Breaking barriers and building bridges: reflections on the MIST event, June 2nd 2025

On Monday, June 2nd, 2025, the MIST event brought together experts from across disciplines to address one of the most pressing challenges in public health: how to prevent the airborne transmission of viruses indoors. Organized by TU Delft and hosted in the Faculty of Architecture and the Built Environment, the event welcomed researchers, policymakers, engineers, communication professionals, and public health officials to connect knowledge and build solutions.

With more than 60 attendees and a dynamic afternoon programme, the MIST event created a unique platform where virologists, aerosol scientists, HVAC engineers, manufacturers and decision-makers could come together and collaborate.

Programme highlights

The event featured a carefully curated programme that balanced scientific depth with real-world applicability. Keynote speaker Prof. dr. Lidia Morawska (Queensland University of Technology) opened the afternoon with insights into evidence-based ventilation and air-cleaning strategies. She shared seven key lessons from the COVID-19 pandemic and stressed the need for smarter building designs, continuous monitoring, and the regulation of indoor air quality as a public health priority.

Senior researcher Rinus Elsman (TNO) explored how decision-making during a pandemic is shaped by context. He showed that evidence-based approaches are not always suitable, and that the model used can significantly steer outcomes.

Prof. dr. Daniel Bonn (University of Amsterdam) presented results from real-life tests with Medspray air cleaners and CO_2-aerosol correlations in cardiology centres. He emphasized that while fine dust poses a serious health risk, air quality is rarely monitored indoors, where exposure actually occurs.

Prof. dr. Detlef Lohse (University of Twente) explained how aerosols and droplets are central to virus transmission. His experiments with the Twente Cough Machine illustrated the role of ventilation strategies in containing airborne spread.

Dr. ir. Marcel Loomans (TU Eindhoven) focused on the behaviour of aerosols indoors. He discussed how local sources and targeted solutions like air cleaning can improve overall ventilation performance.

Dr. Mariëtte Lokate (University of Twente) presented findings on host-related differences in respiratory particle emission. Age, activity and infection status were linked to increased emissions, especially fine particles containing more viral RNA.

Prof. dr. ir. Philomena Bluyssen (TU Delft) shared insights from classroom studies and the SenseLab. Her research showed large CO_2 variations between sensors and highlighted the importance of better monitoring and ventilation in schools.

This article is part of the MIST project with project number P20-35 of the research programme Perspectief, which is financed by the Dutch Research Council (NWO).

The afternoon concluded with a lively panel discussion in which speakers and audience members jointly explored the path forward for healthier indoor environments.

A shared challenge: communication

The central theme that echoed throughout the day was clear: communication, not just the science itself, but how knowledge is shared across disciplines and with decision makers. Interactive polls highlighted the importance of "communication," "trust", "combining knowledge", and "collaboration" as key ingredients for progress. Participants called for clearer definitions, joint workshops, and more face-to-face meetings to build shared understanding and bridge gaps in language and perspective.

Insights from the COVID-19 experience

When asked what the pandemic had taught them, participants pointed to lessons that remain highly relevant today: the importance of air quality, ventilation, and educating the public. Keywords like *"not prepared," "public health vs engineering," "responsibility,"* and *"ventilate"* underscored the urgency to turn lessons into lasting change. The consensus was strong: it's time to move from reactive crisis management to proactive prevention. The latter not just anticipates the next pandemic but also aims to decrease infection risks related to seasonal airborne diseases like influenza, common colds and diseases like measles and tuberculosis.

In a poll on what prevention means in the context of airborne infection control, attendees emphasized a pragmatic and layered approach. Prevention is not about achieving zero risk but reducing exposure, making informed choices, and implementing *"appropriate measures"* within a *"systematic plan."*

Black boxes and desired outcomes

A recurring theme in both structured and informal discussions was the continued uncertainty, so-called *"black boxes"*, in certain environments, when it comes to airborne risks. Participants identified the following types of spaces as extra critical:

- sport facilities (even those meant to support health promotion),
- workshops and industrial spaces,
- hospitals, elderly care, and childcare facilities.

These types of spaces were seen as environments where risks are less well understood or inadequately addressed, calling for targeted research and clearer guidance.

When asked what kind of output the participants expect from the MIST project, participants clearly expressed a desire for *practical guidelines,* outputs that are directly applicable in real-world settings. Others proposed integrating *pandemic preparedness* into self-assessment tools that could help organizations maintain awareness and a sense of urgency in the long term.

This article is part of the MIST project with project number P20-35 of the research programme Perspectief, which is financed by the Dutch Research Council (NWO).

Participant reflections

Feedback collected from surveys revealed a strong sense of appreciation for the event's structure and interdisciplinary setup. Participants indicated that they appreciated the openness of discussion, the exchange of ideas, and the ability to learn from perspectives outside their own field. As one attendee noted: *"The lecture on decision making was particularly insightful, and the closing session brought everything together very well."*

Looking ahead

There was clear support for making the MIST event a recurring gathering. Many participants suggested holding it annually, emphasizing the need to keep the conversation going, not just between disciplines, but also between research, policy, and society.

Let's continue the conversation and keep working together toward cleaner air and healthier indoor environments for all.

Maggie Bourgonje

MIST communication advisor

June 2025

This article is part of the MIST project with project number P20-35 of the research programme Perspectief, which is financed by the Dutch Research Council (NWO).