2023 NIEHS EHSCC MEETING: Disaster Research Response & Climate Change & Health

We are inviting members of the NIEHS P30 Centers to present their disaster research response-themed or climate change-themed work at the October 2023 NIEHS EHSCC MEETING in Houston, Texas.

The leadership of each P30 Center is encouraged to nominate a member of their center to present at the October meeting. To participate, the nominated member should send an abstract of their work to the 2023 NIEHS EHSCC MEETING planning committee by completing this online questionnaire.

Up to four abstract authors will be invited as plenary speakers. Others will be invited to share their work during poster sessions.

Please submit your abstract by July 24, 2023. Plenary speakers will be notified by August 7, 2023.

Thank you - 2023 NIEHS EHSCC MEETING planning committee.

Response was added on 07/24/2023 9:59pm.

ABSTRACT AUTHOR'S CONTACT INFORMATION

Author's name (first name last name):	Erin Haynes (The abstract author is the prospective presenter)
Author's contact email address	Erin.Haynes@uky.edu
Author's title	Professor
Author's primary department & institution	Epidemiology and Environmental Health, University of Kentucky
P30 Center where the author is a member:	UKCARES, Univ of Kentucky
The project PI/Lead	⊗ Same as abstract author ◯ Different from abstract author, if so, specify

PROJECT FOCUS

The primary focus of the project (you may select more than one option, if applicable)

☒ Disaster Research Response (DR2)
☐ Climate Change and Health (CCH)
☐ Other, please specify

The type of DR2 issues (being) studied

☐ Natural - cause not traceable to a single action by identifiable persons
☒ Industrial - cause traceable to an industry, usually due to business activities
☐ Individual/group - cause traceable to one or more persons (intentional act or accidental)
☐ Other, please specify

PROJECT DETAILS - DR2/CCH AND HEALTH GAPS, PROJECT OBJECTIVES, FINDINGS, & LESSONS LEARNED

Study Title

Responding to the East Palestine Train Derailment

DR2- or CCH-specific research gaps that the project addressed/is addressing

On February 3, 2023, a freight train comprised of approximately 150 rail cars derailed and caught fire in the town of East Palestine, Ohio home to ~4,700 residents. Approximately 20 rail cars were listed as carrying hazardous materials, including vinyl chloride, butyl acrylate, ethylhexyl acrylate, and ethylene glycol monobutyl ether, which were released into the air, soil, and water; five (5) rail cars of vinyl chloride were breached. The residents are concerned about chemicals still remaining in their environment and if these chemicals are in their bodies. This study measures these exposures and tracks their health symptoms, including stress over time.

Project goals and objectives

The goals of this project are to 1) track experiences and health symptoms over time, including stress, 2) determine if metabolites of vinyl chloride and acrolein and metabolites of butryl acrylate and 2-ethylhexyl acrylate can be measured in urine, 3) determine if dioxin and furans can be measured in serum, 4) quantify immune function markers and compare to a similar community, and 5) determine if polycyclic aromatic hydrocarbons and chlorinated dioxins are measurable in wristbands. Another goal of this project is to build collaboration among centers to respond to the disaster. The CLEAR lab at Wayne State is a collaborating partner on this project.

Research methods/approaches used

☒ Community-engaged research methods
☐ Communications research methods
☒ Field epidemiological methods
☐ Fundamental/basic science methods
☐ Other, please specify

Project stage/status:

◯ Project is ongoing - process findings available to present; no primary outcomes findings available yet
⊗ Project is ongoing - process findings and/or primary outcomes findings available to present
◯ Project completed - process findings and/or primary outcomes findings available to present
◯ No stage/status to report
◯ Other, please specify

Describe the process/primary outcomes findings from the project.

Nearly 300 residents have completed the survey. Initial responses to the survey have demonstrated elevated levels of physical and mental health symptoms. Residents living within one mile of the train derailment reported cough (75%), headaches (89%), sinus irritation (75%) and rash (39%). A screening tool indicated 45% of all survey participants were at risk of post-traumatic stress disorder (PTSD). The mean score on the Perceived Stress Scale (PSS4) was 8.0; values above 6 are typically considered as high levels of stress. We plan to track health symptoms over time. A pilot study was conducted July 17-18 to collect blood and urine. These samples are stored and awaiting analyses.

Describe key challenges or lessons learned.

The challenges are many: 1) the lag time between exposure and biological measures, 2) the metabolites of these chemicals have not been fully studied and we lack strong comparison data, 3) residents are not equally symptomatic causing skepticism and distrust, 4) field studies present numerous challenges, including training, protocols, IRB etc, 5) funding, and 6) determining the role of research during and following a chemical disaster while clean-up is occurring by federal agencies.

PROJECT SPONSORSHIP/SUPPORT

Project sponsorship (choose all that apply)?

☒ P30 inter-center collaborative pilot funding (via NIEHS)
☐ Other NIEHS - (NOT inter-center collaborative funding)
☐ NIH - other institutes (NOT NIEHS)
☐ Any other federal agency (NOT NIH)
☐ Non-federal government agency (state, local, etc.)
☐ Non-government, non-profit entity
☐ For-profit entity
☒ Insitutional (intramural) funding
☐ Project not sponsored
☐ Other, please specify