This resource is made available by grants from the National Institute of Environmental Health Sciences.

The Children's Health Exposure Analysis Resource (CHEAR) program is designed to expand the range of environmental exposures assessed in NIH-funded children's health studies, including:

1. Studies expanding their analysis to include environmental exposure analysis
2. Studies that have collected environmental exposure data but seek more extensive analysis.

At no cost to studies currently or previously funded by NIH, CHEAR can provide a wide range of services, including:

- Expert consultation on exposure analysis, study design, and data analysis and interpretation
- Analysis of biological samples for biological, psychosocial, chemical, and physical exposures using state-of-the-art techniques
- A data repository and associated data science tools
- Statistical and data analytical services including support for meta analyses
- Development and dissemination of new statistical methods and informatics tools

CHEAR provides state-of-the-art services for analyzing biological samples and understanding biological responses associated with environmental exposures.

- Targeted Analysis: Hypothesis-driven analyses of specific contaminants, markers of exposure, and other substances known or suspected to affect the risk of health outcomes in children.
- Untargeted Analysis: Hypothesis-free exploratory analyses using advanced technologies to discover new associations between chemicals or metabolites and children's health. Both endogenous metabolites and exogenous xenobiotics can be identified and measured.
- Biological Response: Measurements of individual response to environmental stressors using established markers.

Analyses provided by CHEAR undergo rigorous Quality Assurance and Proficiency Testing (PT). CHEAR Lab Hubs participate in national and international PT programs and all analyses include internal QC samples and NIST Standard Reference Materials.

Selected Target Analyses

Trace Elements

Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Cesium
Chromium
Cobalt
Copper
Lead
Manganese
Mercury
Molybdenum
Nickel
Platinum
Selenium
Strontium
Tellurium
Tin
Thallium
Tungsten
Uranium
Vanadium
Zinc

Organic Compounds

In Urine

Alkyl phosphates
Dimethylphosphate, Dimethylthiophosphate, Dimethyldithiophosphate, Diethylphosphate, Diethylthiophosphate, Diethyldithiophosphate

Amines and phenols
1- Hydroxypyrene, Pentachlorophenol, 1-Naphthol, 2-Naphthol, Bisphenol A, Trichloropyridinol, Isopropoxyphenol

Cotinine

Pyrethroide metabolites
Br2-CA, cis-Cl2-CA, trans-Cl2-CA, 3-PBA

Tobacco-specific N-nitrosamine

In Serum

Organochlorines
p,p`-Dichlorodiphenyltrichloroethane, p,p`-Dichlorodiphenyldichloroethene, Hexachlorobenzene, Hexachlorocyclohexane (alpha, beta and gamma)

Pentachlorophenol

Perfluorooctanoic acid

Perfluorooctanoic sulfonic acid (n-Isomer)

Polychlorinated biphenyls
Ballschmiter numbers: 28, 52, 101, 138, 153, 180

How to Apply to the CHEAR Program

The CHEAR Program will begin accepting applications at the end of September 2016.

Eligibility: You may be eligible to access CHEAR if:

- You have an ongoing or completed epidemiological or clinical study on children's health
- You want to expand the information generated by your study to include environmental exposure data, or you need more extensive analysis of exposures beyond those you have already collected
- Your study was funded at least in part by NIH extramural funds
- You are eligible to apply for an NIH grant at your home institution
- Your study's samples are biological specimens collected from children and/or their parents

The application process: Once CHEAR begins to accept applications, they will be accepted continuously and reviewed several times per year.

The key steps in the application process are summarized as follows:

- Register as a user on the CHEAR Program website.
- Complete and submit a "Request for CHEAR Services".
- CHEAR will confirm your eligibility to apply, and a CHEAR Lab Hub will contact you to discuss your request, recommend specific assays, and assess their feasibility.
- Complete and submit the online application form, including uploading data dictionaries, codebooks, and questionnaires from your original study.
- A representative from the CHEAR Data Center will contact you to discuss your proposed data analysis plan.
- Your application will be scheduled for review.
- Successful projects will be assigned to a Lab Hub, which will work with you to develop a laboratory analysis plan for your project. A CHEAR Research Coordinator will work with you to ensure that all necessary agreements and permissions are completed, and the project will be scheduled.

Application review: Applications will be evaluated for merit by the CHEAR Access Committee (CAC). The CAC is composed of subject matter experts from within the CHEAR Program and the scientific community. Applications will be assessed on the following criteria:

- Significance to children's health.
- Methods and measures proposed.
- Data analysis feasibility.
- Lab analysis feasibility.

More information on CHEAR is available at: http://chearprogram.org