empower leaders to **make more confident decisions.**

- **In-air pathogen surveillance:** Monitor high transmission areas for improved risk assessment.
- **Easy to use design:** Lightweight and portable with minimal operator training required.
- **Performance:** Robust system capabilities include aerosol collection and separation technology to deliver consistent performance across diverse environments.
- **Capture other in-air pathogens:** Validated for Flu A/B, SARS-CoV-2 and RSV B, the design is intended to capture a wide variety of in-air pathogens.



## References

1. <https://www.cdc.gov/coronavirus/2019-ncov/variants/delta-variant.html>
2. Infection Prevention and Control of Epidemic- and Pandemic-Prone Acute Respiratory Infections in Health Care. Geneva: World Health Organization; 2014. Glossary. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK214343/>
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4. <https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/sars-cov-2-transmission.html>

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