Overview of the Environmental Health Matters Initiative

Jonathan M. Samet, MD, MS
Dean and Professor
Colorado School of Public Health

EHMI VISION

The Environmental Health Matters Initiative seeks to improve the **health of all people equitably** by promoting **evidence-based** assessment, prevention, adaptation, and strategic mitigation of **complex and interconnected environmental stressors** that affect human health and disease over lifetimes.

EHMI Objectives

- Engaging diverse stakeholders in an **ongoing and participatory** manner.
- Work with scientists across disciplines, sectors, backgrounds, and institutions **to inform measures** for assessing, preventing, adapting, and mitigating environmental health challenges.
- Catalyze the development of **trusted networks of scientists and stakeholders** at the local, state, territorial, Tribal, and federal levels to identify solutions.
- Understand the **causal effects** of policies and measures not only on human health but on also on ecosystem health to identify **unanticipated consequences** of individual actions throughout the broader system.
- Provide expert **scientific input during crises** to offer specific, evidence-based advice.

The EHMI Provides…

CONNECTION

The unique ability to convene stakeholders from different backgrounds, sectors, institutions, and scientific disciplines.

CREDIBILITY

A long organizational history of working in the environmental health field.

STEWARDSHIP

Leadership from an experienced program and advisory committees with experts from government, business, and academia.

NEUTRALITY

A neutral, nonpartisan space where stakeholders can share insights.

Overview of the Indoor Air Management of Airborne Pathogens Workshop Series

Linsey Marr, Ph.D
Professor
Virginia Tech

2020

Airborne Transmission of SARS-CoV-2: Proceedings of a Workshop—in Brief

With the rapidly evolving coronavirus disease 2019 (COVID-19) pandemic, researchers are racing to find answers to critical questions about the virus that causes the disease severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Understanding how the virus is transmitted is among the most important questions, as it will inform efforts to stop its spread. For example, can the virus be transmitted via speech and exhaled breath? How long can aerosols containing the virus linger in the air? How far can these aerosols travel? Is the amount of virus in these aerosols enough to cause infection? These questions and more were the subject of an August 26–27, 2020, National Academies of Sciences, Engineering, and Medicine virtual workshop that convened experts in aerosol science and atmospheric chemistry, building engineering, epidemiology, environmental health, infectious disease, pulmonary medicine, public health, and virology to explore the evidence on airborne transmission of SARS-CoV-2. This publication summarizes the presentations and discussions from the workshop.

Goals of the Workshop Series

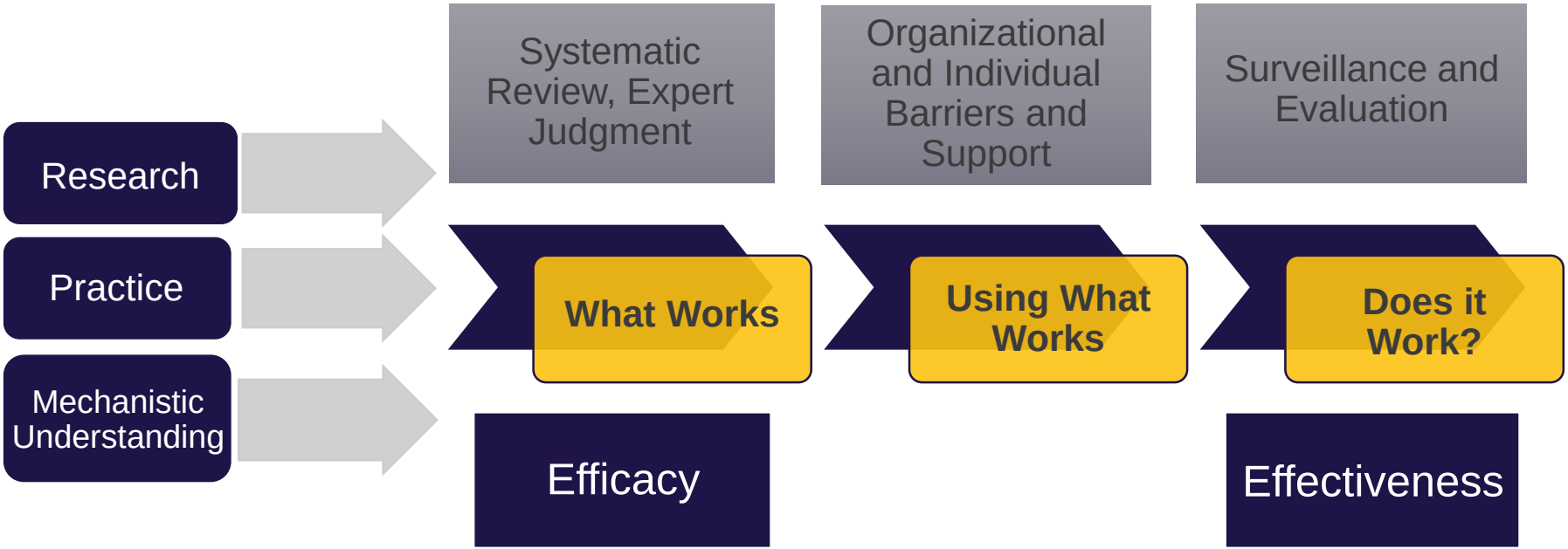
Drawing on lessons learned and new research on indoor air management since 2020, this workshop series will convene an interdisciplinary and multisectoral group of natural, physical, and social scientists together with facilities managers, ventilation engineers, and representatives of populations using public and private facilities.

Through panel discussions and participatory exercises, the participants will:

1. Review the state of knowledge concerning building management, ventilation, and air cleaning for airborne pathogens;
2. Discuss experiences with management of enclosed spaces during the pandemic; and
3. Identify promising practices to be adopted to make these places safer.

Workshop Series Planning Committee

- **Linsey Marr** (Co-Chair), Virginia Tech
- **Jonathan M. Samet** (Co-Chair), Colorado School of Public Health
- **Theresa Chapple-McGruder**, Oak Park Department of public Health
- **James W. Fox**, Former System Safety Southeastern Pennsylvania Transportation Authority
- **John McCarthy**, Environmental Health and Engineering, Inc
- **Catherine Noakes**, University of Leeds
- **Lucas Rocha-Melogno**, ICF
- **Monica Schoch-Spana**, Johns Hopkins Center for Health Security
- **Jeffrey M. Vincent,** University of California, Berkeley


Research
Practice
Mechanistic Understanding
Systematic Review, Expert Judgment
Organizational and Individual Barriers and Support
Surveillance and Evaluation
What Works
Using What Works
Does it Work?
Efficacy
Effectiveness

Agenda at a Glance

Session 1

Current state of knowledge about buildings & airborne transmission

Session 2

Scientific advances and innovation in management of indoor air

Session 3

Organizational response and barriers to managing indoor air

Session 4

Agency & experts perspectives, experiences, and opportunities

Workshop Outputs
Proceedings-in-Brief

2020

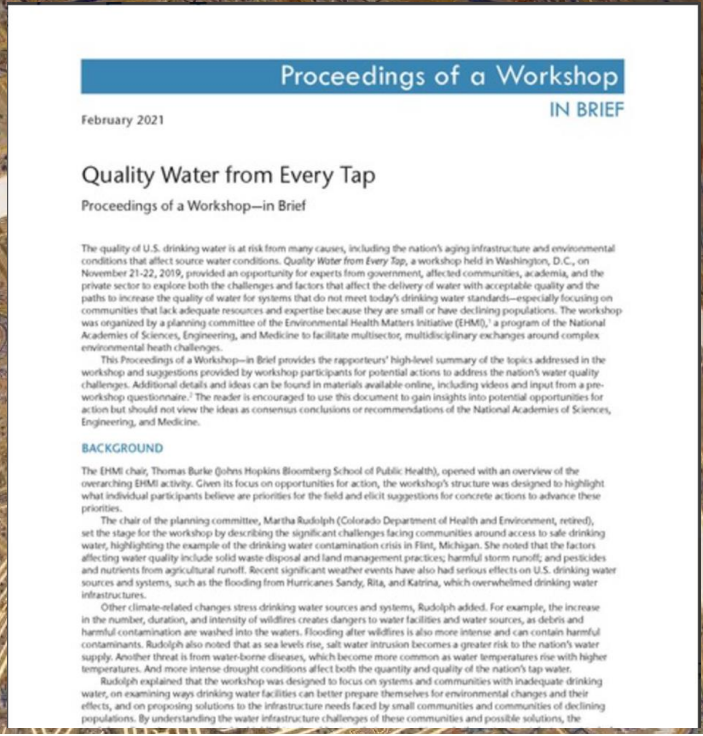
Airborne Transmission of SARS-CoV-2: Proceedings of a Workshop—in Brief

With the rapidly evolving coronavirus disease 2019 (COVID-19) pandemic, researchers are racing to find answers to critical questions about the virus that causes the disease severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Understanding how the virus is transmitted is among the most important questions, as it will inform efforts to stop its spread. For example, can the virus be transmitted via speech and exhaled breath? How long can aerosols containing the virus linger in the air? How far can these aerosols travel? Is the amount of virus in these aerosols enough to cause infection? These questions and more were the subject of an August 26–27, 2020, National Academies of Sciences, Engineering, and Medicine virtual workshop that convened experts in aerosol science and atmospheric chemistry, building engineering, epidemiology, environmental health, infectious disease, pulmonary medicine, public health, and virology to explore the evidence on airborne transmission of SARS-CoV-2. This publication summarizes the presentations and discussions from the workshop.

2020

Understanding, Controlling, and Preventing Exposure to PFAS: Proceedings of a Workshop–in Brief

The use of perfluoroalkyl and polyfluroalkyl substances (PFAS) - fluorinated organic compounds that appear in such materials as firefighting foams, cleaning products, and coatings to treat carpeting, packaging, and cookware - has led to widespread environmental contamination. The first workshop of the Environmental Health Matters Initiative explored human exposure to PFAS, discussed options for controlling PFAS exposures, and considered innovative approaches for preventing PFAS exposures. The ultimate goal of the event was to highlight what various sectors can do to advance our understanding of the extent of human exposure to PFAS and to reduce or prevent PFAS exposure. This publication highlights the presentation and discussion of the workshop.


Proceedings of a Workshop
IN BRIEF

February 2021

Quality Water from Every Tap

Proceedings of a Workshop—in Brief

The quality of U.S. drinking water is at risk from many causes, including the nation's aging infrastructure and environmental conditions that affect source water conditions. *Quality Water from Every Tap*, a workshop held in Washington, D.C., on November 21-22, 2019, provided an opportunity for experts from government, affected communities, academia, and the private sector to explore both the challenges and factors that affect the delivery of water with acceptable quality and the paths to increase the quality of water for systems that do not meet today's drinking water standards—especially focusing on communities that lack adequate resources and expertise because they are small or have declining populations. The workshop was organized by a planning committee of the Environmental Health Matters Initiative (EHMI),[1] a program of the National Academies of Sciences, Engineering, and Medicine to facilitate multisector, multidisciplinary exchanges around complex environmental heath challenges.

This Proceedings of a Workshop—in Brief provides the rapporteurs' high-level summary of the topics addressed in the workshop and suggestions provided by workshop participants for potential actions to address the nation's water quality challenges. Additional details and ideas can be found in materials available online, including videos and input from a pre-workshop questionnaire.[2] The reader is encouraged to use this document to gain insights into potential opportunities for action but should not view the ideas as consensus conclusions or recommendations of the National Academies of Sciences, Engineering, and Medicine.

BACKGROUND

The EHMI chair, Thomas Burke (Johns Hopkins Bloomberg School of Public Health), opened with an overview of the overarching EHMI activity. Given its focus on opportunities for action, the workshop's structure was designed to highlight what individual participants believe are priorities for the field and elicit suggestions for concrete actions to advance these priorities.

The chair of the planning committee, Martha Rudolph (Colorado Department of Health and Environment, retired), set the stage for the workshop by describing the significant challenges facing communities around access to safe drinking water, highlighting the example of the drinking water contamination crisis in Flint, Michigan. She noted that the factors affecting water quality include solid waste disposal and land management practices; harmful storm runoff; and pesticides and nutrients from agricultural runoff. Recent significant weather events have also had serious effects on U.S. drinking water sources and systems, such as the flooding from Hurricanes Sandy, Rita, and Katrina, which overwhelmed drinking water infrastructures.

Other climate-related changes stress drinking water sources and systems, Rudolph added. For example, the increase in the number, duration, and intensity of wildfires creates dangers to water facilities and water sources, as debris and harmful contamination are washed into the waters. Flooding after wildfires is also more intense and can contain harmful contaminants. Rudolph also noted that as sea levels rise, salt water intrusion becomes a greater risk to the nation's water supply. Another threat is from water-borne diseases, which become more common as water temperatures rise with higher temperatures. And more intense drought conditions affect both the quantity and quality of the nation's tap water.

Rudolph explained that the workshop was designed to focus on systems and communities with inadequate drinking water, on examining ways drinking water facilities can better prepare themselves for environmental changes and their effects, and on proposing solutions to the infrastructure needs faced by small communities and communities of declining populations. By understanding the water infrastructure challenges of these communities and possible solutions, the

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Possible actor(s): Researchers

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