

Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology (ISES-ISEE 2018)

Addressing Complex Local and Global Issues
in Environmental Exposure and Health

Ottawa, Canada
26-30 August 2018

Volume 1 of 3

ISBN: 978-1-5108-9755-7

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2018) by International Society of Exposure Science (ISES)
All rights reserved.

Printed with permission by Curran Associates, Inc. (2019)

For permission requests, please contact International Society of Exposure Science (ISES)
at the address below.

International Society of Exposure Science (ISES)
c/o Infinity Conference Group
1035 Sterling Road, Suite 202
Herndon VA 20170
USA

Phone: (703) 925-9620
Fax: (703) 925-9453

info@intlexposurescience.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

PLENARY & ORAL SESSIONS	10
Sunday, August 26	10
The Role of Occupational Studies in Expanding Our Knowledge of Environmental Carcinogens.....	10
Monday, August 27	11
Climate Change: the Greatest Public Health Challenge of Our Time	11
The Health of the Land and Our Culture: Indigenous Rights as Pathways to Healthy Environments	12
001.01A. Chemical Exposures and Fish Consumption	13
001.01B. Occupational Exposures and Respiratory Outcomes	17
S01.01A. Addressing Complex Local and Global Issues in Environmental Exposure and Health: Addressing the Health of Children and Adolescents.....	21
S01.01B Air Pollution and Physical Activity: Environmental Health Perspective	25
S01.01C. Air Pollution Exposure and Metabolomics	29
S01.01D. Bronchiolar and Interstitial Lung Disease by Occupational and Environmental Exposure: Their Implication and Future Task to Be Solved for Health Protection.....	33
S01.01E. Climate, Air Pollution, and Environmental Health in Africa 1	37
S01.01F Complex Rural Exposures and Health.....	41
S01.01G. Evaluating High-Throughput New Approach Methods (NAM) for Exposure	45
S01.01H. Harmonization of Biomonitoring Measurements: Approaches Used by Laboratory Networks in Canada, Europe and the United States.....	49
S01.01I. Mobilizing Data for Healthy Environments: Platforms Facilitating Health and Environmental Exposure Linkage	53
S01.01J. Multi-Response and Multi-Pollutant Models for Environmental Exposure and Health: From Gap-Filling to Decorrelating Structure in Data	57
S01.01K. Novel Methods for Assessing Complex Exposure Mixtures in Environmental Epidemiology	61
001.02A. Cancer and the Environment.....	65
001.02B. Cardiopulmonary Outcomes Associated with Long-Term Exposure to Air Pollution.....	71
001.02C. Characterizing Near-Road and Point Sources of Air Pollution.....	78
001.02D. Climate and Health.....	84
001.02E. Environmental Exposures and Adult Health Outcomes	90
001.02F. Exposures and Health Impacts of Perfluorinated Substances	97
001.02G. Exposures in Contaminated Communities and Children's Health	102
001.02H. Neurodevelopmental Outcomes Associated with Perinatal Exposure to Air Pollution..	108
001.02I. New Policy Directions in Exposure Assessment and Environmental Epidemiology.....	114
S01.02A. Advances in Air Pollution Exposure Assessment for Population Health Studies in Low and Middle Income Countries: Insights from India and Beyond.....	119

S01.02B. High-Resolution Metabolomics: A Platform Linking the External and Internal Environment	124
S01.02C. Investigating Chemical Constituents and Exposure Potential in Recycled Tire Crumb Rubber Infill Used in Playing Fields and Playgrounds: State, Federal, and International Governmental Perspectives	130
S01.02D. Sound Off for Environmental Noise Research: Milestones in Exposure Assessment and Health Evidence.....	136
O01.03A. A Closer Look At Exposures to Flame Retardants	141
O01.03B. A Global Look at Lead Exposures.....	147
O01.03D. Effects of Heat Waves	153
O01.03E. Environmental Exposures and Birth Outcomes	159
O01.03F. Natural Environment and Health.....	165
O01.03G. Occupational Exposure and Worker Health.....	171
O01.03H. Panel Studies of Air Pollution, Inflammation, COPD, and Lung Function	177
O01.03I. Social, Economic, and Demographic Disparities in Air Pollution Exposure and Health Outcomes	183
O01.03J. Transportation System and Health.....	189
O01.03K. Stress, Inflammation, and Cardiopulmonary Outcomes in Scripted and Experimental Air Pollution Exposure Studies.....	195
S01.03A. Effects of Prenatal Exposure to Environmental Neurotoxicants on Health and Neurodevelopment	201
S01.03B. Food, Nutrition and Environmental Health among First Nations in Canada.....	208
S01.03C. High Resolution Air Pollution Mapping: Translating Data to Action	214
O01.04A. Air Pollution, Asthma and Allergic Disease	219
O01.04B. Application of Machine Learning Methods to Develop Spatiotemporal Models of Air Pollution	225
O01.04C. Neurological and Cognitive Outcomes Associated with Air Pollution.....	230
O01.04D. Novel Approaches in Environmental Epidemiology	233
O01.04E. Prenatal Metals Exposure	238
S01.04A. Addressing Complexities through Partnership and Collaboration in the Arctic	245
S01.04B. Aggregate Exposure and Cumulative Risk Assessments in the Euromix Project	249
S01.04C. Assessing Health and Well-Being Benefits of Exposure to Natural Environments: Methodological Challenges and Opportunities.....	254
S01.04D. Biomonitoring Data from the Canadian Health Measures Survey in Risk Assessment: A Decade of Progress.....	258
S01.04E. Clean Cooking Implementation Science to Understand Complex Determinants of Clean Fuel Technology Adoption.....	263
S01.04F. Climate, Air Pollution, and Environmental Health in Africa 2	268
S01.04G. Emerging Evidence on Exposures to Ultrafine Particles	272

S01.04H. Updates on the CKDu Epidemic and New Directions for Coordinated Research	276
Tuesday, August 28	280
WHO Global Strategy on Health, Environment and Climate Change.....	280
How Can Birth Cohort Studies Contribute to Knowledge and Policies of the World to Reduce Risks of Emerging Contaminants?	281
O02.01A. Air Pollution and Diabetes.....	282
O02.01B. Air Pollution Related Hospitalization, Mortality, and Life Expectancy.....	287
O02.01C. Methods in Occupational Exposure Assessment.....	292
O02.01D. Predicting Indoor Particulate Matter Concentrations	297
O02.01E. Understanding Early Life Exposures and Nutritional Health through the Exposome	302
S02.01A. Challenges of Assessing Non-Tailpipe Emissions for Urban Air Quality and Health	307
S02.01B. Contaminant Exposures in Indigenous Communities: Tribal Research Avenues and Health Effects.....	312
S02.01C. Critical Exposure Windows, Selection Biases and Novel Methods: Methodological Complexities in Reproductive Environmental Epidemiology	317
S02.01D. Exposures and Health Effects Related to Unconventional Oil and Gas Development	322
S02.01E. Fluoride Exposure and Health Outcomes in North America	327
S02.01F. Healthy Climate Solutions: What is the Evidence for Health Benefits of Climate Change Mitigation Strategies?	332
S02.01G. New Approaches for Environmental Health Impact Studies: Assessing Human Health Risks from Chemical and Non-Chemical Stressors.....	336
S02.01H. Research-To-Action Gaps: How Can We Implement Successful Programs to Reduce Exposure to Lead and Other Environmental Contaminants in Low and Middle-Income Countries?	341
O02.02A. Advances in Ambient Air Pollution Modeling 1.....	345
O02.02B. Ambient Air Pollution and Cardiopulmonary Morbidity and Mortality	350
O02.02C. Chemical Exposures and Interventions Using Systematic Reviews	355
O02.02E. Household Environmental Risk Factors and Health.....	360
O02.02F. Lead Exposure and Health Effects across the Lifespan.....	365
S02.02A. E-Waste: A Growing Global Problem and Next Steps	370
S03.04B Exposure and Risk Assessment of Chemicals in Consumer Articles.....	374
S02.02C. Monitoring Versus Modeling PM2.5 Concentrations: Does It Matter for Air Pollution Health Effects?	379
S02.02D. Opportunity to Accelerate Knowledge on Complex Developmental Chemical Exposures and Child Health: Environmental Influences on Child Health Outcomes (ECHO)	384
S02.02E. Solutions for Tackling the Link between Complex Exposures and Human Health.....	389
S02.02F. The Complexity of Microbiomes for Exposure Science	394

S02.02G. The Fluoridation Decision: Considering the Evidence for Benefits, Possible Risks as Well as Ethical World Views.....	397
S02.02H. Exploring Current Worker Exposure Tools and their Capability to Support Risk Evaluations of Chemicals Under Amended TSCA.....	401
O02.03A. Air Pollution and Vegetation	405
O02.03B. Effects of Temperature 1.....	411
O02.03C. Exposure and Health Effects Related to Waste	417
O02.03D. Exposure Assessment, Susceptibility, and Demographic Factors in Studies of Air Pollution Mediated Mortality	423
O02.03E. Global Health Equity Issues Related to Pesticide Use	429
O02.03F. Interventions to Reduce Household Air Pollution from Cooking and Biomass Burning..	434
O02.03G. Noise Effects 1.....	441
O02.03H. Phthalate Exposure and Children's Health.....	447
O02.03I. Source-Specific Air Pollution Exposures and Health.....	453
S02.03A. Advances in Assessment of Dermal Exposures and Absorption	459
S02.03B. Embracing Complexity: Frontiers in High-Resolution Air Pollution Exposure Assessment	464
S02.03C. Fossil Fuels, Environmental Epidemiology, and the 2008 UN Declaration on the Rights of Indigenous Peoples (UNDRIP)	469
S02.03D. The European Human Biomonitoring Initiative HBM4EU: Harmonizing Exposure and Health Risk Assessment in Europe to Support Science and Policy.....	475
O02.04A. Air Pollution, Pregnancy and Perinatal Health Outcomes.....	483
O02.04B. Greenness Effects 1	488
O02.04C. Indicators of Cumulative Risks.....	493
O02.04D. Integration of Chemical Transport and Dispersion Models to Improve Spatiotemporal Air Pollution Estimates.....	498
O02.04E. Prenatal Pesticide Exposure	503
O02.04F. Air Pollution, Cognitive Function, and Mental Health	508
S02.04A. Children's Exposure to SVOC Mixtures in the Home Environment.....	513
S02.04B. Diving Deep: Mechanisms of Endocrine Disruptors in Pregnancy and Relevant Biomarkers	518
S02.04C. Toward a Degree of Willingness to Certify Causality: Weighting Epidemiological and Non-Epidemiological Evidence.....	523
S02.04D. Exposure Science and Health Impact Assessment in Service to Community Resilience for Fugitive Chemicals.....	528
S02.04E. Identifying Sources and Health Effects of Phenolic Consumer Product Chemicals: Product Use, Biomonitoring, and Time Trends.....	533
S02.04F. Strengthening Exposure Assessment in Environmental Epidemiology: Problem Identification and Suggestions for Path Forward.....	538

S02.04G. The Global Burden Estimates of the Impacts of Air Pollution: Methods, Innovative Applications, and WHO Results.....	542
Wednesday, August 29.....	547
003.01A. Carbon Monoxide and Radon in Residential Buildings	547
003.01B Estimating Air Pollution Exposures and Health Outcomes Associated with Wildfires.....	551
003.01C. Impacts and Evaluation of Arsenic Exposures	555
003.01D. Environmental Disasters and Climatic Events	559
S03.01A. Assessing Manganese Exposure in Pediatric Populations across the Globe	563
S03.01B. Environmental Exposures and Breast Cancer across the Life-Course: Interdisciplinary Collaborations to Stimulate New Research Approaches, Improve Exposure Assessment during Critical Windows, and Accelerate the Translation of Research Findings into Disease	567
S03.01C. Health Earth: Planetary Health Affects Everyone's Health	571
S03.01D. Healthy Schools: Understanding Indoor Environmental Quality, Occupant Health, and Academic Performance	575
S03.01E. Multidisciplinary Approaches for Traffic Related Burdens through Route Specific Exposures and Dose to Noise, Air Pollution and Quality of Life: Making Better Measurements ...	579
S03.01F. NASA Applications for Public Health and Air Quality Models and the Translation of Research Into Policy and Other Decision Making	583
S03.01G. Novel Methods for Assessing Exposure to Temperature and its Health Effects	587
S03.01H. Science and Action for Safer Materials and Products.....	591
S03.01I. Translating Scientific Evidence About near Source Traffic Pollution Into Policy and Practice	595
003.02A. Air Pollution, Atherosclerosis, and Cardiovascular Disease	599
003.02B. Air Pollution, Fetal Growth, and Birth Outcomes.....	605
003.02C. Assessing Microenvironmental Air Pollution Exposures and Health.....	611
003.02D. Geographic Location and Cancer	617
003.02E. Health Effects Related to PCBs Exposure.....	623
003.02F. New Advancements in Consumer Exposure Risk Assessment.....	629
003.02G. The Influence of Chemical Exposures on Vulnerable Populations.....	635
003.02H. Water Contaminants and their Effects.....	641
S03.02A. A Data and Research Platform for Healthy Cities: The Canadian Urban Environmental (CANUE) Health Research Consortium.....	647
S03.02B. Empowering Vital Environmental Health and Exposure Research to Address Disasters and Emerging Threats	652
S03.02C. Environmental Justice and Women's Health.....	657
S03.02D. Omics in Environmental Epidemiology for Understanding Current Environmental Health Issues	663
S03.02E. Why is My Sensor Not Working? - Making Sense of Sensor Technologies for Environmental Exposure and Health Studies.....	668

O03.03A. Advances in Ambient Air Pollution Modeling 2.....	675
O03.03B. Advancing Exposure Methodology through Suspect Screening and Non-Target Analysis	681
O03.03C. Air Pollution, Obesity, and Metabolic Disease	687
O03.03D. Cancer Epidemiology.....	693
O03.03E. Chemical Exposures in Vulnerable Populations.....	699
O03.03F. Exposures and Health Impacts: Smoking and E-Cigarettes	705
O03.03G. Greenness Effects 2.....	711
O03.03H. Health Outcomes and Biomarkers Associated with Household Cooking and Biomass Burning 1	717
S03.03A. Filling in the Gaps: Maximizing Data Linkages to Enhance Environmental Health Studies	723
S03.03B. Global Environmental and Occupational Health Hubs: Building Sustainable Research Capacity and Collaboration in Low- and Middle-Income Countries to Address Priority Health Threats.....	728
S03.03C. Milestones in Air Pollution Epidemiology: A Symposium in Honour of Dr. Richard T. Burnett	735
S03.03D. The Benefit of Sharing Data for Unravelling the Complex Issue of Combined Exposures to Multiple Chemicals and their Effects to Humans and the Environment and In Support of Policies in EU and Globally	740
S03.03E. Transforming Air and Water Quality Research Into Concrete Actions.....	747
O03.04A. Characterizing Long Term Trends in Air Pollution Using Stationary and Low Cost Monitoring.....	752
O03.04B. Health Outcomes Associated with Perinatal Exposure to Air Pollution	757
O03.04C. Multiple Exposures and Development	761
O03.04D. Social and Environmental Determinants and Health 2	766
S03.04A. Chemical Policy in the 21st Century: Comparing Canadian, US, European and Asian Approaches.....	771
S02.02B. Exposure and Risk Assessment of Chemicals in Consumer Articles.....	776
S03.04C. Effects of Long-Term Exposure to Ambient Air Pollution in the Asia-Pacific Region	781
S03.04D. Exposure to Pesticides and Heavy Metals in the African Context: Electronic Waste, Artisanal and Small-Scale Mining, and Indoor Residual Spraying	786
S03.04E. Exposure, Vulnerability, and Capacity Assessment for Health Risks of Climate Change: Measuring and Communicating the Effectiveness of Interventions and Policy Responses.....	790
S03.04F. Exposures to Emerging Trace Elements.....	795
S03.04G. The NIH Prisms Program: Informatics Systems for Pediatric Asthma Research with Integrated Sensor-Based Exposure, Context and Health Monitoring.....	800
S03.04H. Women at Work: How Exposed Are They?	804
Thursday, August 30.....	809

O04.01A. Simulation, Scenario, and Policy Modeling of Air Pollution Emissions and Health.....	809
O04.01B. Climate and Temperature Effects.....	816
O04.01C. Exposures and Effects in Communities.....	822
O04.01D. Health Outcomes and Biomarkers Associated with Household Cooking and Biomass Burning 2	828
O04.01E. Investigating Exposures to PAHs.....	834
O04.01F. New Methods and Novel Matrices in Chemical Monitoring	840
O04.01G. Noise Effects 2	846
O04.01H. PFAS and Metabolic Function	852
S04.01A. Neuroimaging in Studies of Children's Environmental Health.....	858
S04.01B. The Impact of Long-Range Wildfire Smoke Plumes on Air Quality and Health	863
O04.02A. Building Ventilation and Indoor Air Quality: Monitoring, Intervention, Risk Assessment, and Benefits Analysis.....	869
O04.02B. Effects of Temperature 2.....	875
O04.02C. Global Trends in Human Biomonitoring	881
O04.02D. Greenness Effects 3.....	887
O04.02E. Neurodevelopment in Children	893
O04.02F. New Methods, Models and Tools in Chemical Exposure Estimation	899
O04.02G. PFAS and Other Health Outcomes	905
O04.02H. Air Pollution Accountability and Quasi Experimental Studies	911
O04.02I. Social and Environmental Determinants and Health 1.....	917
S04.02A. Innovation in Community-Based Assessment of Residential Wood Smoke Exposure, Health and Solutions	923
POSTER SESSIONS	929
Sunday, August 26 & Monday, August 27: Student Poster Competition.....	929
P01. Weather, Climate and Disasters 1	929
P01. Built Environment, Noise and Greenness 1.....	949
P01. Exposure Measurement, Modeling and Other Methodological Issues 1.....	966
P01. Air Pollution 1	990
P01. Global Health, Environmental Health Disparities and Other Social Issues 1	1091
P01. Prenatal and Early Life Exposures and Effects 1.....	1142
P01. Adult Health Effects of Environmental Exposures 1.....	1175
P01. Biomarkers of Exposure and Effects 1.....	1194
P01. Risk Assessment and Policy 1	1211
P01. Occupational Issues 1	1227
Tuesday, August 28	1246
P02. Weather, Climate and Disasters 2	1246

P02. Built Environment, Noise and Greenness 2.....	1285
P02. Exposure Measurement, Modeling and Other Methodological Issues 2.....	1305
P02. Air Pollution 2.....	1325
P02. Global Health, Environmental Health Disparities and Other Social Issues 2	1426
P02. Prenatal and Early Life Exposures and Effects 2.....	1462
P02. Adult Health Effects of Environmental Exposures 2.....	1500
P02. Biomarkers of Exposure and Effects 2.....	1521
P02. Risk Assessment and Policy 2	1556
P02. Occupational Issues 2.....	1595
Wednesday August 29.....	1608
P03. Weather, Climate and Disasters 3.....	1608
P03. Built Environment, Noise and Greenness 3.....	1631
P03. Exposure Measurement, Modeling and Other Methodological Issues 3.....	1647
P03. Air Pollution 3.....	1680
P03. Global Health, Environmental Health Disparities and Other Social Issues 3	1782
P03. Prenatal and Early Life Exposures and Effects 3.....	1814
P03. Adult Health Effects of Environmental Exposures 3.....	1853
P03. Biomarkers of Exposure and Effects 3.....	1878
P03. Risk Assessment and Policy 3	1913
P03. Occupational Issues 3.....	1944

AUTHOR LIST