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Using Epidemiological Studies in Health Risk Assessments: Relevance, Reliability and Causality

International Conference,
Final Announcement,
Scientific programme

9–10 November 2023, Berlin

efsa
EUROPEAN FOOD SAFETY AUTHORITY

BfR
German Federal Institute for Risk Assessment

International Conference on Using Epidemiological Studies in Health Risk Assessments

The International Conference on Using Epidemiological Studies in Health Risk Assessments will take place November 9–10, 2023 in Berlin, Germany.

Observational epidemiological studies can provide valuable evidence for health risk assessments in various areas including food and feed safety, chemical and product safety, occupational health, environmental health and animal health.

However, the use of epidemiological data to assess health risks is often not systematic. The presumed inability of observational studies to demonstrate a causal relationship may even lead to their exclusion from the evidence assessment although they may provide valuable evidence for example in a weight-of-evidence approach.

Risk assessors may encounter challenges when using epidemiological data for their assessments. Some of these are related to the approaches for the critical appraisal of the evidence of individual studies. For example, the critical appraisal should consider uncertainties in the methods used to determine exposures, risk factors and outcomes. Uncertainty about the causal nature of an observed association is a central question in the use of epidemiological evidence in health risk assessment.

At this conference, epidemiologists, health statisticians, risk assessors, other users of epidemiological evidence (e.g. toxicologists and nutritionists) as well as risk managers and stakeholders are invited to share and discuss their experiences to promote the use of epidemiological data for health risk assessments. This announcement contains the scientific programme of the conference including workshops and selected quotes.

Preview quotes

> "The disciplines of risk assessment and epidemiology would both benefit with better mutual understanding and collaboration; tools that can help are available.

Judy LaKind, Ph.D.
University of Maryland

> "Epidemiological studies play a pivotal role in health risk assessment because of studying humans in their real life, but a critical assessment of potential bias is crucial.

Joachim Schüz, Ph.D.
IARC, WHO

> "ROBINS-E is a new tool to assess the risk of bias in an estimate, from an observational study of humans, of the effect of an exposure on an outcome. It was carefully developed by an international collaborative group based on principles of causal inference.

Julian P. T. Higgins, Ph.D.
Bristol Medical School

> "To provide credible answers about risk assessment, trustworthy evidence synthesis and assessment of bias for a body of evidence is essential. This must be done in a structured and transparent way to inform consumers best.

Holger Schünemann, MD., MSc, Ph.D., FRCPC
McMaster University, Cochrane Canada

"Epidemiologic studies present a crucial element of risk assessment, being able to derive effect sizes in (relatively) unselected populations under real-life exposure conditions.

Barbara Hoffmann, MD., MPH
Heinrich Heine University of Düsseldorf

"Cognitive and social biases are more pervasive and important than recognized in most methodological literature; statistical methods are a major source of these biases.

Sander Greenland, Dr.P.H., MD. (hon.),
University of California, Los Angeles

"Risk analysis is a global, interdisciplinary process – we have a duty to work across borders and disciplines to make sure our food is safe forpeople around the world to enjoy.

Susan Jebb, OBE, Ph.D.
University of Oxford

"Observational epidemiological studies can be valuable for health risk assessments in a weight-of-evidence approach, provided that the previous critical appraisal of the methodology used and reporting of data does not identify high risk of bias.

Antonio Hernández Jerez, MD., Ph.D.
University of Granada

"Proper use of epidemiological evidence is a key to any risk assessment. The problem is that it can sometimes be tricky.

Thorhallur Halldorsson, Ph.D.
School of Health Sciences, University of Iceland

"The challenge: The methodology for animal data to be used in quantitative toxicological risk assessment cannot be transferred 1:1 to epidemiological data.

Dieter Schrenk, MD, Ph.D.
University of Kaiserslautern-Landau

Conference programme

The conference is a two-day event with pre-conference workshops and will be composed of invited and submitted talks and a poster session. All events take place at the conference venue including the social evening.

Thursday, 09 November 2023

08:00–14:00	Registration

Pre-conference workshops

09:00–10:30	**The OHAT approach for assessing risk of bias in epidemiological studies** Kyla W Taylor, Andrew A Rooney National Institute of Environmental Health Sciences, Durham, USA
10:30–12:00	**Epidemiological evidence in the context of risk assessment and introduction and usage of the raRoB tool** Sven Knüppel, Kristina Plate German Federal Institute for Risk Assessment (BfR), Berlin, Germany
12:00–13:00	Lunch break

Conference opening

13:00–13:15	**Welcome** Tanja Schwerdtle Vice President of the German Federal Institute for Risk Assessment (BfR), Berlin, Germany Carlos Gonçalo das Neves Chief Scientist of the European Food Safety Authority (EFSA), Parma, Italy

Topic I: Using epidemiological studies in health risk assessments (Part 1)

13:15–14:00	**Keynote 1:** **Epidemiology and risk assessment:** **reflections on working together to improve public health** Judy LaKind LaKind Associates, LLC, Catonsville, USA and University of Maryland-School of Medicine, Baltimore, USA
14:00–14:20	**Good practice occupational epidemiological systematic reviews – a recommendation paper** Janice Hegewald[1], Maria Girbig[2], Rebecca Wolf[1], Melanie Schubert[2], Ulrich Bolm-Audorff[2], Karla Romero Starke[2], Alice Freiberg[2], Andreas Seidler[2], on behalf of the „Gute Praxis arbeitsepidemiologische systematische Reviews" (GPAR) working group [1]Federal Institute for Occupational Safety and Health (BAuA), Berlin, Germany [2]Technical University of Dresden, Germany

14:20–14:40	**Notes on the use of epidemiological and toxicological data for risk assessment** Emily A. McVey, Sylvia Notenboom, Guangchao Chen, Rik Bogers, Peter Engelfriet, Gerrit Wolterink, Annemieke Spijkerman, Astrid Bulder National Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands
14:40–15:00	**Diminished semen quality following early exposure to persistent organic pollutants (POPs) as critical effect in health risk assessment?** Klaus Abraham[1], Deborah Kurz[2], Tanja Schwerdtle[1], Cornelia Weikert[1], Dietrich Rothenbacher[2] [1]BfR, Berlin, Germany [2]University of Ulm, Germany
15:00–15:45	Coffee break

Topic I: Using epidemiological studies in health risk assessments (Part 2)

15:45–16:30	**Keynote 2:** **Opportunities and challenges of using epidemiological studies in health risk assessment from an IARC perspective** Joachim Schüz International Agency for Research on Cancer (IARC/WHO), Lyon, France
16:30–16:50	**Use of epidemiological data in microbiological risk assessments: two case studies from the UK Food Standards Agency** Erica Kintz Food Standards Agency, London, UK
16:50–17:10	**Use of epidemiological studies in a benefit and risk assessment of fish intake by the Norwegian Scientific Committee for Food and Environment (VKM)** Lene F Andersen[1,2], Helle K Knutsen[2,3], Bente Mangschou[2], Christine L Parr[2] on behalf of the Norwegian Scientific Committee for Food and Environment (VKM) project group, and VKM Scientific Steering Committee [1]University of Oslo, Norway [2]Norwegian Scientific Committee for Food and Environment (VKM), Oslo, Norway [3]The Norwegian Institute of Public Health, Oslo, Norway
17:10–17:30	**Use of epidemiological studies to assess nutritional risk of vegetarian diets** Perrine Nadaud[1], Sabine Houdart[1], Emmanuelle Kesse-Guyot[2] [1]French Agency for Food, Environmental and Occupational Health & Safety, Maisons-Alfort, France [2]Université Sorbonne Paris Nord, France

Closing of day 1

17:30-18:00	**Brief statements**
	Susan Jebb, chair of the United Kingdom's Food Standards Agency (FSA)
	Antonio Hernández Jerez, chair of the EFSA PPR Panel Full & Department of Legal Medicine and Toxicology, Faculty of Medicine University of Granada
	Thorhallur Halldorsson, School of Health Sciences, University of Iceland & chair of EFSA working group on appraisal and integration of evidence from epidemiological studies
18:00–22:30	**Social evening: Get together (at conference venue)**

Friday, 10 November 2023

08:00	Registration

Topic II: Critical appraisal of individual epidemiological studies (Part 1)

08:30–09:15	**Keynote 3:**
	Assessing risk of bias in estimates of the effects of exposures: the ROBINS-E tool
	Julian PT Higgins
	Bristol Medical School, UK
09:15–09:35	**Application feature improvements in support of human health assessments: optimisations for epidemiology data extraction**
	Sean Watford[1], Krista Y. Christensen[1], Elizabeth Radke[1], Andy Shapiro[2]
	[1]US Environmental Protection Agency, Washington, DC, USA
	[2]US Environmental Protection Agency, Research Triangle Park, USA
09:35–09:55	**Probability bounds analysis as a way open up for semi-automatic quantification of bias terms in RoB – adjusted evidence synthesis**
	Ullrika Sahlin
	Lund University, Sweden
09:55–11:25	**Poster session and Coffee break**

Topic II: Critical appraisal of individual epidemiological studies (Part 2)

11:25–12:10	**Keynote 4:**
	Assessing the certainty in a body of evidence for studies addressing the effect of an exposure on an outcome
	Holger Schünemann
	McMaster University, Hamilton, Canada and Cochrane Canada
12:10–12:30	**The OHAT approach to assessing risk-of-bias in individual epidemiological studies to support evidence integration and public health decision making**
	Kyla W Taylor, Andrew A Rooney
	National Institute of Environmental Health Sciences, Durham, USA

12:30–12:50	**A tool for rapid assessment of risk of bias (raRoB) in observational epidemiologic studies**
	Kristina Plate[1], Sven Knüppel[1], Narges Ghoreishi[1], Anselm Hornbacher[1], Kerstin Schmidt[2], Henning Thole[3], Christine Müller-Graf[1], Matthias Greiner[1]
	[1]BfR, Berlin, Germany
	[2]BioMath GmbH, Rostock, Germany
	[3]National Association of Statutory Health Insurance Physicians, Berlin, Germany and SRH University of Applied Health Sciences, Gera, Germany
12:50–14:00	Lunch break

Topic III: Appraising the epidemiological evidence on causality (Part 1)

14:00–14:45	**Keynote 5**
	Cause or correlation? – the case of air pollution
	Barbara Hoffmann
	Heinrich-Heine-University of Düsseldorf, Germany
14:45–15:05	**Surveying the epidemiology evidence:**
	examples of triangulation from the IRIS program
	Krista Y Christensen, Rebecca Nachman, Thomas Bateson, Elizabeth Radke-Farabaugh
	Center for Public Health and Environmental Assessment, Washington, DC, USA
15:05–15:25	**Epidemiological results on pesticides and cancer, just a matter of p values and confounding?**
	Pierre Lebailly[1], Isabelle Baldi[2]
	[1]Centre François Baclesse, Caen, France and University of Caen Normandy, France
	[2]University of Bordeaux, France
15:25–16:10	Coffee break

Topic III: Appraising the epidemiological evidence on causality (Part 2)

16:15–17:00	**Keynote 6**
	Proper construction and interpretation of statistics for causality assessment and policy input
	Sander Greenland
	University of California, Los Angeles, USA
17:00–17:20	**The UK Committees on Toxicity (COT) and on Carcinogenicity (COC) of chemicals in foods, consumer products and the environment: guidance for synthesising and integration of epidemiological and toxicological evidence**
	Barbara Doerr[1], Alan Boobis[2]
	[1]Food Standards Agency, London, UK
	[2]Imperial College London, UK

	Panel discussion and conclusion
17:20–18:10	**Panel discussion** Selected speakers & Prof. Dieter Schrenk, chair of the EFSA Panel on Contaminants in the Food Chain.
18:10	**Concluding remark** Matthias Greiner BfR, Berlin, Germany
18:15	Conference closing

Online streaming of the conference will be available to registered delegates.

Keynote speakers

- **Sander Greenland**, Dr.P.H., M.D. (hon.), Research Professor and Emeritus Professor of Epidemiology and Statistics – University of California.
- **Judy LaKind**, Ph.D., President of LaKind Associates, Adjunct Associate Professor at the Department of Epidemiology and Public Health – University of Maryland.
- **Julian PT Higgins**, Ph.D., Professor of Evidence Synthesis in the Population Health Sciences department – Bristol Medical School, Head of the Bristol Appraisal and Review of Research (BARR) group.
- **Joachim Schüz**, Ph.D., Head of the Environment and Lifestyle Branch of IARC/WHO, International Agency for Research on Cancer, World Health Organization.
- **Barbara Hoffmann**, MD MPH, Professor and Head of Environmental Epidemiology, Deputy Head of the Institute of Occupational, Social and Environmental Medicine at the Centre for Health and Society – Heinrich-Heine-University of Düsseldorf.
- **Holger Schünemann**, MD Ph.D., Professor of Clinical Epidemiology and Medicine – McMaster University, Director at Cochrane Canada and McMaster GRADE centre.

Topics

Topic 1
Using epidemiological studies in health risk assessments
Discussion and exchange on the current state of the use of epidemiological evidence in risk assessment.

Keywords: risk assessment context and requirements – case studies – limitations – challenges – good practices

Topic 2
Critical appraisal of individual epidemiological studies
Critical appraisal of the body of evidence plays a central role in the field of risk assessment and therefore requires well-established and standardised methods. Established methods and tools as well as new developments in the field of critical appraisal and risk of bias (RoB) of epidemiological studies assessment will be presented and discussed.

Keywords: critical appraisal – evidence based methods – risk of bias – automatisation / natural language processing

Topic 3
Appraising the epidemiological evidence on causality
Within this topic, current perspectives on how evidence from epidemiological studies can be used to answer causality questions will be presented and discussed.

Keywords: casual pathways – causality and artificial intelligence – statistical learning – weight of evidence

Pre-conference workshops

As a pre-conference programme, workshops on two different instruments for the assessment of risk of bias will be offered and held as a joint event that is equally geared towards expert-based analyses and rapid assessments through non-professionals.

Pre-conference workshop 1:
The OHAT approach for assessing risk of bias in epidemiological studies
Kyla W Taylor, Andrew A Rooney
National Institute of Environmental Health Sciences, Durham, USA

The OHAT (Office of Health Assessment and Translation) systematic review framework addresses study credibility by assessing internal validity or "risk of bias" – the assessment of whether the design and conduct of a study compromised the credibility of the association between exposure and outcome. The OHAT approach supports the development of confidence and hazard conclusions by allowing for comparison of particular risk-of-bias issues across a body of evidence and facilitating comparison of the strengths and weaknesses of different bodies of evidence. The goal of the workshops is to introduce the tool and provide instructions on how to use them.

Pre-conference workshop 2:
Epidemiological evidence in the context of risk assessment and introduction and usage of the raRoB tool
Sven Knüppel, Kristina Plate
German Federal Institute for Risk Assessment (BfR), Berlin

In the critical appraisal of observational epidemiological studies, an important part consists of assessing study design and methods for bias (systematic errors). With support of an EFSA Framework Partnership Agreement the BfR is developing and validating the raRoB tool (rapid assessment of Risk of Bias), which can be applied quickly and is as easy to understand as possible also by non-epidemiologists.

The workshops will be free of charge and held in presence. The number of workshop places is limited

Scientific Committee

Marios Georgiadis
Senior Scientific Officer, Epidemiologist at European Food Safety Authority (EFSA), Parma, Italy

Cornelia Weikert
Professor and head of Unit Risks of Subpopulations and Human Studies and Human Study Centre Consumers Health Protection, German Federal Institute for Risk Assessment (BfR), Berlin

Thor Halldorsson
Professor at Faculty of Food Science and Nutrition, School of Health Sciences, University of Iceland; Senior researcher, Department of Epidemiology Research Statens Serum Institut, Copenhagen, Denmark

Katja Ickstadt
Professor at Department of Statistics, TU Dortmund University

Matthias Greiner
Professor at University of Veterinary Medicine Hannover, Foundation; Head of Department of Exposure, German Federal Institute for Risk Assessment (BfR), Berlin

Organisational information

Venue

German Federal Institute for Risk Assessment (BfR)
Lecture theatre
Diedersdorfer Weg 1
12277 Berlin (Marienfelde)

Directions

https://www.bfr.bund.de/en/locations-5524.html
Destination stop (www.bahn.com/en, www.bvg.de/en)
Nahmitzer Damm/Marienfelder Allee (Berlin)

Landing page

https://www.bfr-akademie.live/
Registration for online participation is still open

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About the BfR

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the German Federal Ministry of Food and Agriculture (BMEL). It advises the Federal Government and the federal states ("Laender") on questions of food, chemicals and product safety. The BfR conducts its own research on topics that are closely linked to its assessment tasks.

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