



Inhalation and Respiratory Specialty Section

of the Society of Toxicology

Message from the President

November 4, 2020

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Dear IRSS Members,

As you all know, 2020 has been a year of unprecedented challenges for the world.

COVID-19 turned our world upside down practically overnight. Any big conferences, such as our annual meeting, were canceled. Research activities were shut down and everything was moved to virtual. Through all of these changes, our frontline and essential workers dealt with sickness and death, and involved in laboratory work around the clock; thanks to you all.

COVID-19 was not the only dilemma as tensions boiled over with the national racial intolerance movement, and the climate was ravaged with wild-fires and hurricanes. Nevertheless, we endured and persisted on. Thanks to Elise and Colette for including this information on the updated poster (page 4).

Although not the same, teaching, mentoring, and research continued on through virtual means. We learned new skills in zoom, google meets, teams, webex, skype and the like. And to some degree, the pace of our lives slowed down and we found appreciation for the things we once took for granted.

This year has brought to light some of the challenges in the field of inhalation and respiratory toxicology, but it is with a grateful heart I'd like to thank everyone for their membership and for contributing to our diverse and inclusive IRSS. Likewise, we appreciate the innovative ideas that have come to us like the webinars hosted by Judith Zelikoff and Holger Behrsing on inhalational/respiratory effects of COVID-19 (thanks to presenters, page 3). Not to mention the marvelous and much needed cheering up that the virtual retreat put together by Judy (congratulations to all winners) was spectacular. A vast array of dynamic sessions were programmed virtually by our members (page 2), which I greatly enjoyed.

Thank you to our members, our new officers, and everyone who participated in the IRSS activities. We embrace equity, gender, and diversity in our specialty section. We recognize the efforts our members make for the enrichment of our Specialty Section. We will have webinars and other educational activities coming soon!

Stay tuned and be hopeful,

Irfan

Irfan Rahman, PhD
President, Inhalation and Respiratory Specialty Section



Retreat: May 21, 2:30 PM – 4:00 PM
Award Ceremony (Judith Zelikoff, PhD, VP)
Congratulations to the 2020 IRSS Award Winners!

SOT 2020 Program Webinars hosted by IRSS Members: Thank you to all.

<https://www.toxicology.org/events/am/AM2020/program.asp>

SYMPOSIA/WEBINARS

Electronic Cigarettes and Cardiovascular Toxicity: New Friend or Old Foe?

Chairs: Ivan Mark Olfert, West Virginia University School of Medicine; and Daniel J. Conklin, University of Louisville.

Resolution of Inflammation in Chemical Toxicity/Tissue Injury: What's Emerging?

Chairs: Kymberly Gowdy, East Carolina University; and Srikanth Nadadur, NIEHS.

Protecting Public Health and the Environment during Wildfire Recovery

Chairs: Shelley DuTeaux, California Department of Pesticide Regulation; and Shoba Iyer, California Environmental Protection Agency.

CONTINUING EDUCATION COURSE: *In Vitro* Approaches to Assess the Toxicity of Inhaled Substances

Chairs: Amy J. Clippinger, PETA International Science Consortium Ltd., United Kingdom; and Emily Reinke, Army Public Health Center.

Sex, Lungs, and Air Pollution

Chairs: Meghan E. Reboli, University of North Carolina at Chapel Hill; and Robert M. Tighe, Duke University.

Lung Function: It's Not Just Breathing

Chairs: Andrew Gow and Angela Groves

HOT TOPIC seminars was a huge success!

- E-cigarette and Vaping Product Use-Associated Lung Injury (EVALI)



Webinar Series 2020-2021 Part #1

“COVID-19: Impact of Inhalation Based Exposures on Respiratory System” Wednesday, August 5, 2020, at 1:00 – 2:00 PM EDT



Gagandeep Kaur, PhD
Postdoctoral Associate,
University of Rochester
Medical Center



Robert Foronjy, MD
Chief, Pulmonary and Critical Care
Medicine SUNY Downstate Medical
Center

Moderators:

- **Irfan Rahman, PhD**, Professor, University of Rochester, Rochester, NY
- **Judith Zelikoff, PhD**, Professor, New York University School of Medicine
- **Holger Behrsing, PhD**, Principal Scientist & Head: Respiratory Toxicology Program, IIVS, Inc.
- **Chris Reilly, PhD**, University of Utah, Dept. of Pharmacology and Toxicology

Webinar Series 2020-2021 Part #2

“A respiratory look into COVID-19 pediatric health and adolescent health risks of behavior” Wednesday, November 18, 2020, at 2:00 – 3:00 PM EST



Ilona Jaspers, PhD
Professor, Depts. of Pediatrics, Microbiology &
Immunology, and Environmental Sciences and
Engineering

University of North Carolina at Chapel Hill



Matthew McGraw, MD
Assistant Professor - Department of
Pediatrics, Pulmonology (SMD)
University of Rochester Medical Center

Moderators:

- **Irfan Rahman, PhD**, Professor, University of Rochester, Rochester, NY
- **Judith Zelikoff, PhD**, Professor, New York University School of Medicine
- **Holger Behrsing, PhD**, Principal Scientist & Head: Respiratory Toxicology Program, IIVS, Inc.

Thanks to Elise and Colette for updating this poster

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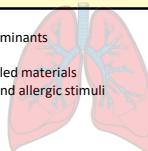
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INHALATION AND RESPIRATORY SPECIALTY SECTION

Description

The Inhalation and Respiratory Specialty Section provides a focus for members of the Society of Toxicology dealing with the impact of airborne chemicals and particles on the body. The Section meets regularly at the SOT Annual Meeting to promote a better understanding of inhalation and respiratory tract toxicology, to recognize students and colleagues for notable contributions to research, and to address issues of importance to this field. IRSS sponsors webinars and other educational opportunities.

Issues of Interest



- Indoor and outdoor air pollution
- Occupational exposure to airborne contaminants
- Therapeutic drug delivery by inhalation
- Deposition and pharmacokinetics of inhaled materials
- Interactions between inhaled materials and allergic stimuli
- Airway injury from systemic toxicants
- Systemic injury from airway exposure
- Biomarkers of exposure and disease

Membership Benefits

- Network with inhalation and respiratory toxicologists from industry, government, and academia.
- Present your work in sponsored and selective specialty sessions.
- Mentoring junior members.

Reception and Awards Meeting

Thursday, May 21, 2020

2:30 PM – 4:00 PM EDT

Virtual Meeting via Webex

Please join us to honor our award winners and discuss member involvement.

Executive Committee 2020-2021



Sponsored Events at SOT Virtual Meeting

- "Electronic Cigarettes and Cardiovascular Toxicity: New Friend or Old Foe?" (4/28/2020)
- "Resolution of Inflammation in Chemical Toxicity/Tissue Injury: What's Emerging?" (5/12/2020)
- "Sex, Lungs, and Air Pollution" (6/11/2020)

Continuing Education:

- "In vitro approaches to assess the toxicity of inhaled substances" (5/15/2020)
- "Lung Function: It's Not Just Breathing" (6/26/2020)

Upcoming hot topic seminar topics will focus on the outbreak of e-cigarette, or vaping-associated, lung injury (EVALI), including epidemiology, clinical perspectives, forensic evidence, and potential mechanisms.

IRSS 2020 Award Winners

Career Achievement Award: Urmila Kodavanti, US EPA
Young Investigator Award: Phoebe Stapleton, Rutgers/SUNY
Donald E. Gardner Education Award: Cody Smith, Rutgers
Mary Amdur Student Award: Elise Hickman, UNC Chapel Hill
Graduate Student Award: Christina Awada, NYU
Postdoctoral Awards: Tosifa Memon, University of Utah
Paper of the Year Award: Meghan Rebuli, UNC Chapel Hill

Inhalation Toxicology Through the Ages

1700-1900: Industrial Revolution

79 CE: Mount Vesuvius Erupts

Destroys Pompeii and Herculaneum, suffocating Pliny the Elder.

535 CE: Air is a Birthright

Roman Emperor Justinian proclaims, "By the law of nature these things are common to mankind: the air, running water, the sea."

673 CE: Greek Fire

Ancient "napalm" described by the Crusaders as consisting of naphtha, quicklime, Sulphur, and saltpeter.

1700-1900: Industrial Revolution

Mining and combustion of coal increases from 2.7 million tons in 1700 to 117.9 million tons in 1900. Percival Pott (1717) describes the first incidence of cancer among chimney sweeps.

1863: Alkali Act Passed

Establishment of the British's first pollution inspectorate following extensive property damage caused by ammonia of hydrogen chloride gas.

1880s: London's "Killer" Smog

Deaths from smog in London begin to increase in duration and severity.

1895: The Dust Bowl

Clouds of dust from years of drought cause thousands of deaths due to particle exposure and starvation in the Great Plains.

1930: Hawk's Nest Incident

Hundreds of African-American workers die between 1927-1935 of acute silicosis while digging the New River Gorge Tunnel for Union Carbide.

1935: The Great Smog

Caused or contributed to as many as 12,000 deaths. Continued smog events result in the 1956 Clean Air Act by British Parliament.

1942: The Holocaust

First smoke ordinance enacted by a U.S. city.

1944: The Bhopal Disaster

1.1 million European Jews and POWs were murdered using hydrogen cyanide gas (Zyklon B) in Nazi extermination camps.

1948: Donora, PA Smog

Accidental release of sulfur dioxide and sulfuric acid, nitrogen dioxide and fluorine in a smog, killing 20 and sickening over 7,000.

1950: Smoking & Lung Cancer

Sir Richard Shaboe Doll and Bradford Hill publish first paper linking smoking and lung cancer.

1952: London Great Smog

Caused or contributed to as many as 12,000 deaths. Continued smog events result in the 1956 Clean Air Act by British Parliament.

1954: Mary Amdu

presents her work on lead dust health effects to the public and sulfur dioxide to severe push-back.

1955: The Harvard Six Cities Study

Shows that increased lead in children and the introduction of the catalytic converter reduced in the EPA's first study of its kind.

1957: London Gasoline Price Cut

Following longstanding suspicion of the neurotoxic effects of lead, increased lead in children and the introduction of the catalytic converter reduced in the EPA's first study of its kind.

1960: SOT Established

To create a safer and healthier world, by advancing the science and increasing the impact of toxicology.

1961: Vietnam War

US bombing of herbicides results in TCDD exposure to Vietnamese citizens and deployed military personnel via widespread routes, including inhalation, direct contact, and ingestion.

1966: Chernobyl

Nuclear reactor accident results in largest nuclear disaster in history. Those living within 30 km of the plant inhaled up to 1000 mSv (adults) and 6000 mSv (infants) of radioactive iodine, an isotope known to cause thyroid cancer.

1971: U.S. EPA Established

In addition to establishing the EPA, the 1970 Amendments of the Clean Air Act, implemented national standards for the regulation of industry and non-source sources of pollution. In 1971, EPA names 4 oxidant criteria pollutants, ozone, lead, sulfur dioxide, and the 1970s.

1973: Harvard Six Cities Study

Groundbreaking study found a strong link between air pollution and mortality risk, spurring improved U.S. regulations on fine particulate matter.

1983: Tokyo Subway Sarin Gas

Members of religious sect Aum Shinrikyo released sarin gas in Tokyo subways, killing 12 and injuring 6,000.

1989: Libby, MT Asbestos

The EPA warns that anyone living in Libby, MT, for more than 10 years within months any time before January 1991 was most likely exposed to harmful levels of asbestos.

2001: World Trade Center Attacks

In the largest commercial attack in the U.S., 1.1 billion gallons of fuel are released into the air. As of 2019, 32,000 cases of respiratory/digestive diseases and 6,000 deaths, respectively, have been reported in first responders.

2008: Kingston Coal-Ash Spill

In the largest coal ash spill in the U.S., 1.1 billion gallons of fuel are released into the air. As of 2019, 32,000 cases of respiratory/digestive diseases and 6,000 deaths, respectively, have been reported in first responders.

2011: Fukushima Nuclear Disaster

Accidental release of radioactive iodine into the air, water, and soil. 150,000 people are forced to leave their homes.

2012: Hurricane Sandy

Accidental release of radioactive iodine into the air, water, and soil. 150,000 people are forced to leave their homes.

2013: Flint, MI Lead Contamination

Lead-contaminated water is consumed by Flint residents.

2014: Paris Climate Agreement

195 countries agree to limit global warming to 2°C.

2015: Beijing Air Pollution

A striking difference in air quality is observed after Beijing achieves clear blue skies in time for a major parade. Less than 24 hours later, Beijing AQI shoots from 17 to 160+.

2016: New Delhi Air Pollution

PM 2.5 reaches up to 550 µg/m³ in New Delhi, leading to poor visibility, increased mortality from respiratory diseases, and grounding of flights.

2019: EVALI Outbreak

Outbreak of e-cigarette, or vaping, associated respiratory injury primarily associated with illicit THC products.

2020: COVID-19

Coronavirus disease 2019 (COVID-19) is an infection caused by a new virus.

2020: Wildfires

Wildfires in California, Oregon, and Washington are the largest in history.

2020: PFAS

PFAS are a group of man-made chemicals.

2020: E-Cigarettes

E-cigarettes are electronic cigarettes.

2020: Climate Change

Climate change is a long-term shift in average weather patterns.

Member Highlights

Communication Activities –

Other Specialty Section 2019-2020 Activities

Irfan Rahman, PhD (then VP-elect and VP) served as a member for Specialty Section Collaboration and Communication Group (SS CCG) of the SOT from 2018-2020 where he worked with other Specialty Section groups on increasing the membership, visibility of webinars and seminars, nominating key speakers and suggesting proposals, ethical aspects of members, diversity and inclusion and communicated the exchange of ideas to IRSS.

Marusia Popovech, PhD (IRSS councilor) is now a member of SS CCG on Ethical, Legal, Forensics, and Societal Issues for 2019-2021.

Congratulations to **Amie Lund, PhD** (our IRSS councilor) who is recognized as

- Lone Star Society of Toxicology (LSSOT) Regional Chapter- President (2020-2021)
- SOT Regional Chapter Communication and Collaboration Committee (RC4) - co-Chair (2020-2021)
- LSSOT - FUTURE Liaison (2020-2021)

Dear members,

We would like to acknowledge and thank all of our Executive Committee and IRSS members for their contributions

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Judith Zelikoff, PhD (Chair)

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All EC members

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Thank you for your involvement and commitment.
Please be a part of our endeavors, and contact us for
feedback and involvement!

NEW BUSINESS AND ANNOUNCEMENTS



Please apply for **IRSS awards**



Please suggest topics of **webinars**



IRSS Elections are coming...

Interested candidates must contact the current officers



Annual meeting deadline abstract submission
December 1, 2020.

Join us in Virtual San Diego, CA **March 27-31, 2022!**



Donate to the Endowment Fund!



Support IRSS!

