

## Greetings from HPSS Chair

Lisa Lix [lisa.lix@umanitoba.ca](mailto:lisa.lix@umanitoba.ca)



Dear colleagues and friends,

Welcome to the summer issue of the HPSS Newsletter! I hope that each of you will find time for fun and relaxation during the summer months. I am sure that many of you will be traveling, including to Toronto in August for JSM 2023. We have a wonderful program in store for you, thanks to the hard work of our Program Chair, Dr. Summer Han, and Program Chair-Elect Dr. Jason Brinkley. Don't miss our mixer on Monday August 7, which will be a joint event with the Mental Health Statistics Section. On Wednesday August 9, our speaker with lunch will feature Dr. Muhammad Mamdani, from the Temerty Centre for Artificial Intelligence Research and Education in Medicine, University of Toronto. Look for further program highlights in this newsletter.

The HPSS Executive Committee would like to host a panel-style webinar in the coming months on the topic of health policy equity analytics. If you would like to contribute to this webinar or know some who could contribute, please let me know. There are also many opportunities to volunteer with the Section, including serving on committees, reviewing student papers for awards, and participating in planning or organizing the next ICHPS meeting, which will be held in 2025. Please e-mail me if you are interested in volunteering.

Finally, I would like to congratulate those who were elected in the last ASA election, as well as those that ran for an elected position. We welcome Dr. Mousumi Banerjee from University of Michigan's School of Public Health as 2024 Chair-Elect. As well, Dr. Susan Paddock from NORC at The University of Chicago was elected to the Board of Directors Vice President for 2024-2026.

Thanks, Lisa  
2023 Chair, HPSS

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### 2023 HPSS Executive Committee

Chair – Lisa Lix  
Chair-Elect – Layla Parast  
Past-Chair – Yuanjia Wang

Secretary – José Zubizarreta  
Treasurer – Ted Lystig  
Publications – Beth Ann Griffin & Hwanhee Hong  
Council of Sections Rep – James O'Malley

Program Chair – Summer Han  
Program Chair-Elect – Jason Brinkley

ICHPS Co-Chair: Lane Burgette; Beth Ann Griffin



## JSM 2023 August 5-10, Toronto, Canada



Program Chair: Summer Han [summerh@stanford.edu](mailto:summerh@stanford.edu)

Program Chair-Elect: Jason Brinkley [Jason.Scott.Brinkley@gmail.com](mailto:Jason.Scott.Brinkley@gmail.com)

JSM 2023 - It is our pleasure to announce a full list of HPSS-sponsored activities including invited sessions, topic-contributed sessions, round tables, lunch with speaker, and our famous HPSS and MHSS joint mixer.

### **HPSS-Sponsored Invited Sessions**

1. *Application of innovative causal inference methods with real-world data for health policy evaluation*
2. *Harnessing multiple data sources to improve generalizability of findings from clinical trials*
3. *When Data Integration Meets Causal Inference*
4. *Informing Decisions with Network Meta-Analysis*

### **HPSS Topic-Contributed Sessions**

1. *Measurement Biases In Causal Inference As A Silver-Lining To A Deeper Understanding of Nonidentification*
2. *Measures & Applications for Relating Historical Structural Racism with Contemporary Health Outcomes*
3. *New methods and applications for dynamic risk prediction for precision medicine and health policy valuation*
4. *Improving Methods for Alzheimer's Disease and Related Dementias (AD/ADRD)*
5. *Recent Developments of Novel Statistical Methods of Analyzing Single-Cell Genomic Data for Precision Medicine and Public Health*
6. *Health Policy Statistics Section Student Paper Award*

### **Roundtable Sessions**

1. *Statisticians and Artificial Intelligence: What do we Need to Understand? – (SOLD OUT)*

### **Lunch with Speaker** (Aug 9, 12:30-1:50 pm)

*WL04: Applied Artificial Intelligence in Healthcare: From Compute to Care.*  
*Muhammad Mamdani, Institute for Clinical Evaluative Sciences*

Finally, the **joint mixer of HPSS and MHSS** will be held on August 7, 6:30-8:30 PM EDT at Cactus Club Cafe (77 Adelaide Street West, Toronto, ON M5H 1P9). The mixer will feature HPSS Student Award Ceremony (see Page 3 for the list of winners) and Announcement of the 2023 ASA Fellows who are members of HPSS.

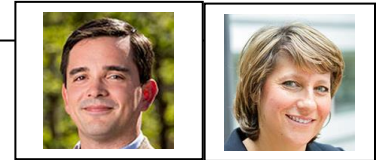
**Please come and join for fun, food, and social interaction!!**

## ICHPS 2023 Recap

Co-Chairs:

Mike Baiocchi [baiocchi@stanford.edu](mailto:baiocchi@stanford.edu)

Ruth Etzioni [retzioni@fredhutch.org](mailto:retzioni@fredhutch.org)



### Our theme: “Upgrading the Pipeline from Health Data to Health Policy”

The International Conference on Health Policy Statistics (ICHPS) was held January 9 – 11, 2023, in Scottsdale Arizona. After 3 years off due to Covid-19, the meeting was bursting with positive energy, bringing together practitioners, methodologists, health service researchers, health economists, and policy analysts. In addition to US and Canadian participants, ICHPS 2023 co-chairs Ruth Etzioni and Michael Baiocchi welcomed attendees from Israel, Japan, Europe, Australia, and South Africa. ICHPS 2023 had outstanding speakers covering a range of important topics ([link to program](#)): Sally Morton (Arizona State), Sherry Glied (New York University), Elizabeth Stuart (Johns Hopkins), Ziad Obermeyer (UC Berkeley), Casey Ross (STAT), and David Etzioni (Mayo Clinic).



Opening session:  
Sherry Glied and Elizabeth Stuart



Meet the Editor session:  
John Wong, Sharon-Lise Normand, Johan Ayanian

ICHPS 2023 also experimented with some special topic sessions. A “Meet the Editor” session brought together editors from top medical and health policy journals to share their experiences, discuss the characteristics of successful submissions, and define what health policy statistics researchers should do (and not to do) as they seek to disseminate their work in high-impact publications. A special plenary session titled, “Reproductive Health Policy IS Public Health Policy” addressed the profound consequences the Supreme Court’s ruling in *Dobbs v. Jackson Women’s Health Organization* will have on health care across the US. And, an Anti-Racism Town Hall, led by Ofer Harel, was devoted to understanding what is needed for the ASA to become an anti-racist association (if you are interested in knowing more, contact Ofer Harel at [ofer.harel@uconn.edu](mailto:ofer.harel@uconn.edu)).

To close out ICHPS 2023, Lisa Lix, Chair for the Section, presented the Mid-Career Award to two individuals: (1) Corwin Zigler (UT Austin), and (2) Laura Anne Hatfield (Harvard University). Then the Long-Term Excellence Award was presented to Joseph Cappelleri (Pfizer). The award recognizes Cappelleri’s research, education, and service contributions to the statistical and health policy communities, with a particular emphasis on patient-reported outcomes and measurement science. ■

## Congratulations to JSM HPSS Student Paper Awardees!

**Sierra Pugh**, Colorado State University

Title: A hierarchical Bayesian model for estimating age-specific COVID-19 infection fatality rates in developing countries

**Jiayi Tong**, University of Pennsylvania Perelman School of Medicine

Title: A new end-to-end data aggregation approach for comparing hospital performance without sharing patient-level data

**Nicolas Hartman**, University of Michigan

Title: Individualized Empirical Null Estimation for Exact Tests of Healthcare Quality

**Haolin Li**, University of North Carolina at Chapel Hill

Title: Inverse Probability of Censoring Weighted Super Learner for Survival Prediction in Case-Cohort Studies

**Larry Han**, Harvard T.H. Chan School of Public Health

Title: Privacy-Preserving and Communication-Efficient Hospital Quality Measurement



## COSGB Workshop for Section Leaders at JSM 2023

The 2023 JSM will host a special workshop titled “Being an Anti-Racist Statistician: What Can Section Leaders Do?” on Tuesday, Aug 8, @2pm in I – Ballroom B of the Intercontinental Toronto Centre. The seminar will be given by David Marker. It stems from the efforts of the ASA Anti-Racism Task Force, who spent almost two years reviewing the organization's internal documents, reviewing our connection with the entire statistical profession, and examining the impact of statistics on society. The Task Force proposed dozens of recommended actions for the ASA and its members to take to become a strong force to fight racism. The Board of Directors approved this report and has hired a consultant to assist them in their efforts. This short course will review the findings and work with section leaders to identify actions that could be taken by section leaders and section members to help us make progress in using statistics for positive, not negative impacts on the society in which we live.

This will be an in-person workshop at JSM that will include break-out groups and opportunities for attendees to establish connections to work on and follow up to ideas developed during the session. The workshop aims to:

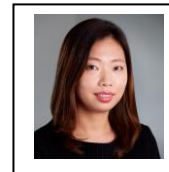
- 1) Educate participants on understanding the difference between “not being racist” and being “anti-racist.”
- 2) Individually, and within a section, identify actions one could undertake to act as an anti-racist statistician.
- 3) Determine the strengths and current practices of sections? How might these strengths be used to achieve anti-racist use of statistics.

The instructor, David Marker, was co-chair of the ASA Anti-Racism Task Force. Dr. Marker previously served as the Council of Chapters' Representative to the ASA Board of Directors and was President of the Washington Statistical Society. He is a Fellow of the ASA and received its Founders Award in 2022. ■

# The Crucial Role of Statisticians in Tackling the Climate Crisis and Environmental Justice

## An Interview with Dr. Francesca Dominici

By Hwanhee Hong [hwanhee.hong@duke.edu](mailto:hwanhee.hong@duke.edu)



The climate crisis has emerged as an unprecedented and pressing global issue, presenting humanity with a critical moment in history. Its impact on human health and quality of life varies significantly based on socioeconomic status and other factors, leading to the emergence of environmental justice concerns. Scientists including statisticians are playing a pivotal role in providing data-driven scientific evidence on climate change and its impact on health. Such evidence not only informs policy makers but also empowers the general audience to comprehend the root causes of the climate crisis and the immediate actions required to mitigate its effects. To gain insights into the present situation, challenges, and our individual contributions, the HPSS has interviewed Dr. Francesca Dominici, Clarence James Gamble Professor of Biostatistics, Population and Data Science at Harvard T.H. Chan School of Public Health and Co-Director of the Harvard Data Science Initiative.

**Hwanhee:** Could you introduce yourself, your research, and how you became interested in environmental health?

**Francesca:** I have always had a deep passion for studying statistics, but what truly motivates me is the opportunity to develop statistics and data science methods that can have a positive impact on society. During my PhD, my research focused on Bayesian hierarchical models, specifically combining heterogeneous sources of data. This topic proved to be a perfect fit for my postdoctoral fellowship at Johns Hopkins under the supervision of Dr. Scott Zeger. Since then, I have become increasingly involved in estimating the consequences of environmental health pollution and assessing health risks from exposure to environmental contaminants. My passion for the subject has grown even stronger, particularly in relation to climate change and its profound impact on human health. I am deeply committed to leveraging data to inform regulations that can either slow down the pace of climate change or effectively regulate levels of contaminants in the air.

**Hwanhee:** What inspired you to focus your research on the impacts of the climate crisis and environmental justice?

**Francesca:** First, let me start by defining environmental justice. It refers to situations where certain subgroups of the population whether defined by race, gender, socioeconomic status, religious affiliation, or immigration status, are disproportionately exposed to environmental contaminants and face heightened susceptibility to the resulting health consequences.

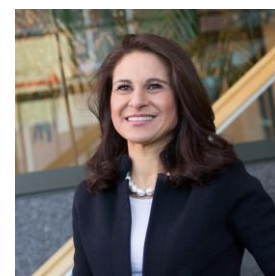
As a woman who is the first in my family to earn a college degree, I have always been deeply interested in issues of fairness and justice. When I moved to the United States from Italy, I began to observe the stark disparities in health outcomes based on income and race. This firsthand experience made me aware of the vast amount of available data and its increasing accessibility over time.

The combination of my personal experiences, growing up as a woman from a non-highly educated and financially constrained family, along with the abundance of data, motivated me to make a real difference. It ignited my passion to focus my research on the impacts of the climate crisis and environmental justice. I recognized the potential to utilize data-driven approaches to address these pressing issues and work towards building a more equitable and just society.

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**Hwanhee: How serious is the health disparity issue in the distribution of environmental burdens and benefits in US?**

**Francesca:** The seriousness of the health disparity issue has been well-documented, not only by myself but also by numerous colleagues in the field<sup>1-3</sup>. These studies consistently reveal that communities of color are disproportionately burdened by air pollution. It is striking to note that even when considering zip codes in the United States, those with high incomes but a higher percentage of African American population tend to have higher pollution levels compared to zip codes with low incomes and a higher percentage of white population. This means that low-income white individuals are still exposed to less pollution than their high-income African American counterparts.



Dr. Francesca Dominici

Although pollution levels have declined over time due to regulations, the level of environmental disparity has not shown a similar downward trend. In fact, the gap in environmental disparities has been widening. This observation highlights the persistent nature of environmental inequalities, where the benefits of pollution reduction do not reach all segments of the population equally. These findings are based on rigorous data analysis and provide compelling evidence of the existing disparities. They underscore the urgent need for concerted action to address these unjust inequities in our society.

**Hwanhee: What are the biggest challenges statisticians face in addressing the climate crisis, and how can they overcome them?**

**Francesca:** There are three main challenges. First, we encounter limitations in terms of resources and incentives for data engineering. We lack comprehensive data warehouses where all climate-related data, including energy emissions and pollution data, are collected and integrated in one central location. As statisticians, our training and promotion pathways often do not prioritize data engineering, which hinders our ability to make a significant impact. We typically focus on quickly linking available data for specific projects, rather than leveraging a comprehensive data infrastructure.

Second, there is a need for further development of statistical methodology in the field. Integration of diverse data sources remains a crucial area of work, as the data itself is imperfect and requires careful consideration. The development of interpretable machine learning models and other statistical techniques is vital to ensure reliable and meaningful analysis.

Third, working in climate policy can be challenging due to political factors. Climate science still faces denial and skepticism, and those who advance the science and advocate for environmental regulation or attribution work often face criticism and pushback. The political landscape and the varying positions of administrations can significantly impact the acceptance and support for climate-related research.

1. Jbaily A, Zhou X, Liu J, Lee TH, Kamareddine L, Verguet S, Dominici F. Air pollution exposure disparities across US population and income groups. *Nature*. 2022 Jan 13;601(7892):228-33.

2. Josey KP, Delaney SW, Wu X, Nethery RC, DeSouza P, Braun D, Dominici F. Air Pollution and Mortality at the Intersection of Race and Social Class. *New England Journal of Medicine*. 2023 Apr 13;388(15):1396-404.

3. Kodros JK, Bell ML, Dominici F, L'Orange C, Godri Pollitt KJ, Weichenthal S, Wu X, Volckens J. Unequal airborne exposure to toxic metals associated with race, ethnicity, and segregation in the USA. *Nature Communications*. 2022 Nov 1;13(1):6329.

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To overcome these challenges, it is important to address each one systematically. In terms of data, recognizing and promoting the value of data engineering as an essential component of data science is crucial. Encouraging collaboration with industry can also help bring together diverse datasets. Advancements in statistical methodology should be an ongoing focus, ensuring that we develop robust techniques for integrating and analyzing climate data. Lastly, fostering public awareness, engagement, and support for climate science can help mitigate political challenges by promoting evidence-based decision-making.

Looking ahead, there is always room to overcome these challenges. As a profession, we must remain vigilant and maintain a positive and energetic attitude. By identifying bottlenecks and working collaboratively, we can explore promising avenues such as increased collaboration with industry to leverage their expertise and resources. It is crucial to adapt and find innovative solutions to address these challenges, ensuring that statisticians play a vital role in tackling the climate crisis effectively.

**Hwanhee: What specific statistical tools and techniques are most useful for analyzing climate data?**

**Francesca:** The choice of statistical tools and techniques for analyzing climate data depends on the specific research questions being addressed. Various approaches can be applied to estimate exposure to environmental contaminants, assess the impacts of climate change-related disasters like wildfires or heatwaves, and predict future climate conditions.

For estimating exposure and assessing impacts, machine learning models, artificial intelligence (AI), and data fusion techniques are valuable tools. These methods allow for the combination and analysis of diverse data sources, such as satellite imagery and output from atmospheric chemistry models. They enable researchers to predict and forecast environmental outcomes, contributing to a better understanding of climate-related phenomena.

When examining the effects of climate change on human health, the field of causal inference plays a crucial role. Causal inference methodology helps estimate causal parameters and assess the impact of interventions or changes in exposure. By analyzing observational data, researchers can infer causal relationships and understand the health effects associated with climate-related factors. This approach becomes particularly relevant when studying the complex spatial and temporal relationships inherent in climate data.

While machine learning and AI techniques offer predictive capabilities, causal inference methods provide insights into cause-and-effect relationships. As the field of causal inference continues to advance rapidly, there is ongoing development to address the complexities of spatial and temporal relationships within climate data. Continued development and refinement of statistical approaches are crucial to effectively analyze the multifaceted nature of climate data.

**Hwanhee: How can statisticians support and assist policymakers and activists to better understand the scale and urgency of the climate crisis?**

**Francesca:** Statisticians play a crucial role in supporting and assisting policymakers and activists to better understand the scale and urgency of the climate crisis. Communication and collaboration are key in this endeavor.

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First and foremost, statisticians should prioritize engaging with policymakers to understand their perspectives and the context in which policies are developed. By sitting down with policymakers, statisticians can gain insights into their needs and real-world challenges they face. This allows statisticians to tailor their research and statistical modeling to provide relevant and actionable information that can effectively inform policy decisions. Building strong relationships through effective communication is the foundation of this important process.

It is important to note that statisticians should not work in isolation. They should actively seek opportunities to engage with policymakers through conferences, workshops, and organizations such as the [National Academy of Sciences](#), the [Environmental Protection Agency](#), and professional associations like the [American Thoracic Association](#) and the [American Lung Association](#). These forums provide platforms for statisticians to interact with policymakers, exchange ideas, and discuss the latest research findings. By participating in these gatherings, statisticians can establish connections, share their expertise, and understand the data needs of policymakers in advancing their climate-related agendas. By understanding the needs of policymakers and offering their statistical expertise, statisticians can contribute to a better understanding of the urgency and scale of the climate crisis and help shape evidence-based policies for a sustainable future.

**Hwanhee:** Looking ahead, how do you see the role of statisticians evolving as the climate crisis continues to unfold?

**Francesca:** Statistics plays a critical and indispensable role in addressing this global challenge of climate crisis. While individual contributions may appear small, statisticians can make a substantial impact by seizing every opportunity to engage with climate-related data, research, and discussions. Looking ahead, statisticians should actively seek opportunities to participate in statistical conferences, scientific conferences, and interdisciplinary talks that focus on climate data. By immersing themselves in these environments, they can become more familiar with the available data and the key questions being addressed in the field. Starting with small projects, statisticians can gradually expand their contributions and build on their expertise. Regardless of their specific skills, whether it's prediction, forecasting, modeling, or causal inference, statisticians possess valuable tools that can be effectively utilized to tackle the climate crisis. By working collaboratively with policymakers, scientists, and activists, statisticians can contribute to making significant progress in mitigating the effects of climate change. ■

## Events! Meetings! Dates! Deadlines!

**[JSM 2023](#) – Joint Statistical Meetings**

@ Toronto. August 5-10, 2023.

**ENAR 2024 – Biometrics Society - Eastern North American Region**

@ Baltimore, MD. March 10-13, 2024.

**ICHPS 2025 – International Conference on Health Policy Statistics**

@ TBD. January 2025.