Workshops to Support EPA's Development of Human Health Assessments: Triangulation of Evidence in Environmental Epidemiology

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International numbers available: https://nas-sec.zoomgov.com/u/anVDuRP70

MONDAY, MAY 9, 2022 (all times listed in ET)

Overview

- Triangulation refers to the practice of integrating results to inform and strengthen causal inferences. It provides a framework for considering and utilizing as much information as possible to address a research question. Its objective is to integrate results from different approaches, recognizing that each approach may have different, unrelated sources of potential bias.
- At the request of the Environmental Protection Agency, the National Academies of Sciences, Engineering, and Medicine is convening a two-day virtual workshop to address these key questions:
  - What is triangulation and how has it been used to synthesize results within and across epidemiologic studies?
  - What challenges have been experienced in applying epidemiology in chemical hazard identification and other assessments of environmental stressors?
  - What advancements are emerging or are envisioned to improve causal inference methodologies?
  - What are the opportunities and best practices for implementation?

11:00–11:30 Welcome and Introductions

Kaley Beins, National Academies Responsible Staff Officer
Elaine Faustman, Committee Chair
Kristina Thayer, U.S. EPA Sponsor

11:30–1:20 Session I. Triangulation: Background, Methodologies, and Applications

Deborah Lawlor, University of Bristol
Triangulating epidemiological evidence: From focused qualitative comparison to systematic qualitative integration

Eric Tchetgen Tchetgen, Wharton School of the University of Pennsylvania
Towards Causal Triangulation via Multiply Robust Identification

Neil Pearce, London School of Hygiene & Tropical Medicine
Evidence synthesis, triangulation, and algorithms

Panel Discussion

Committee Moderator: **Aisha Dickerson**
Panelists:
Session I Presenters
Kyle Steenland, Emory University

Public Q&A

BREAK

1:35–3:40 **Session II. Health Authority Perspectives on Synthesis of Epidemiologic Evidence**

Rebecca Nachman, U.S. Environmental Protection Agency
Surveying the Epidemiology Evidence: Examples of Triangulation from the IRIS Program

Mary Schubauer-Berigan, IARC Monographs Programme
Triangulation within and across evidence streams in the IARC Monographs program of cancer hazard identification

Jonathan Samet, Colorado School of Public Health
Anything new? Evidence integration is triangulation

Ruth Lunn, National Toxicology Program
Cancer Hazard Evaluations: Report on Carcinogen's Perspectives

Joseph Haney, Texas Commission on Environmental Quality
Triangulation in Hexavalent Chromium Carginogenicity Assessments

Panel Discussion

Committee Moderator: **Laura Beane Freeman**
Panelists:
Session II Presenters

Public Q&A

BREAK

4:15–5:30 **Session III. Poster Presentations and Virtual Networking**

The poster session and virtual networking will be held via the ePosterboards platform. This session is separate from the Zoom webinar used for the other sessions. To make an account and access the poster presentations and virtual networking, please visit https://events.eposterboards.com/e/nasem-triangulation/register.

END OF DAY 1

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WEDNESDAY, MAY 11, 2022 (all times listed in ET)

11:00–11:05 **Welcome**
Elaine Faustman, Committee Chair

11:05–2:05 **Session IV. Case Studies of Triangulation Across Epidemiology Studies for Hazard Identification and Risk Assessment**

Hanna Boogaard, Health Effects Institute
Evidence synthesis of Observational Studies in Environmental Health: Lessons Learned from a Systematic Review on Traffic-Related Air Pollution

Roel Vermeulen, Institute for Risk Assessment Sciences, Utrecht University
Human Health Assessment: the need for a pluralistic approach.

Amy Berrington de Gonzalez, National Cancer Institute
Triangulation for hazard identification: an example from low-dose radiation epidemiology

David Savitz, Brown University School of Public Health
Triangulation across Distinctive Subsets of Epidemiologic Studies on PFAS

John Jackson, Johns Hopkins Bloomberg School of Public Health
On the Need for Triangulation of Evidence when Building Interventions for Health Equity

Panel Discussion
Committee Moderator: **David Richardson**
Panelists:
Session IV Presenters

Public Q&A

BREAK

2:30–3:30 **Session V. Poster Presentations and Virtual Networking**

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3:30–4:45 **Session VI. Next Steps and Opportunities for Applying Triangulation**

Martyn Smith, University of California, Berkeley School of Public Health
The key characteristics approach in epidemiology, toxicology and hazard identification

Tracey Woodruff, University of California, San Francisco
Lessons learned from over a decade of systematic review implementation to improve evidence integration

Lisa Bero, Colorado School of Public Health
Triangulation: Nothing new about using the best evidence to answer a question

Panel Discussion
Committee Moderator: **Nicholas Chartres**
Panelists:
Session VI Presenters
Ellen Chang, Exponent
Lianne Sheppard, University of Washington
Kyla Taylor, National Institute of Environmental Health Sciences

BREAK

5:00–6:00 **Session VII. Workshop Summary**

Session Summaries

- Triangulation: Background, Methodologies, and Applications
  - **Aisha Dickerson**
- Health Authority Perspectives on Synthesis of Epidemiologic Evidence
  - **Laura Beane Freeman**
- Case Studies of Triangulation Across Epidemiologic Studies for Hazard Identification and Risk Assessment
  - **David Richardson**
- Next Steps and Opportunities for Applying Triangulation
  - **Nicholas Chartres**

Panel Discussion
Committee Moderator: **Elaine Faustman**
Panelists:
Committee Members

Workshop Conclusion
Elaine Faustman, Committee Chair

MEETING ADJOURNS