Center for Healthy Environments and Equity Research (CHEER)

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Team: Faculty from Pitt's schools of Engineering, Public Health and Medicine, the Water Collaboratory and community partners.

Project Description

- A three-pronged infrastructure for conducting and obtaining large-scale national funding for environmental health disparities research.
  - Research Translation Core - designing and coordinating human subjects research and data archiving and sharing
  - Exposome Exposure Core - developing and implementing non-invasive sensor technologies to capture exposures over a lifetime (exposomes), quantifying exposures and creating accessible exposure data bases.
  - Community Engagement Core - collaborating with community partners to design impactful studies and deliver science-based policies and interventions to improve health in particularly vulnerable communities.

Motivation

- Inspiring and integrating environmental health and environmental health disparities research across the University of Pittsburgh, the region and beyond.
- Positioning CHEER as a rallying point and major driver for national funding for environmental health disparities research.
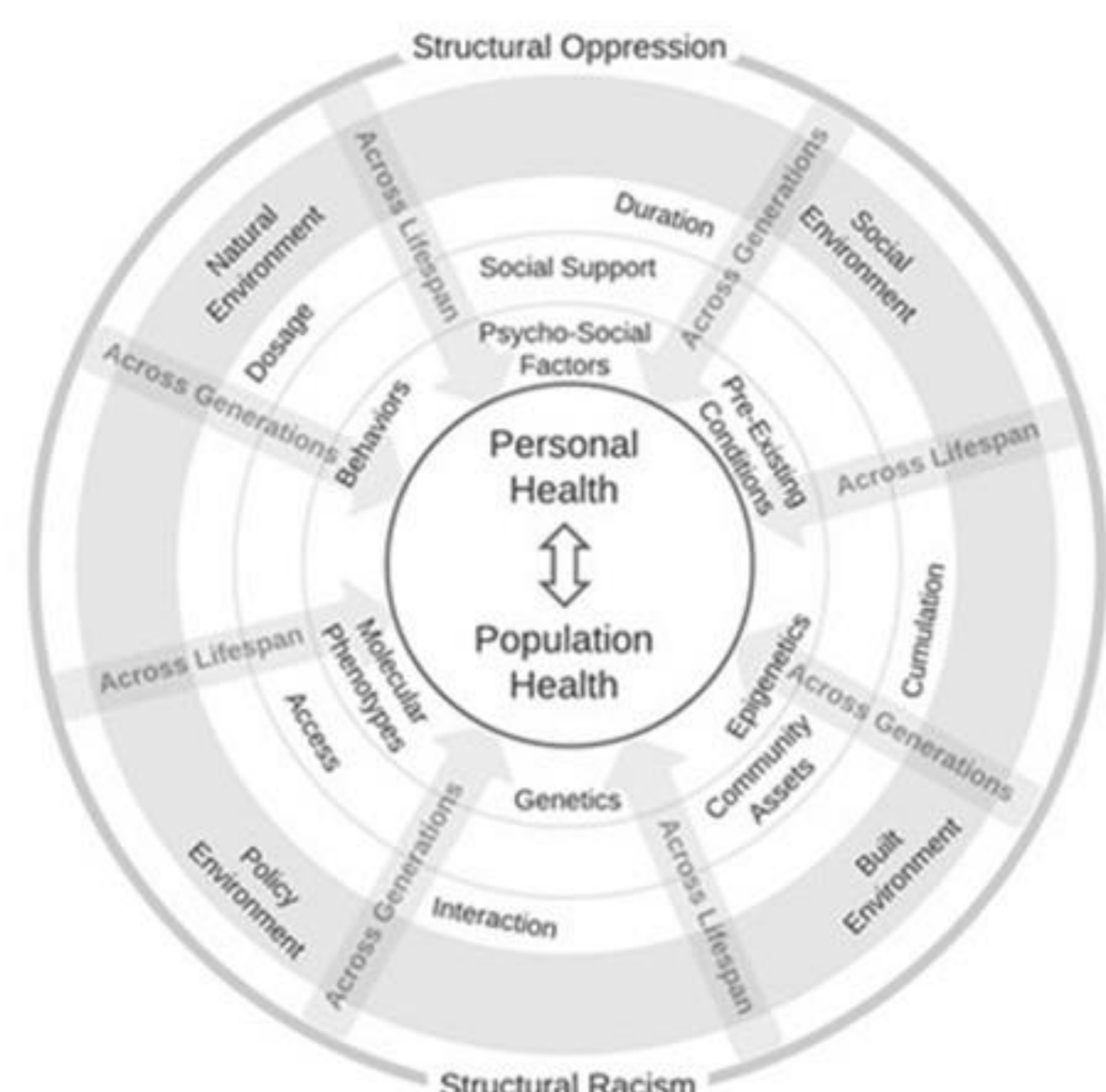
The integration of multiple exposome elements and the layers impacting populations and thereby personal health, as well as environmental and social health interactions.

CHEER-fully implementing multidisciplinary and community-based research to improve environmental health and address health inequities across our region, country and the world.
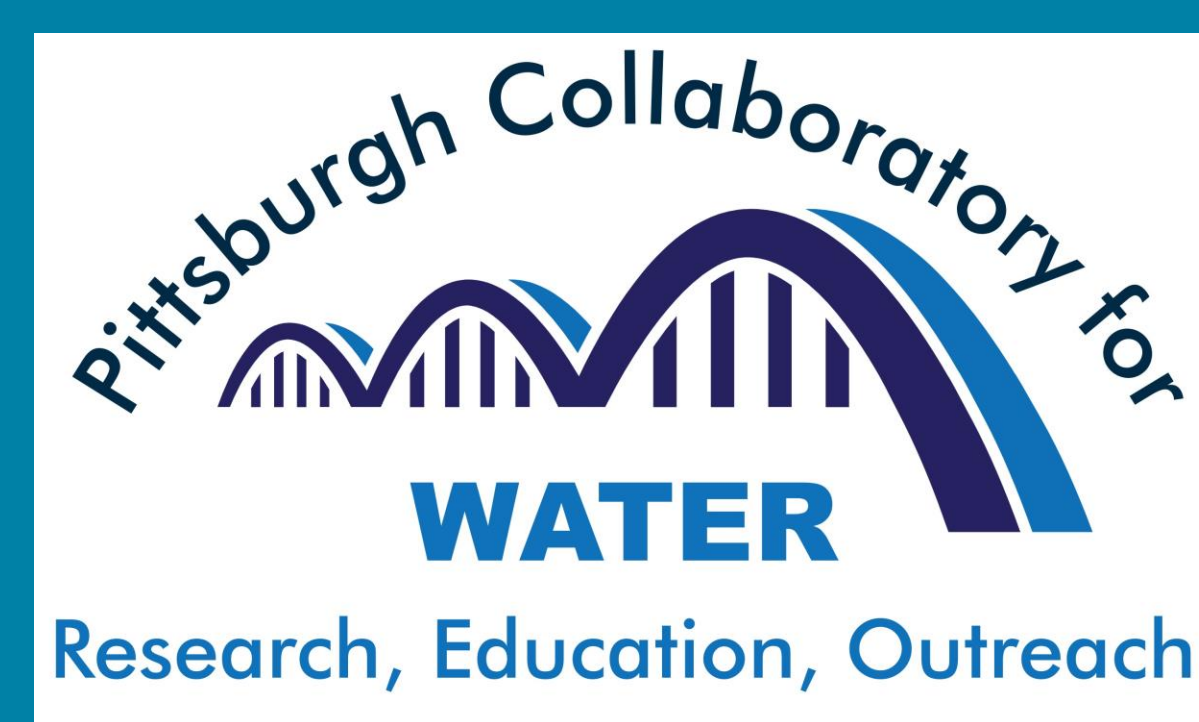
Context

- Too often, studies of environmental health impacts and inequities take a linear approach by investigating factors in isolation.
- Alternatively, CHEER will use the totality of lifetime exposures at the individual and community level to understand the cumulative dynamic, multi-dimensional health impacts of environmental exposures across the lifecycle.
- This emergent scientific paradigm takes into account the interconnected nature of the social determinants of health. As such, it is a big data approach to quantifying personal and community exposomes that is essential for providing science-based health interventions and policies rooted in equity.
- CHEER will draw on interdisciplinary expertise in public health, engineering, earth science, bioinformatics, and medicine to guarantee success.

Project Deliverables

- Acquiring P30 National Health Sciences Center (and other national) funding for CHEER - Applications to begin at the end of year one.
- Other deliverables include:
  - Developing new sensor technologies for rigorous capture of population exposomes.
  - Creating a robust network of community-engaged participatory research that provides science-based policy and interventions for regional communities.
  - Producing novel bioinformatic tools to combine large data sets for ease of accessing information.
  - Publishing multidisciplinary, collaborative papers with CHEER investigators as authors.
  - Generating new R01 collaborative grants.
  - Designing and implementing new interventions that impact environmental health inequities and improve community health, resilience and sustainability.

Potential Impact

- The creation of novel tools and science-based data to advance policies and interventions addressing environmental health disparities across communities.
- To ultimately build resilient and sustainable community-based health approaches to resolving environmental health disparities.
- The establishment of the University of Pittsburgh as a national and international leader in environmental health disparities research and resolution.