Children's Environmental Precision Institute (CEPH)

CONTACT
Director: Hyunok Choi, PhD, MPH
Email: hyc (hyc219@lehigh.edu)219@lehigh.edu (edg219@lehigh.edu)
Phone: 610.758.2626
Website: health.lehigh.edu/research-partnerships/childrens-environmental-precision-health-institute (https://health.lehigh.edu/research-partnerships/childrens-environmental-precision-health-institute/)

core Faculty & staff

- Hyunok Choi, PhD, MPH (https://health.lehigh.edu/faculty/choi-hyunok/), Associate Professor and Director, Children's Environmental Precision Health Institute
- Parv Venkitasubranamian, PhD, Professor, Electrical & Computer Engineering
- Breena Holland, PhD (https://polisci.cas.lehigh.edu/faculty-staff/breena-holland/), Political Science, Associate Professor, Lehigh University
- Jeremy Mack, MS (https://lts.lehigh.edu/profile/jeremy-mack/), Geospatial Data Visualization Specialist, LTS, Lehigh University
- Fathima Wakeel, PhD, MPH (https://health.lehigh.edu/faculty/wakeel-fathima/), Associate Professor and Director of Graduate Programs

Affiliated Faculty

- Karen Beck-Pooley, PhD (https://polisci.cas.lehigh.edu/faculty-staff/karen-beck-pooley/), Professor of Practice, Political Science, Lehigh University
- Aimin Chen, MD, PhD (https://www.dbei.med.upenn.edu/bio/aimin-chen-md-phd%C2%A0/), Professor of Epidemiology, Perelman School of Medicine, University of Pennsylvania
- Lifang He, PhD (https://engineering.lehigh.edu/cse/faculty/11317/), Computer Science & Engineering, Assistant Professor, Lehigh University
- Suk-Mei Ho, PhD (https://ncsdvs.uams.edu/ResearcherDirectory/member/?memberId=178), Vice-Provost for Research and Professor, University of Arkansas
- John Spengler, PhD (https://www.hsph.harvard.edu/john-spengler/), Akira Yamaguchi Professor of Environmental Health and Human Habitation, Harvard T. H. Chan School of Public Health
- Taeho Kim (https://www.lehigh.edu/~tak422/index/), PhD, Assistant Professor, Department of Mathematics, College of Arts and Sciences, Lehigh University
- Dimitrios Vavylonis (https://physics.cas.lehigh.edu/faculty-staff/dimitrios-vavylonis/), PhD, Professor, Department of Physics, Lehigh University
- Muzhe Yang (https://www.lehigh.edu/~muy208/muy208.html), PhD, Professor, Department of Economics, Lehigh University
- Bin Zhang, PhD (https://icahn.mssm.edu/profiles/bin-zhang/), Professor of Genetics and Genomic Sciences and Pharmacological Sciences, Mount Sinai School of Medicine
- Min Zhong, PhD, Bureau of Air Quality, Pennsylvania Department of Environmental Protection
- Ainur Khumar, Doctor of Public Health, Kazakh National Medical University

graduate research Students

- Zhanara Sabydilla (Kazakh National Medical University)
- Dong-Mei Wang, MD

Mission

Does cancer begin when you are growing in the womb? How do your inherent susceptibility factors (e.g., genome, adductome, and transcriptome) interact with environmental exposures (e.g., airborne toxics) and physical home, indoor, neighborhood, and school conditions to increase your risk of asthma, allergies, and obesity? Are you more susceptible to such diseases if exposed to environmental toxics as a fetus or an infant? The Children's Environmental Precision Health (CEPH) Institute aims to answer these questions. A better understanding will help us detect, intervene, and prevent high-risk infants and toddlers from developing irreversible impairment to reaching their physical and intellectual potential.

Research activities

The CEPH's mission is to improve children's health and well-being through the following research, education, and service activities:

- Early-life origins of obesity-associated asthma sub-species
- Sexual dimorphism in asthma risks
- Environmental justice
- Syndromic surveillance
- Health-oriented data analytics
- Urban Health
- Climate adaptation

funding

CEPH has received funding from the following agencies:

- Pennsylvania Department of Health
- Pennsylvania Department of Environmental Protection / US Environmental Protection Agency (EPA)
- National Science Foundation (ADVANCE Grant)
- American Councils for International Education
- U.S. Department of Health & Human Services (DHHS/NIH)

Educational opportunities

CEPH has three educational missions and goals:

- Train students in environmental health science research: CEPH aims to provide students with opportunities to participate in existing research programs.
- Cultivate confidence: The projects in CEPH are designed to engage students as independent investigators rather than mere observers and apprentices. The students are encouraged to publish and present their findings at national research conferences starting from the first year of engagement.
- Collaborate through team science: Working well within a team of peers represents an essential experience for the students. The students are expected to benefit from mutual mentoring and collective problem-solving as multi-disciplinary team members.

Service

CEPH will engage with community members to develop individual- and community-level strategies to reduce exposure to harmful environmental pollutants and prevent the risks. Student-led community-oriented engagement projects will be created and supervised. Two service goals are as follows:

- Learn from the community members: Focus on better understanding the barriers to prevention and management through deep engagement with the Lehigh Valley community members.
- Deepen the partnership: The CEPH will also organize free information-sharing sessions for Lehigh Valley community families.