



Partnerships for Environmental Public Health

Strengthening a Dynamic Environmental Public Health Network for Tomorrow:
 Advancing science through critical reflection

Poster Session Abstracts

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Morning Poster Session

1. African Americans and Environmental Cancers: Sharing Histories to Build Trust

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Abstract

African Americans have the highest overall cancer death rate and shortest survival of any racial and ethnic group in the United States. The US breast cancer death rate is 23.0 (per 100,000) for Caucasian women, as compared to 34.3 for African American women. In Durham County, North Carolina, the 5-year (1997-2001) breast cancer death rate was 27.7 for Caucasians and 41.0 for African Americans. The causes of these inequalities are complex, but arise, at least in part, from disparities in income, education, nutrition, and access to healthcare. These factors also increase the likelihood of exposure to environmental carcinogens, which may contribute to increased cancer mortality among African Americans. For complex historical reasons, African Americans have had mixed experiences in accessing care and in the quality of care they receive, giving rise to distrust within the African American community regarding the intents and purposes of health care researchers. Campus-community efforts to address environmental health issues need to directly address the current context for concerns and relationship-building. The foundation of this project is a partnership between the Triangle Sisters Network and Duke University. By advancing this partnership and using existing networks, community health workers will survey 900 African American women in order to understand community concerns regarding environmental contributors to cancer health disparities among high-risk African- American women and their families. This study holds promise for addressing environmental public health concerns regarding breast and other cancers locally and in other geographic regions.

Organization:

Children's Environmental Health Initiative, Duke University and Triangle Chapter of the Sisters Network, Inc.

PEPH Program Affiliation:

Breast Cancer and Environment Research Program

Topic area(s):

Communication

2. 2011 Community Assessment Project, Durham, NC

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Abstract

Objective: The Community Assessment Project (CAP), first conducted by the Children's Environmental Health Initiative (CEHI) during the summer of 2008, was designed to elucidate the relationship between built environment variables and environmental, public, and clinical health data for the city of Durham, North Carolina. During the summer of 2011, CEHI launched a second assessment, allowing for a comparison of 2008 and 2011 built environment data.

Methods: A standardized visual assessment of 57 built environment variables was developed and implemented in 2011 by trained assessors observing over 30,000 individual tax parcels throughout the city of Durham. Data observed were recorded on handheld GPS units and then uploaded into a geodatabase stored on a secure server. This data was indexed, aggregated, and mapped to reflect Census Block-level neighborhood characteristics. Importantly, data collected in 2008 for approximately 17,000 tax parcels allows for a longitudinal analysis of change.

Results: Measures of the built environment, particularly housing damage, property disorder, public nuisances, and security measures, have been mapped and will be of use to community members. These indices have also been examined in relation to birth outcomes and psychosocial health. Future analyses will include longitudinal assessment of change in Central Durham as well as concomitant health.

Discussion: The Community Assessment Project provides a powerful tool for characterizing the built environment in Durham. Neighborhoods which have multiple risk factors are identified. Ultimately, these neighborhoods can be examined longitudinally to determine whether improvement or decline has occurred. This assessment will be shared with local stakeholders in an effort to identify ways to improve Durham's built environment.

Organization:

Children's Environmental Health Initiative, Duke University

PEPH Program Affiliation:

Centers for Children's Environmental Health Disease Prevention Research

Topic area(s):

Research Translation

3. Ambient Air Quality at Four Urban Schools Before and After an Anti-Idling Campaign

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Abstract

Background: Exposure to traffic-related air pollution and diesel exhaust particles may be increased at schools due to nearby local traffic and diesel fueled school buses. School bus idling, in particular, has been associated with increased PM_{2.5} and elemental carbon (EC, a marker of diesel exhaust) concentrations near schools. The objective of this study was to examine the impact of a community-based anti-idling campaign on outdoor air quality at four public schools with varying exposure to school buses and nearby traffic in Cincinnati, OH.

Methods: Ambient air sampling for PM_{2.5} and EC was conducted at each school for five days prior to an anti-idling campaign. Sampling began each day 30 minutes before the morning arrival of school buses and concluded 30 minutes after their afternoon departure. Sampling was also conducted simultaneously at four community sites chosen to represent ambient background concentrations in the neighborhoods where the children attending each school reside. School and community sampling was repeated at each location following an anti-idling campaign. Differences in PM_{2.5} and EC concentrations at school and community sites for each sampling day were calculated and compared to those after the campaign using linear mixed models.

Results: Prior to the anti-idling campaign, the concentration of PM_{2.5} outside of schools exceeded the community background levels at 3 of the 4 schools and the difference was greatest (4.1 µg/m³, p = 0.07) at the school with the highest number of school buses (n = 39). Similarly for EC, the greatest difference between school and community sites was observed at the school with the highest number of buses (0.40 µg/m³, p < 0.01). Following the anti-idling campaign the concentration of EC was significantly reduced after accounting for background concentrations at the school with the greatest number of buses. PM_{2.5} concentration at this school was also decreased and was not significantly different than the background site. The concentrations of PM_{2.5} and EC at schools with fewer buses (n = 5 – 12) were not significantly decreased after controlling for background concentrations.

Conclusions: The concentration of PM_{2.5} and EC at schools may exceed background levels in the community where children reside, particularly in the presence of idling school buses. A community-based anti-idling

campaign was effective at reducing EC to background levels at the school with the greatest number of buses.

Organization:

Cincinnati Children's Hospital Medical Center, University of Cincinnati, Cincinnati Health Department, & Cincinnati Public Schools

PEPH Program Affiliation:

Research to Action

Topic area(s):

Research Translation

4. An Academic and Labor Union Partnership: Worker Cleaning Chemical Exposures Following State Mandated Green Cleaning Program

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Abstract

Custodians have high overall injury and illness rates and use significant amounts of cleaning agents. Components of traditional cleaners include acids, solvents, bleach compounds, aerosol sprays, and phthalates, many of which are associated with both acute and chronic health concerns. In response to concerns over health and environmental consequences from chemicals, a state law in 2007 required all state agencies to use environmentally preferred products. The University of Connecticut Health Center (UCHC), following a community participatory research model, developed a working team to engage custodians and develop an understanding of cleaning methods that reduce exposures to occupational hazards. The community partners were the Connecticut Employees Union Independent, an affiliate of the Service Employees International Union (CEUI-SEIU); the Connecticut Council for Occupational Safety and Health; the Coalition for a Safe and Healthy Connecticut; and facility and environmental health and safety offices within 6 state agencies. The multifaceted study employs qualitative (i.e. focus group and key interviews) and quantitative (i.e. exposure assessment and health questionnaire) research methods. The methods were designed to support outreach and study needs to collect information and develop effective best practice training for custodians. Moreover these actions built capacity among union and custodian leadership to better understand occupational risk. Partnership activities between the union and university will be highlighted throughout the poster, including partner contributions to methods, survey content, outreach and response rates, interpretation, and dissemination. Summary results from focus group activities and the initial participation results of the questionnaire survey will be included. In addition a pilot training program developed by the team for one facility will be discussed as an example of research translation. This work was supported by cooperative agreement R 21ES017972-01 from the US Center for Disease Control and Prevention, National Institute of Occupational Safety and Health.

Organization:

University of Connecticut Health Center

PEPH Program Affiliation:

Research to Action

Topic area(s):

Capacity Building

Research Translation

5. Building Capacity to Educate NC Families about Home-Based Health Hazards

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Abstract

The Community Outreach and Engagement Core (COEC) in the UNC-Chapel Hill Center for Environmental Health and Susceptibility (CEHS) is developing a suite of materials for public health professionals to use to introduce home-based hazards and low-cost remedies to clients in low income and minority communities in North Carolina. This poster provides an overview of these materials, which are focused on asthma, lead poisoning, home safety, and pesticides and include videos, hands-on learning activities, educational literature that meets varying literacy levels, and a home assessment form used to educate families about environmental health hazards in their homes. To date, a variety of health professionals, have used these materials, including community health workers, nurses, environmental health specialists, and health educators. Preliminary results are also included from an intensive 7-hour training for 42 community health workers and shorter trainings conducted with over 130 professionals.

Organization:

Center for Environmental Health and Susceptibility, University of North Carolina at Chapel Hill

PEPH Program Affiliation:

EHS Core Centers

Topic area(s):

Capacity Building

6. Characterization of Hazardous Working Conditions for Female Farmworkers of Childbearing Age

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Abstract

Background: Few studies have assessed the safety of agricultural work-related tasks among female farmworkers of childbearing age. Potential occupational safety risks involve persistent pesticide exposure, repetitive motion of heavy lifting, prolonged standing, heat stress, and musculoskeletal strain.

Objective: Examine differences in work-related practices, workplace hygiene, and health symptoms among female farmworkers for two separate agricultural settings in Central Florida.

Methods: A cross-sectional survey was conducted on 260 female farmworkers between the ages of 19-40 working in fernery or nursery operations. Descriptive statistics were used to characterize the work environment and work practices of this vulnerable understudied population.

Results: Female farmworkers commonly reported strenuous work activities, including frequent bending, lifting, and standing. Women in both settings frequently reported fatigue, heat exhaustion, and muscle cramps while working. Fernery workers reported diminished access to facilities promoting workplace hygiene, including hand washing and lavatory amenities. The majority of all female agricultural workers reported working during their last pregnancy, an average 40-50% of women reported having worked their entire pregnancy. Working in the heat/sun was more prevalent among fernery workers (95.8%) compared to nursery workers (40.5%) (Pearson chi-square test $p < .001$).

Conclusions: Our finding revealed adverse working conditions for these female farmworkers of childbearing age, implicating the potential for adverse pregnancy health outcomes during times in which these women may be pregnant. To our knowledge, this is the first study to report on the hazardous working conditions to which pregnant women in agriculture may be exposed.

Organization:

PEPH Program Affiliation:

Worker Education and Training Program

Research to Action



Topic area(s):
Research Translation

7. Clean Air Projects: Educational Resources Linking Air Quality and Health

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Abstract

Introduction: Air quality is connected to our health, ecosystems, energy consumption, economy and quality of life. It is essential that youth understand interrelationships between our environment and human health. Our Community Advisory Board's priority is to target youth by integrating air quality and health within the state's curriculum. The overall goal is to prepare Colorado youth to become critical thinkers capable of making informed decisions and taking actions about their environment and health. To assist educators a resource of "best" lesson plans and supports was developed.

Methods: Several steps were completed to develop a resource of best materials based on solid evidence and current pedagogical principles. Since several resources exist, an additional purpose was to avoid duplication and reinvention of resources while simultaneously creating an accessible resource. Developmental steps included: performing a needs assessment and environmental scan, retrieving and reviewing existing resources to identify "best" lesson plans, blueprinting lesson plans to Colorado curriculum frameworks, and teacher reviewing and rating of the best available lesson plans.

Results: An initial search identified thousands of resources related to air, air quality/pollution and/or health. After refinement of search terms and initial review of resources, 21 programs consisting of 192 resources underwent a second level review. This second level review was completed against pre-identified criteria for a "best" resource defined through a needs assessment and environmental scan. Following the second level of review, resources were identified as 17 lesson plans were identified as ready to use (17), needing additional work (39) and not useful (136). Of the 17 ready to use lesson plans, 8 were suitable for 6th to 8th grades, 5 were suitable for K-5th grades and 4 were suitable for 9th-12th grades. The most common areas of foci for resources were air pollution in general and the Air Quality Index. Common reasons for resources being identified as not useful were the lack of a link between air quality and health and the lack of an inquiry based framework.

Conclusion: Several ready to use lesson plans exist for K-12 educators to prepare future generations to make informed decisions and serve as environmental stewards related to air quality and health. A website (www.capk-12.org) makes these resources available as a one stop source for educators.

Organization:

National Jewish Health

PEPH Program Affiliation:

Centers for Childrens Environmental Health Disease Prevention Research

Topic area(s):

Research Translation

8. Collaborations with Environmental Justice League and Healthy Hospitals: New Models of Community Engagement in Providence, Rhode Island

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Abstract

Two programs of Brown University Community Engagement Core (CEC) and Children's Environmental Health Center have emerged as hubs for strengthening environmental health in Rhode Island. First, Brown's CEC and its community partner, the Environmental Justice League of Rhode Island, has led to the development of four youth-focused initiatives. (1) In its third year in 2011, the Community Environmental College provided a free eight-week program to 50 Providence high school students. The program strengthens critical environmental thinking skills through interactive activities, field trips, stewardship and projects on issues of air pollution, waste, food justice and climate change. (2) Eco Youth: Multimedia Environmental Educators is a new year-round after-school program that builds the capacity of local communities to address environmental pollution through youth-run public education workshops, demonstration projects and multi-media productions. (3) GreenStage is a new after-school program at a local high school coordinated by Brown students combining playwriting and public performance with environmental justice education. And (4) the RI Healthy Corner Store Initiative is a youth-driven project to promote the availability of healthy food and fresh produce in small, racially and ethnically diverse food stores in Providence and Pawtucket. The project involves healthy "makeovers" to local food stores, and statewide policy initiatives to overcome obstacles to healthy foods. Second, in collaboration with the Children's Environmental Health Center Community Outreach and Translation Core, Brown's CEC organized the first conference of RI Hospitals for a Healthy Environment in March 2011, with eighty attendees. This new coalition brings together hospitals, professional associations, nursing schools, unions, academic institutions, government agencies, local food groups, and environmental groups to promote cost-effective, healthy, green and sustainable health care institutions.

Organization:

Brown University

PEPH Program Affiliation:

Centers for Children's Environmental Health Disease Prevention Research
Superfund Research Program

Topic area(s):

Research Translation

9. Community Outreach and Education Core (COEC): Methods to Communicate Environmental Public Health Issues in Minority Communities

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Abstract

The Community Outreach and Education Core (COEC) is part of the NIEHS-funded University of Michigan School of Public Health (UM SPH) Environmental Health Science (EHS) Core Center. The COEC fosters enhanced understanding among community members, policymakers and public health decision-makers concerning the role of environmental exposures in disease. The UM SPH EHS Core Center specifically focuses on how environmental exposures over the lifecourse are linked to asthma, early life development, diabetes, and cancer through three pathways (epigenetic regulation, oxidative stress, and endocrine disruptors). Detroit and Southeast Michigan, in particular, are disproportionately impacted by environmental exposures (e.g. air pollution) and have reduced access to resources that might protect against the negative effects of those exposures (e.g., access to foods rich in antioxidants), increasing vulnerability to negative effects of those exposures. Over the lifecourse, these increased environmental exposures and increased vulnerabilities contribute to racial, ethnic and socioeconomic health disparities.

We will describe the COEC Stakeholder Advisory Board (SAB), made up of Detroit residents, representatives from community-based organizations, and public health decision makers, whose role is to guide the work of the COEC. We will describe the role of the SAB in informing the development of materials to enhance bi-directional communication between the UM SPH EHS and community member and policy and decision makers, in order to promote informed decision public health decision making. We will describe what materials and methods we utilize to communicate with the community on the three pathways and their linkages to asthma, early life development, diabetes, and cancer.

Organization:

University of Michigan

PEPH Program Affiliation:

EHS Core Centers

Topic area(s):

Research Translation

10. Community-University Partnership to Address Environmental Health Disparities in North Charleston, South Carolina

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Abstract

Purpose: To use a community-university partnership to assess spatial disparities in exposure for Low-country Alliance for Model Communities (LAMC) neighborhoods and other disadvantaged neighborhoods in Metropolitan Charleston.

Methods: Data on the spatial location of EPA regulated facilities and other land uses regulated by the state of South Carolina was obtained. ArcGIS 9.3 was used to map the spatial distribution of facilities. Choropleth maps were created to depict the relationship between facility location and demographic composition (percent non-white, percent poverty, percent high school education). SAS 9.2 was used to assess differences in the distribution of pollution-emitting facilities, land uses, and pollution levels.

Results: We found a larger number of Toxic Release Inventory (TRI) facilities and Leaking Underground Storage Tanks (LUSTs) located in North Charleston which has a greater percentage of non-whites and African-Americans compared to Charleston MSA. As percent non-white increased, the number of TRI sites and LUSTs increased respectively. For every 10% increase in the proportion of White, the distance to the nearest TRI site increased approximately 5 miles. Populations in tracts that host TRI facilities were less likely to own a home (more renters), more likely to live in poverty, more likely to not have a high school diploma, and these tracts have 86% more unemployment than non-TRI census tracts.

Conclusion: There are significant spatial disparities in the distribution of environmental hazards and land uses in Metropolitan Charleston based on race and socioeconomic status. Furthermore, community partnerships are vital to studying and addressing Environmental Justice (EJ) and health issues.

PEPH Program Affiliation:

Research to Action

Topic area(s):

Communication
Capacity Building
Research Translation

11. Developing a Pilot Study to Study the Determinants of Vitamin D Status in Adult Asthmatics in Barbados

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Abstract

Background: Barbados has one of the highest rates of asthma in the world and prevalence is increasing. Of the many environmental exposures and host susceptibility factors that contribute to disease burden, vitamin D deficiency has recently been linked to greater asthma morbidity. Despite the abundance of sun that is needed for vitamin D synthesis, vitamin D deficiency has been demonstrated even in equatorial regions. This finding may reflect urban lifestyle changes where increasingly more time is spent indoors. Barbados is a high-income developed country, with universally accessible health care services; however, the infrastructure for clinical research is still developing. To study the role of vitamin D in asthma in this population, we aimed to build capacity and develop collaborative relationships between Johns Hopkins and Barbados.

Methods: Fifty adults with asthma were proposed to be studied for one week. Funding was obtained from the Center for Global Health at Johns Hopkins. Collaborators from local clinics and the University of West Indies (UWI) were identified and contacted. Interval meetings on the island as well as regular correspondence via email and telephone were used to develop study protocols. Research instruments were developed by adapting tools previously used in published and unpublished studies to urban Barbadian lifestyle and conditions.

Results: Collaborations were formed with UWI investigators and ED and community physicians in Barbados through organized symposia, meetings, and correspondence. With their input, a recruitment strategy capturing adults with asthma from local ED and clinics was developed. Study forms and data collection sheets, including consent forms, screening tools, asthma questionnaires, pulmonary function data, symptom and activity diaries, and surveys to assess sun-related habits and dietary intake, were iteratively refined to be appropriate for a Barbadian population. All finalized study protocols and materials were subject to the approval of the Hopkins IRB, UWI IRB, and UWI Ethics Committee prior to recruitment in February 2012. **Conclusion:** Through our funded pilot study, we have solidified collaborative relationships in Barbados to enable successful completion of our ongoing study. These efforts have led to the creation of a Barbados Hopkins Respiratory Research Group that can provide the infrastructure needed in future studies to assess risk factors in patients with respiratory disease within this community.

Organization:

Johns Hopkins University

PEPH Program Affiliation:

Centers for Childrens Environmental Health Disease Prevention Research

Topic area(s):

Capacity Building

12. Educating African American Women in North Carolina about Basal-Like Breast Cancer

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Abstract

Researchers in the University of North Carolina at Chapel Hill's Breast Cancer and the Environment Research Program (BCERP) are investigating the influence of obesity and environmental factors on susceptibility to basal-like breast cancer, which is more prevalent among premenopausal African American women. The BCERP Community works alongside researchers to develop effective strategies for communicating breast cancer risk to this population of women. This poster will provide an overview of the Community Partner's efforts, including working closely with a Community Advisory Committee, conducting focus groups with African American women, conducting interviews with healthcare providers, and piloting hands-on learning activities with lay health advisors. This work is supported in part by the Community Outreach and Engagement Core (COEC) in the UNC Center for Environmental Health and Susceptibility (CEHS).

Organization:

University of North Carolina at Chapel Hill's Breast Cancer and the Environment Research Program

PEPH Program Affiliation:

Breast Cancer and Environment Research Program

Topic area(s):

Communication

13. Engaging Communities and Policy Makers about Near Highway Pollution and Health

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Abstract

The Community Assessment of Freeway Exposure and Health study is a community-based participatory research effort aimed at collecting data that can be analyzed to test associations between ultrafine particle levels near highways and blood markers of inflammation in people living closer and farther from the highways. As a CBPR project, we have a deep commitment to engaging the community, public and policy makers. We have developed a number of communication strategies. We have a web site that has existed for a couple of years and that has recently been reformatted and updated. We also have published two issues of a project newsletter and plan to publish at least two more. The newsletter was sent to the project team and a broader list of interested people as well as to a subset of participants in the study. We have done four educational sessions about the project with school children (Boston and Somerville Public Schools, Museum of Science and Tufts Community Day) that generated a lot of excitement and interest. A group of undergraduate film students made a short film about the study which premiered on campus and is now available in You Tube. There has been regular news coverage of the project on local and regional newspapers, television and radio which has provides us opportunities to educate a much broader audience. We have also published two op eds (New York Daily News and Physicians for Social Responsibility). Finally, we have developed an advisory board that is attended by 35-45 people twice a year. Attendees include project team members, community leaders, study participants, municipal, state and federal agency staff, and elected officials. Advisory board meetings include presentations, mostly by our graduate students, of recent findings as well as presentations about and discussion of relevance to policy and practice.

Organization:

Tufts University School of Medicine

PEPH Program Affiliation:

CBPR

Topic area(s):

Communication

14. Environmental Determinants of Autoimmunity: Lessons from the Sea Island Gullah Community

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Abstract

Background: The African American Gullah population of the South Carolina are unique for defining environmental factors for autoimmune diseases due to low genetic admixture, environmental homogeneity, and high prevalence of autoimmune diseases. Local seafood is a dietary staple, therefore the finding of high levels of persistent organic pollutants (POPs) among local bottlenose dolphins, sentinel species for human health, is of high concern to the community. Links were recently established between these bioaccumulating, ubiquitous compounds and deleterious health effects in humans.

Objective: To determine whether POPs, specifically polybrominated diphenyl ethers (PBDEs) and perfluoroalkyl acids (PFAAs), play a pathogenic role as environmental triggers of autoimmunity in genetically at-risk individuals.

Methods: At the onset of the Persistent Organic Pollutants in AutoImmunity (POPAl) study, one-on-one interviews with were conducted with Gullah community members to validate the comprehensive environmental exposure questionnaires used for the study. Serum PBDEs, PFAAs, ANA and other autoantibodies are being measured among 100 first-degree relatives of lupus patients participating in the SLE in Gullah Health (SLEIGH) study who had baseline visits at least 2 years prior.

Results: Questionnaires to measure environmental exposures, dietary intake, residential and occupational histories were modified based on community member interviews, with improved construct and content validity. Seafood intake questionnaires received from 103 Gullah participants enrolled in the SLEIGH study found 57% consumed locally caught seafood at least once a month and 40% consumed species known to contain high levels of PBDEs and PFAAs in the Charleston Harbor area. Enrollment in POPAl is ongoing, but preliminary results from 10 Gullah controls show mean levels of PFOS and PFOA are indeed higher among ANA-positive controls compared to ANA-negative controls.

Conclusions: These ongoing studies address concerns of the Sea Island Gullah community regarding bioaccumulating pollutants found in local dietary staples such as fish. The ultimate goal is to improve the quality of and community participation in multidisciplinary research on the human health effects of environmental exposures and develop effective strategies for exposure reduction and autoimmune disease prevention.

Organization:

Medical University of South Carolina and the Sea Island Families Project Citizen Advisory Council

PEPH Program Affiliation:

Research to Action

Topic area(s):

Research Translation

15. Epidemiologic Data Collection That Benefits Participants: The Rural Air Pollutants and Children's Health Study

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Abstract

Background: Most epidemiologic studies are designed to reduce error and improve estimation of exposure-outcome relationships without consideration for the potential side effects of conducting the research. Positive public health impacts can be increased by designing studies that provide benefits during the research process. We used this approach to study impacts of air pollution from concentrated animal feeding operations (CAFOs), which are disproportionately located in North Carolina low income communities of color.

Purpose: We present a study designed to provide immediate positive impacts through meaningful involvement of students, teachers, and community members in the research process.

Methodology: University researchers and staff from the Rural Empowerment Association for Community Help chose research questions to be addressed with a panel study design. For three to five weeks, students in middle school science classes recorded respiratory health data and odor in a structured daily diary while particulate matter and hydrogen sulfide were monitored at the schools. Students and staff learned about air pollution, respiratory health, and research design. Trained community members facilitated daily research activities.

Results: We enrolled 340 students in 15 classes from 3 schools with 95% participation. Most students mastered the protocol and enjoyed participating. School staff welcomed the opportunity to participate. Six community members served as school liaisons while the broader community organization was educated about air pollution from IHOs and research design.

Conclusions: This participatory design has the potential to increase the capacity of polluted communities to oppose environmental injustice while quantifying dose-response relationships between air pollution and children's health.

Organization:

University of North Carolina at Chapel Hill and Rural Empowerment Association for Community Help

PEPH Program Affiliation:

Topic area(s):

Capacity Building

16. Feasibility of Indoor Air Sampling in Homes Impacted by Biomass Use in Rural Appalachia

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Abstract

Rationale: Though the high prevalence of biomass fuel use in the developing world is widely known, the use of burning biomass for cooking and heating in the developed world is under-recognized. By partnering with the Appalachia Service Project (ASP), a faith-based non-profit Christian organization that provides free home repair to central Appalachia families, and East Tennessee State University (ETSU), we conducted a pilot study to assess the feasibility of conducting indoor environmental monitoring in rural Appalachia. We sought to explore the type of biomass being used for home heating and its impact upon indoor air quality in non-heating and heating seasons.

Methods: Residential indoor air monitoring was conducted in Lee County, Virginia in August and December 2011. English-speaking households that had received services from ASP and were willing to provide informed consent were eligible. Rental properties or homes with foster children were excluded. Monitors were placed in the main living area. Particulate matter (PM_{2.5}, PM₁₀), nitrogen dioxide, airborne nicotine, and settled dust were collected over a sampling period of 3-4 days. At each sampling visit, a home inspection was completed and participants filled out daily household activity diaries documenting pollutant-generating activities including heating, cooking, and smoking. Descriptive statistics were used to summarize pollutant concentrations by season and type of fuel.

Results: ASP identified 11 eligible homes in August 2011. Three additional homes were identified for sampling during the December 2011 heating season. Overall, participants were engaged in the sampling process and eager to participate in future studies. The majority of homes were smoking households and used wood or coal for heating. In general, PM concentrations were high: PM_{2.5} (mean±SD) during the heating season in homes using wood or coal for heating was 74±59ug/m³; homes with electric heat 9±3ug/m³; smoking homes 87±49ug/m³; non-smoking homes 15±11ug/m³.

Conclusions: Our collaboration with ASP and ETSU allowed for successful completion of a pilot study assessing common indoor air pollutants in rural Appalachia. Our results demonstrate high concentrations of indoor PM pollution and a large burden of cigarette smoking in an area impacted by biomass fuel use.

Future studies are necessary to further characterize biomass use in this region and to determine the health impacts associated with such exposures.

Organization:

Johns Hopkins School of Medicine Division of Pulmonary/Critical Care

PEPH Program Affiliation:

Centers for Childrens Environmental Health Disease Prevention Research

Topic area(s):

Capacity Building

17. From "Research On" to "Research With" Cohort Members: A Case Study

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Abstract

The Child Health and Development Studies (CHDS), a project of the Public Health Institute, is a prospective cohort study, which began over 40 years ago to observe pregnancy, birth, and health outcomes and is expanding across multiple generations. Over 15,000 families in the Kaiser Permanente Health Plan joined the CHDS between 1959 and 1967. Today, the original families and their children continue to participate in the CHDS, allowing scientists to discover how disease starts even before birth - not just by genes, but also through social, personal, and environmental surroundings. Cohort member's role had been solely as research subjects. In 2010 the CHDS received funding from NIEHS to form a Participant Advisory Counsel (PAC). Over 140 cohort members were invited to participate in the PAC. Twenty-one of the invited cohort members responded as interested, and 18 members currently serve on the counsel today. The purpose of the CHDS's PAC is to 1) provide guidance on research activities 2) identify research priorities from the perspective of the cohort and 3) promote cohort retention and more effective broad-scale ways to communicate with the cohort. The members all share the common fact that they either gave birth or were born into this cohort. The PAC is comprised of 7 first generation cohort members (moms) and 11 second generation cohort members (sons and daughters). The PAC meets quarterly to discuss issues pertinent to the CHDS. Community-based Participatory Research promotes the equitable partnership between community and academically trained researchers. This poster will show the path from study subject to research partner among a small group of cohort members.

Organization:

Public Health Institute

PEPH Program Affiliation:

Breast Cancer and Environment Research Program

Topic area(s):

Capacity Building

18. Healthy Soils, Healthy Communities: Preliminary Results for Lead and Other Metals in New York City Community Garden Soils

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Abstract

Urban gardens provide affordable, fresh produce to communities, including those with limited access to healthy food. However, urban gardening may increase exposure to lead and other soil contaminants. Gardeners have asked for support in assessing soil contamination and exposures, prompting formation of a community-research collaboration under NIEHS Partnerships for Environmental Public Health. As a first step, metals analysis was conducted on composite soil samples from growing areas and a discrete sample from a non-growing area in each of 44 actively managed food-producing community gardens in NYC. Median concentrations of arsenic, barium, beryllium, chromium, copper, lead, manganese, nickel, and zinc in growing areas (5.9, 82, 0.2, 13, 35, 88, 213, 10, and 130 ppm, respectively) were lower than median values reported in NYC soil and other urban gardening studies. For all metals except lead, over 90% of the growing areas sampled were within a range of concentrations found in NYS rural soils. However, 61% of gardens had at least one growing area exceeding guidance values (based on rural background concentrations or residential exposure scenarios including gardening) for barium, lead, arsenic, chromium, or zinc (12%, 8%, 3%, 1%, 0.2% of all samples, respectively). With the exception of arsenic and copper, non-growing areas had statistically higher levels than growing areas. Factors associated with higher metals concentrations included lack of raised beds and visible presence of construction debris (e.g., brick chips), suggesting that certain existing active management practices (e.g., importing clean soil) have lowered soil metal concentrations. However, elevation of some contaminants (e.g., lead) above guidance values in communities which may already be burdened by some environmental exposures (e.g., elevated blood lead) suggests that communities could continue to benefit from exposure reduction efforts. Future activities will include working with communities to better understand potential health risks and exposure reduction strategies for soil contaminants.

Organization:

Cornell University, NY State Dept. of Health, Greenthumb

PEPH Program Affiliation:

Research to Action

Topic area(s):

Research Translation

19. Identifying Perceptions, Attitudes and Health Behaviors around Bisphenol-A through Community Based Focus Groups

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Abstract

Identifying Perceptions, Attitudes and Health Behaviors around Bisphenol-A (BPA) Through Community-Based Focus Groups

BACKGROUND: Emerging evidence indicates that prenatal exposure to BPA interferes with normal growth and development. Recent findings from the Columbia Center for Children's Environmental Health (CCCEH) also suggest that BPA exposure is linked to behavioral problems and obesity in children.

OBJECTIVE: Based on this evidence, CCCEH's Community Outreach & Translation Core (COTC) developed an educational brochure outlining concerns and ways to reduce BPA exposure, using focus groups to ensure future materials are relevant and culturally tailored for low income, communities of color in Northern Manhattan (NM) and the South Bronx (SB).

METHODS: Three focus groups with 24 women of childbearing age were conducted in English (n= 16) and Spanish (n= 8) using a discussion guide developed with the CCCEH Community Advisory and Stakeholders Board (CASB). Participants were recruited through community-based organizations (CBO) that serve on CCCEH's CASB. Each focus group was conducted at the offices of the hosting CBO. We discussed participants' knowledge, perceptions, attitudes, beliefs, and health behaviors related to environmental health and BPA. The responses were tape-recorded, transcribed, and analyzed to determine key themes. These themes and high frequency responses shaped a brochure with advice for reducing BPA exposure that can be easily understood and used by NM and SB residents.

RESULTS: Participants felt many harmful chemicals were in their homes, but didn't know what BPA was, nor how it harmed people, and wanted this information in materials. They knew microwaving food in plastic was harmful, as were the linings of canned goods. Many knew about recycling labels on plastic containers, but couldn't remember which numbers to avoid. Many were alarmed by learning receipts can contain BPA. They preferred cooking with fresh foods, but low quality produce at local stores, high prices for organic options, and the convenience of cooking with canned foods were reported barriers. To learn about BPA, participants preferred refrigerator magnets, wallet cards, subway ads, billboards, and workshops.

CONCLUSION: These findings guided the design and content of the CCCEH brochure about BPA, highlighting the value of focus groups to obtain and incorporate community input into materials developed for their use and future direction of COTC activities.

Organization:

Columbia Center for Children's Environmental Health

PEPH Program Affiliation:

Centers for Children's Environmental Health Disease Prevention Research

Topic area(s):

Research Translation

20. Integrating Well Water Testing Recommendations into Rural Primary Care Practices in Northern New England

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Abstract

Public health departments and health care professional societies such as the American Academy of Pediatrics (AAP) recommend regular periodic well water testing for pathogens, chemicals and other contaminants to ensure the safety of drinking water but these recommendations are not routinely integrated into preventive health care services. In the northern New England states of New Hampshire, Vermont and Maine, residents that rely on private, unregulated water systems account for 30- 44% of the population. This same geographic area is known to have naturally occurring arsenic (As) levels in groundwater that can exceed the current EPA Maximum Contaminant Level (MCL) for drinking water of 10 parts per billion (PPB) in 10- 20% or more of wells, with significant geographic differences in these levels. While As is a known carcinogen, research is emerging about other health potential health effects, to which fetuses and children could be at greater risk. By partnering with a well established regional network of primary care practices, mostly located in rural communities with higher than average numbers of well water users, this project aims to:

- 1) integrate screening questions related to water source into the health care visit to identify patients who use private wells and have not had recent comprehensive water quality assessment;
- 2) provide patient education about the health risks of well water contamination with an emphasis on arsenic, because of the regional significance of this contaminant;
- 3) develop well water testing resources that primary care practices can use to increase the convenience of well water testing for their patients;
- 4) provide appropriate educational resources and guidance to health care providers to increase their confidence in providing risk communication to their patients related to their patient's well water test results.

Our anticipated outcomes are:

- 1) Demonstrate an increase in well water testing rates consistent with current public health and clinical guidelines.
- 2) Demonstrate increased health care provider knowledge of important health implications related to well water, in particular those related to arsenic,
- 3) Develop a replicable system for integrating well water testing into primary care health care settings.

Organization:

Dartmouth Medical School

PEPH Program Affiliation:

Centers for Childrens Environmental Health Disease Prevention Research

Topic area(s):

Research Translation

21. Research Translational Efforts of the Michigan State University Superfund Research Center

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Abstract

We hypothesize that effective communication between key stakeholders on environmental issues is critically important in establishing functional relationships between research investigators and environmental stakeholders. The overall theme of the Michigan State University (MSU) Superfund Research Program (SRP) is focused on elucidation of molecular mechanisms responsible for the adverse health effects and environmental fate of aryl hydrocarbon receptor (AhR) agonists. The specific aims of our Research Translation Core (RTC) are: 1. Develop well established communication systems with (a) MSU SRP Center, (b) NIEHS, and (c) with other SRP Centers with a primary objective to identify and coordinate research translation opportunities emanating from the MSU SRP Center's Projects and Cores, and the overall Center's program; and report these translational activities to SRP staff at NIEHS. 2. Develop bidirectional partnerships (a) at the state level including the Michigan departments of "Environmental Quality" and Agriculture" which are the state departments working on dioxin and dioxin-like contamination issues; and (b) at the federal level, principally USEPA Region-5. 3. Facilitate transfer of technology development by the MSU SRP to external stakeholders through informal (freeware, etc.) and formal mechanisms (patents, licenses, etc.). 4: Provide educational resources to key stakeholders by: (a) partnering with the MSU Medical Campus in the Midland Community to educate medical students on the latest state-of-the-science concerning dioxin-related health issues through annual workshops, grand rounds seminar presentations, and incorporation of peer-reviewed environmental toxicology papers into their Appraisal & Analytical Methods curriculum; (b) organizing, with the Research Support Core A, courses in Computational Systems Biology and Dose Response Modeling; and (c) developing educational resources for the Michigan Tri-Cities area through coordination with the MSU SRP Community Engagement Core (CEC).

Organization: Michigan State University

PEPH Program Affiliation:

Superfund Research Program

Topic area(s):

Research Translation

22. RTC Enhances SRP Relevance to North Carolina Decision Makers, Impacted Communities and Educators

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Abstract

The Research Translation Core (RTC) of the UNC Superfund Research Program (SRP) focuses on improving scientific and public understanding of how Superfund chemicals harm human health and how to reduce exposure to those chemicals, enabling government officials and the public to make informed decisions about reducing risk. The RTC builds the capacity of agencies charged with protecting human health and the environment by actively participating in policy discussions, developing decision support tools that enable geospatial contamination mapping, and facilitating SRP researchers' efforts to develop improved cleanup technologies. We also prepare government employees to effectively engage with impacted communities and introduce cutting edge science into middle and high school classrooms as well as informal education settings.

Current projects include:

- A multifaceted partnership with the Division of Public Health (DPH) in the NC Department of Health and Human Services (NCDHHS) to develop the agency's capacity to: 1) identify NC populations at greatest potential risk from well water contamination, provide public health action strategies to reduce exposure, and to increase intra-agency collaboration to sustain this effort over time, and 2) engage community leaders and residents around a subset of North Carolina Superfund sites with arsenic and TCE contamination.
- Development of software that enables decision makers to factor uncertainty into risk assessments.
- Teacher professional development activities focused on water quality, environmental justice, and development of a new module focused on biology.
- Interaction with local science centers.
- Short courses for graduate students on commercialization and Superfund, environmental health and justice topics.

Organization:

UNC-Chapel Hill Superfund Research Program

PEPH Program Affiliation:

Superfund Research Program



Topic area(s):
Research Translation

23. Short Film as a Vehicle for Translating SRP Science

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Abstract

Based on the experience gained from the production and distribution of the short film, In Small Doses: Arsenic, the Dartmouth SRP Research Translation Core is producing a 10 minute video about mercury in the environment. Information on current mercury research from our program will be weaved into the story line and the film will address three broad questions: What is Hg contamination? How does it affect me? What can I do about it? Our approach is to create a structure for the film that can provide narrative support for the content by including personal perspectives that will give viewers a comfortable relationship to technical information provided by experts.

Short videos of this type serve as an excellent tool to bring research emanating from the program to the right audiences in the right format at the right time. According to the National Science Foundation, television and the internet are the primary sources Americans use for science and technology information. The internet is the main source of information for learning about specific scientific issues such as global climate change or biotechnology (<http://www.nsf.gov/statistics/seind10/c7/c7h.htm>).

A ten minute movie provides enough depth to discuss the topic from an objective standpoint. Stakeholder participation during development, production and distribution allows them to become invested in the product. The short movie format also provides a research translation tool with a high degree of flexibility in terms of its distribution potential (YouTube, websites, DVD, community access TV, cable channels, science center displays). Along with other mechanisms, audience feedback can be obtained using an online survey to accompany the movie on a website.

The mercury movie will serve as one of the translation products for the Coastal and Marine Mercury Ecosystem Research Collaborative (C-MERC) (www.c-merc.org), a two year effort led by the Dartmouth SRP RTC, during which two workshops were held in September 2010 (Portsmouth NH) and July 2011 (Halifax NS) to develop a series of synthesis papers on the current state of knowledge about the sources, fate, and ecological and human exposure to the global neurotoxin, methylmercury, in marine ecosystems.

Organization:

Dartmouth College Toxic Metals Superfund Research Program

PEPH Program Affiliation:

Superfund Research Program

Topic area(s):

Research Translation

24. Strategies for Capacity Building and Research Translation at the Tar Creek Superfund Site

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Abstract

The RTC organized a Science Exhibition for the 13th National Tar Creek Conference in rural Miami, Oklahoma. Miami is part of the larger Tar Creek Superfund Site containing lead and other mixtures of metals in air, water, and soil. In addition to numerous cases of lead poisoning, this community has also been impacted by poverty and a number of natural adversities including earthquakes and drought. Years ago, the high school in nearby Pitcher, OK, lost its sports teams because other school feared sending their children to the hazardous area. Eventually the school closed and residents vacated the town entirely through a government property buyout. This Science Exhibition was designed to provide the students of Ottawa County the opportunity to get involved in a community activity and produce something (e.g., science project, poem, artwork) that allowed them to demonstrate the significance of their experiences. In a place where opportunities for extracurricular activities are limited, such opportunities carry a great deal of weight. The students presented their projects (which, although they were to have a science and/or environmental theme, did not actually have to be a "science" project) directly to our team of judges, comprised of project leaders, members of the RTC, and the local Grant Riverkeeper. We awarded prizes both for scientific posters as well as for art projects related to environmental health and science issues. Students and teachers alike were happy to receive this recognition. We will also present a podcast from the event.

Organization:

Harvard Center for Risk Analysis, Harvard School of Public Health

PEPH Program Affiliation:

Superfund Research Program

Topic area(s):

Capacity Building

Research Translation

25. Students Translate Environmental Health Research into Community Action

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Abstract

An environmental health independent study course was offered to teachers who had participated in an ARRA funded Science, Technology, Engineering and Mathematics (STEM) Summer Institute at Wayne State University. The STEM Summer Institute focused on biotechnology-based experiments and how they are utilized as tools to determine the genetic and molecular functioning of environmental toxicants. In addition, the teachers were instructed on the use of geographic positioning system (GIS) instrumentation to develop geographic information system (GIS) maps. The teachers were given time during the institute to identify and drop waypoints at potential environmental hazards in the communities around their schools. The teachers subsequently created GIS maps to display their findings. As the culminating project of the five week summer course, the teachers gave group presentations describing the environmental hazards they identified, including how these hazards might impact public health. The teachers described how this knowledge could be extended beyond the bench and into the community as action-based environmental stewardship initiatives by their students. Several of the Summer Institute projects will be described along with those that have been implemented in the schools and extended into the community by the independent study course teachers and their students.

Organization:

Wayne State University

PEPH Program Affiliation:

ARRA Challenge Grant

Topic area(s):

Research Translation



Afternoon Poster Session

26. 2011 Midwest Environmental Health Summit

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Abstract

The 2011 Midwest Environmental Health Policy Summit was held in July in St. Paul, Minnesota, at the offices of the American Lung Association in Minnesota and the Minnesota State Capitol. The Summit was a joint venture of the National Conference of State Legislators (NCSL), the University of Iowa, and the American Lung Association of the Upper Midwest. This was the third in a series of annual meetings held throughout the Midwest. The agenda included a wide range of environmental health issues including Superfund chemicals management, health benefits of renewable fuels and products, food safety, post-flood mold hazards, asthma, and the use of building codes to promote health and safety.

Legislators from the states of Minnesota, Iowa, Illinois, and Wisconsin were invited by NCSL. The attendance was strong with 18 legislators and legislative staff participating over the 1.5 day summit. Expert speakers were invited from the CDC, EPA, USDA, and other national centers, as well as from various state universities. The legislators asked engaging questions, were well informed on some issues, and were involved in interesting discussions driven by the presentations.

This format for sharing current knowledge on environmental health issues with state legislators has proven effective. Demands on their time make it difficult for them to conduct thorough research for purposes of policy making, and often the information they have at hand comes to them from lobbyists. By bringing legislators together with scientists and national experts, the most direct form of research translation occurs. Ultimately, these summits provide an energizing forum for engagement at the intersection of constituent concerns and environmental health. On evaluation, one participant commented, "First, I realize more now how many of the health concerns are related to environmental changes. Certainly there are things, like gas, that can be regulated more to increase air quality. I will resist over-implementing of new regulations, but some new things need to be done."

Organization:

Environmental Health Sciences Research Center, The University of Iowa

PEPH Program Affiliation:

EHS Core Centers

Topic area(s):

Research Translation

27. Air Pollution Outreach, Education, and Research Capacity Building in Alaska Native Communities

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Abstract

As part of the 2009 American Recovery and Reinvestment Act (ARRA), The University of Montana received funding from NIEHS to implement their project titled “Air Pollution Outreach, Education, and Research Capacity Building in Alaska Native Villages.” The specific aims of this project included: 1) educating students on the importance of good air quality and respiratory health outcomes, while providing hands-on research opportunities for students to assess indoor levels of PM2.5 and 2) identifying community specific air pollution issues of interest and characterizing respiratory disease in children. The overall mission of this project is to reduce health disparities of Alaska Native people living in remote communities by raising awareness of indoor air quality issues affecting respiratory health, and to empower students and environmental health personnel residing in these areas to work with their communities to improve air quality, and the health of community members. Eight schools from across Alaska are currently participating in the education program, and seven communities are participating in the community surveys. This presentation will provide an overview of the education program Air Toxics Under the North Star, progress to date, and preliminary results from the air quality and respiratory health surveys.

Organization:

The University of Montana

PEPH Program Affiliation:

ARRA Challenge Grant

Topic area(s):

Capacity Building

28. Applying Laboratory and Field Research to Real-World Problems Through Research Translation: An Arizona Mining Site Example

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Abstract

The mission of the University of Arizona Superfund Research Program (UA SRP) is to support the development of a risk assessment process for metal and organic contaminants through toxicologic and hydrogeologic studies and through development of innovative remediation technologies. Central to this goal is the Research Translation Core (RTC), which aims to actively and effectively communicate the research products of our program to pertinent stakeholders. Our RTC activities are exemplified by our collaborative, integrated efforts involving the Iron King Mine and Humboldt Smelter Superfund site in Dewey-Humboldt, AZ. UA SRP projects, encompassing biomedical and environmental science and engineering studies, are built upon the issues of concern at this site, namely wind-blown dust and arsenic contamination from mine tailings. Laboratory studies are being conducted to determine the effects of arsenic exposure on organ systems. Field studies, comprising multiple collaborative projects, are in place to characterize the dust and associated contaminants, and to determine the effectiveness of phytoremediation for stabilizing the tailings and limiting dust and metals exposure. Critical to the success of these projects is development of a rapport with both regulators and the community. One outgrowth of the UA SRP RTC is a graduate project funded in part by the US EPA, to develop a citizen-science project to measure metal content in garden vegetables grown near the site. Keeping the community involved, and responding to their concerns, is also met through participation in community meetings and local events. A major concern of the community members is how they may be impacted by proximity to the site and its hazards; thus, another project involves a pilot exposure-assessment study. In addition, the ongoing development of a dynamic live and web-based seminar series provides us with an opportunity to highlight our research efforts related to the Iron King site, while interacting with the EPA and other SRPs. This multi-faceted, integrated 'team' approach is designed to optimize the application of academic research to real-world problems, with a specific focus on enhancing the resolution of site-specific environmental contamination and health issues. It is anticipated that this approach can serve as a model for other contaminated sites.

Organization:

University of Arizona

PEPH Program Affiliation:

Superfund Research Program

Topic area(s):

Research Translation

29. Asthma Status and the Agricultural Environment: Linking Clinical Services with CPBR

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Abstract

There is concern for but limited research on the role of agriculturally related ambient environmental exposures on asthma in U.S. children. As part of a community based participatory research partnership (El Proyecto Bienestar), the Yakima Valley Farm Workers clinic (YVFWC) is currently partnering with researchers at the University of Washington to evaluate these factors. Each partner contributes to study success from active involvement in all steps of research from subject recruitment to ongoing longitudinal data collection to communication of results to the clinical providers and community.

As a federally qualified health center, YVFWC is the major provider of health care services to the largely Hispanic agricultural worker families in eastern Washington State. The YVFWC approach recognizes the importance of patient education and community based health services as well as quality medical care. This is illustrated by the YVFWC Asthma and Allergy outreach program which provides a connection to the study population and their clinical providers for this research. This evidence based program has been in operation for over 10 years providing home visits by community health workers to address well established indoor asthma and allergy triggers.

Benefits of this partnership include the ability to provide additional health services for the study subjects including annual spirometric measurement, allergy testing, exhaled nitric oxide determination, and close follow up of asthma status. The burden of relatively intensive repeat study procedures is reduced through the role of asthma outreach program staff in longitudinal follow up. Their established and trusted relationship with study subjects including visits to their homes enriches subject engagement and retention. Study participants receive dust mite covers if dust mite allergy positive and all subjects receive digital peak flow meters for home use. YVFWC clinical providers are updated during the data collection phase through annual letters describing their individual patient's results. The study provides an opportunity to address an important data gap on the role of agriculturally related exposures in childhood asthma and translate findings into a clinical based program.

Organization:

Yakima Valley Farmworker Clinic

PEPH Program Affiliation:

Research to Action



Topic area(s):

Communication

Capacity Building

Research Translation

30. Building Capacity for Collaborative Research in Breast Cancer, the Environment, and/or Disparities

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Abstract

The centerpiece of the collaboration funded through this NIEHS award is an intensive training program (Community Based Research Infrastructure to Better Science [CRIBS] training program) to build capacity among community-academic teams to conduct community based participatory research (CBPR) into the environmental causes of breast cancer and disparities in breast cancer. As an outreach and in-depth training program, CRIBS has the potential to impact the science of CBPR, as well as the science of environmental and disparities questions in breast cancer. CRIBS is designed to increase the likelihood of success for multiple partnerships, an innovative approach for moving beyond the creation of infrastructure for individual partnerships into the realm of building a strong and connected base, a cohort that can broadly impact science and health. This presentation will focus on describing the major accomplishments of the partnership's first year and a half, highlighting in particular the outreach successes, the diversity of the training cohort, elements of the training curriculum, and the participatory evaluation approach for examining process and outcomes for the project.

Outreach efforts in the first year included contact with 272 individuals from 11 cities and surrounding areas across the state of California through full-day workshop on CRIBS related training opportunities, the CRIBS partnership organizations, and CBPR methods for research. Outreach outcomes included 22 applications for the CRIBS intensive training program (ITP), from which 12 teams were selected for participation. The ITP curriculum has four core learning objectives: (1) creating CBPR teams; (2) understanding the science of environmental causes of and disparities in breast cancer; (3) creating a pathway from vision to project; (4) writing successful grant applications to funders of CBPR research (including but not limited to, the California Breast Cancer Research Program). The ITP format includes face to face training, online training in a web-supported learning community, a mock grant review, and technical assistance. The evaluation of the CRIBS project is participatory in nature, relying on feedback from CRIBS partners and training participants on evaluation design, and their active participation in evaluation implementation.

Organization:

California Breast Cancer Research Program & Commonweal

PEPH Program Affiliation:

ARRA Challenge Grant

Topic area(s):

Capacity Building

31. Building Capacity: Engaging the Public in Ethics and Environmental Health

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Abstract

Researchers at the Center for Ecogenetics and Environmental Health study a range of topics such as neurotoxins (e.g. lead and mercury), cancer, cardiovascular toxicology, and drug metabolism. The Center's Community Outreach and Ethics Core (COEC) works to address the ethical, legal and social implications of Center research and fosters bi-directional capacity building between Center researchers and stakeholders. Stakeholder groups include K-20 students, community groups, tribal representatives, and government agency staff and scientists. Below are three key COEC activities in 2011.

Public Health Café is a quarterly discussion series held at a vegetarian restaurant during happy hour. During the PH Café an expert makes an informal presentation about a timely topic in environmental health, followed by small group conversations about the ethical implications of the topic. Public Health Cafés to date have addressed epigenetics and biobanking.

Paws on Science is an annual event for families hosted by the University of Washington at Seattle's Pacific Science Center. COEC has hosted a booth at all three annual events to teach about the relationship between genes, environment, behavior and human health. We created the Magic Bead genetic test to find susceptibility to a pretend condition, Smurfatosis, in which people turn blue after being in the sun too long. We also created the EcoGen card game with "fate" cards and "choice" cards to teach that our health is the result of interactions between genes, behaviors, and environment (ecogenetics).

The COEC was approached by a Wikipedia volunteer 'ambassador' concerned that the Wikipedia article about biobanks was insufficient. The COEC facilitated a collaboration to improve the article and add pertinent ethical considerations and citations, providing more accurate information to the public.

Collaborating with Wikipedia is unexplored territory, but there is potential to reach a huge number of people and improve public literacy around research ethics.

In addition to the highlights above, the COEC creates educational materials, visits K-12 schools and local science fairs, and participates in several annual community events. The COEC is guided by its Community Advisory Board that includes members who work in government, non-profits, tribal communities, public schools, media, and the university.

Organization:

University of Washington

PEPH Program Affiliation:

EHS Core Centers

ARRA Challenge Grant



Topic area(s):
Capacity Building

32. Building Effective Communication Channels for PROTECT Research Translation and Community Engagement

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Abstract

Puerto Rico Testsite for Exploring Contamination Threats (PROTECT) evaluates exposure to environmental contamination in Puerto Rico and its contribution to preterm birth (less than 37 completed weeks of gestations). PROTECT is a multi-project, multi-institution collaboration that includes Northeastern University, University of Puerto Rico - Medical Sciences Campus, University of Puerto Rico - Mayaguez and University of Michigan. Through integrated analytical, mechanistic, epidemiology, fate-transport, and remediation studies, along with a centralized, indexed data repository, PROTECT seeks to better understand the phenomena affecting fate and transport of hazardous substances (specifically chlorinated solvents and phthalates) in karstic aquifers and to develop green remediation strategies that attenuate and mitigate exposure to protect human health and ecosystems.

One of the main goals of the PROTECT program is to enable the knowledge gained from PROTECT fundamental research to achieve the broadest impact on the wide community of people and organizations that deal with the diverse, real-world aspects of Superfund contamination and preterm birth challenges. In order to do this, the Research Translation Core, Administrative core and the Training Core work closely to engage PROTECT with the related government agencies and industrial firms working in the area of environmental contamination and biomedical technologies. They also collaborate to plan and implement strategies that will effectively convey the mission and research results of PROTECT's environmental and biological studies to the communities that are affected and impacted. As the PROTECT program evolves, we are expanding our efforts in community engagement and research translation to provide an interactive community among our researchers, trainees, community members, government agencies and industry to result in a holistic, transdisciplinary approach to our communications on environmental health.

Organization:

PROTECT (Puerto Rico Testsite for Exploring Contamination Threats) headquartered at Northeastern University

PEPH Program Affiliation:

Superfund Research Program

Topic area(s):
Communication

33. Community Based Participatory Research: Air Quality and the Long Beach Cambodian Community

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Abstract

Community agencies EndOil, Families in Good Health at St. Mary Medical Center, and United Cambodian Community, in partnership with researchers at CSU Long Beach and Occidental College are conducting a community based participatory research (CBPR) project in Long Beach's Cambodian community to identify the localized health hazards from outdoor air pollution including goods movement and transportation sources. Additionally, this CBPR project identifies sensitive receptors such as children and the elderly within proximity to these health hazards. Lastly, the project examines Cambodian community knowledge related to air pollution, health impacts, and potential advocacy strategies. Methodology includes "ground truthing" wherein observations and knowledge of environmental hazards and sensitive receptors generated by trained community members are used to verify and correct governmental agency information and develop a more comprehensive understanding of the environmental and health impacts faced by the community. Methodology also includes focus groups to investigate the health impacts and community knowledge of air pollution.

Community agencies and residents collaborate with air quality and health researchers in all stages of the research project: development, training, data collection and analysis, and dissemination of findings. This project raises critical awareness and builds capacity in the Cambodian community to collect and analyze environmental health data for use in developing advocacy strategies.

This CBPR pilot project is funded by the Assessment of Local Environmental Risk Training (ALERT) to Reduce Health Disparities, a training and education project funded through the National Institute of Environmental Health Sciences, which is designed to improve the relevance and accuracy of environmental health research by promoting collaborative work between researchers and community representatives.

LEARNING OBJECTIVES:

1) Participants will describe a community based participatory research project related to environmental health.

2) Participants will illustrate how a community based participatory research project is implemented in the Long Beach Cambodian community.

Organization:

EndOil / Communities for Clean Ports; UCLA Center for Health Policy Research

PEPH Program Affiliation:

ARRA Challenge Grant

Topic area(s):

Research Translation

34. Community Outreach and Engagement Addressing Environmental Health in a Multi-faceted Agricultural Community

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Abstract

The Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS) is a community/university partnership examining environmental exposures and children's health and development in the Salinas Valley, CA. To complement the research aims, the CHAMACOS community outreach and translation core (COTC) is engaged in extensive translational activities in this low-income, agricultural area, including: (1) timely dissemination of study findings to individuals, key stakeholders, and the general community, (2), providing a mechanism for community members to contribute to the research process and also help set priorities for future directions, (3) increasing awareness about children's environmental health, (4) targeted outreach to prevent toxicant exposures, (5) developing an environmental health leadership program for local adolescents, and, (6), when requested, educating policy makers about the implications of our research findings. Our central mechanism involves a Community Advisory Board (CAB) consisting of farmworkers, county health and agricultural officials, community groups, elected officials, and agricultural industry representatives. To complement the CAB, we convened a Grower Council consisting of major industry groups and growers and a Farmworker Council, a forum conducted solely in Spanish to enhance ease of communication. Members of each council participate on the CAB. Research findings are disseminated to study participants through community fora (attended by hundreds of people each year), newsletters, and a website. Environmental education and exposure-prevention activities are conducted at several levels, including education to farmworkers and their families, training of service providers such as schools, child care centers, and housing managers, delivery of continuing medical education (CME) approved presentations, and working with growers to implement field-based pesticide exposure-prevention work practices. Each of the community-engagement activities are targeted to populations with different education levels and personal and economic interests and thus require population-specific framing strategies to ensure effective, two-way, communication. In this presentation, the overall outreach program and the essential components of our framing strategy for each population will be described. We will also discuss future directions for the CHAMACOS COTC activities.

Organization:

UC Berkeley, Center for Environmental Research and Children's Health

PEPH Program Affiliation:

Centers for Children's Environmental Health Disease Prevention Research

Topic area(s):

Communication

35. Community-Based Research and Policy Engagement to Protect Health in Norton Sound Alaska

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Abstract

Community-based participatory research demonstrates that the Yupik people of St. Lawrence Island (SLI) in the Bering Sea region of Alaska, receive disproportionate exposures from contaminants through long-range transport and military sources. Community concerns prompted a study which demonstrated that blood serum of the Yupik people contained PCB levels significantly above those of the general U.S. population. This research suggests that atmospheric transport of PCBs contributes to levels in the Yupik people, and that the abandoned military site at the Northeast Cape on SLI also contributes to the human body burden in those individuals who have either spent substantial time or consumed food from there. The collaborative research team conducted investigations of contamination at the military site and also examined Yupik traditional foods for contaminants to inform community decisions and interventions. They conducted sampling to assess contamination from the military site. Results show elevated levels of contaminants in the watershed at Northeast Cape, an important traditional subsistence use area and village site prior to the military occupation. Here we report on results examining contaminant load and endocrine disruption in freshwater fishes from aquatic sites near formerly used defense sites in Alaska Native villages along Norton Sound. In order to assess dietary exposures, community researchers collected several hundred samples of the diverse species that are important in the traditional diet. Rendered oil samples contained the highest PCB concentrations, ranging from 200-450 ppb in seal species. For unlimited fish consumption, EPA's risk-based consumption limit for PCBs in fish is 1.5 ppb to avoid excess risk of cancer. Since the Yupik people sustain cultural ways of life that rely on traditional foods, dietary exposure is likely a significant source of the PCBs, particularly rendered oils and blubber. Researchers are working with community leadership on SLI to develop collaborative interventions that will eliminate and reduce exposures. This poster will present research results, collaborative interventions and policy engagement of the research team and community.

Organization:

Alaska Community Action on Toxics

PEPH Program Affiliation:

ARRA Challenge Grant

Research to Action

R01 Community Participation in Research

Topic area(s):

Communication

Research Translation

36. Creating Digital Stories as a Means of Empowering and Building Capacity in Community Partners

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Abstract

The Community Outreach and Engagement Program (COEC) employs digital storytelling as a means of building capacity with its community partners. To date, the COEC and/or its partners have engaged in six storytelling training sessions of 2-3 days each, led by staff from Digital Rain Factory (www.digitalrainfactory.org) who had previously conducted training for the Center for Digital Storytelling in Oakland, CA (www.storycenter.org). In these sessions, the storytelling staff taught the COEC and its community partners the process of using story circles to engage participants, writing a narrative story and using both still images and video clips to create a short and authentic personal video. The video products are 2-3 minutes long, and they are written, narrated, “shot,” audio-recorded, produced and edited by the community members themselves. Some participants had to overcome a fear of using new technology (which all successfully accomplished). The videos can be shown at conferences and trainings, distributed in e-mails and featured on web pages and blogs. To date, we have had two types of trainees: members of community-based environmental justice organizations and high school students. Each group has learned how to collect photos and video clips and write a story about what has motivated them to dedicate time trying to improve their communities. Partners whose members created digital stories include: East Yard Communities for Environmental Justice (EYCEJ), Center for Community Action and Environmental Justice, Long Beach Alliance for Children with Asthma, and Coalition for a Safe Environment. Those trained are extremely proud of the skills they learned and the products they developed, feel empowered, and say they also feel a greater closeness and bond as a group. The process has been valuable in working with a 6-member community-academic collaborative as well as in engaging an afterschool youth group. Digital Rain Factory staff says that “The simple clarity of these first-person narratives, made by total amateurs, resonates with everyday people. They give voice to the community and present both challenges and hopes for the future.” In addition to the capacity building from creating videos, the participants also say that the videos have given them a new method for advocating for change in their communities on the environmental health issues that concern them.

Organization:

Southern CA Environmental Health Sciences Center based at Keck School of Medicine of the University of Southern CA; East Yard Communities for Environmental Justice (Commerce, CA); Digital Rain Factory (Altadena, CA)

PEPH Program Affiliation:

EHS Core Centers

Topic area(s):

Capacity Building

37. Disseminating the Breast Biologues Educational Toolkit through New Channels and Partnerships

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Abstract

The Breast Biologues is an educational toolkit consisting of an award-winning, animated video narrated by Peter Coyote and a comic book. The Breast Biologues explains how the normal breast develops and how exposure to potential cancer-causing chemicals at specific times during breast development may influence future breast cancer risk. It was developed by the Bay Area Breast Cancer and the Environment Research Center (BABERC), one of four centers in the U.S. tasked with studying environmental causes of breast cancer by focusing on mammary gland development during puberty, a time when the breast may be particularly vulnerable to environmental influences. In 2010, the Centers transitioned to the Breast Cancer and the Environment Research Program, a nationwide network of grants jointly funded by the National Institute of Environmental Health Sciences and the National Cancer Institute.

The 15-minute video is a visual science-based storyline incorporating time-lapse imaging and highlights some of the fascinating genetic and cellular insights we have gained about normal breast development and its relationship to breast cancer risk. The narrative comic book, available in English, Spanish, and Vietnamese is made up of artwork from the video and accompanied by brief descriptive prose.

New collaborations and partnerships, both locally and nationally and across a variety of disciplines, have been key ways to disseminate this educational toolkit to a diverse audience. Key partnerships have included a public university broadcasting network, an art director and animator, a health science writer, and high school teachers and students. This poster will provide an overview of the toolkit, explain its learning objectives, describe audiences reached to date, and present the novel dissemination and outreach strategies used to publicize the toolkit.

Organization:

Zero Breast Cancer

PEPH Program Affiliation:

Breast Cancer and Environment Research Program

Topic area(s):

Communication

Research Translation

38. El Proyecto Bienestar: A Community Approach to Improving the Health of Agricultural Workers & Their Families

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Abstract

El Proyecto Bienestar (EPB) - The Well-Being Program - is an ongoing partnership of community-based organizations and the University of Washington Pacific Northwest Center for Agricultural Safety and Health (PNASH). EPB activities focus on research and its translation to address occupational and environmental issues of agricultural workers and their families in the Yakima Valley of Washington State. Hispanic agricultural workers in this region provide the manual labor that makes Washington one of the most productive agricultural states in the nation. However, these workers experience many social, economic, cultural and legal constraints to the health and well-being of themselves and their families.

This poster describes the primary partners, organizational structure, and examples of previous and ongoing EPB projects. The primary research team includes clinical health service providers (Yakima Valley Farmworker Clinic Network), the local Spanish public radio station/community education center (Northwest Communities' Education Center/Radio KDNA), a local University (Heritage University), and the University of Washington. The community is at the heart of EPB projects through involvement in all aspects of project selection, development, conduct, and translation of findings. A community advisory board consisting of agricultural workers, local organizations and church groups, among others, helps guide and facilitates the research. In addition, students from the local community participate in field research methods courses and support data collection, analysis and reporting on EPB activities. Based on community input, previous research activities have addressed pesticide exposure, violence in the workplace, and water contamination. Various radio, print, and internet approaches to communication and dissemination have been employed to engage and inform community members. Current activities are focused on the health of children with asthma and the role of agricultural factors in their disease. Through on-going evaluation, EPB combines research with community realities and solutions.

Organization:

Northwest Communities' Education Center/KDNA-FM

PEPH Program Affiliation:

Research to Action

Topic area(s):

Communication



Capacity Building
Research Translation

39. Expanding on the Success of the Community-Influenced Recruitment Strategies to Create a Model for Community-Engaged Outreach

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Abstract

The goals of the Grand Lake Watershed Mercury Study include: measuring methylmercury (MeHg) levels in a rural population including American Indians, Hispanic, and Micronesian fish consumers in northeastern Oklahoma, measuring MeHg levels in various species of commonly-consumed fish from the Grand Lake Watershed (GLW), determining whether trophic position and habitat influence variability in mercury concentrations, and developing educational programs around safe subsistence fishing and understanding mercury cycling in the environment.

The recruitment goal for the first aim was 150 people who eat fish caught from the GLW. The recruitment strategies can be separated into two categories – engagement (with people) and location (places they frequent and fish).

Results of initial small group discussions held in the community by partners Earl Hatley and Rebecca Jim, followed by discussions among all study team members, revealed that engagement strategies needed to address: literacy, language, cultural beliefs and practices, local custom/behaviors, familiarization with fish species, personal networks, and trust. The location strategies needed to address: group meeting places (church, etc.); location of bait shops; where, when, and how often people fish; and where and when the fish fries and other fishing-related community events are held.

These same recruitment strategies become central to the model we are developing for the educational outreach component. Then to refine the outreach strategies, interested study participants, will be invited to join focus groups. Their contributions to the identification of additional useful avenues for outreach, customization of outreach messages for local groups, proposals for new practices based on study results (fish preparation and cooking, for example), and eventually doing the outreach, will expand the outreach efforts and capacity in the community. This involvement with both the study the outreach often also adds to the study outcomes a strong psycho-social component that includes pride in and “ownership” of the knowledge that these participants contributed to the local and general knowledge-base regarding mercury exposure and risk.

Organization:

Harvard School of Public Health

PEPH Program Affiliation:

Research to Action

Topic area(s):

Capacity Building

40. Facilitating Collaborations: Community/Agency/Academia

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Abstract

The University of Washington Superfund Research Program (UW-SRP) has been active in research translation and community engagement for over ten years. Effective partnerships have developed with federal and state agencies of health and ecology and with a range of community partners who are invested in hazardous waste issues.

A three-point partnership between Environmental Protection Agency (EPA) staff, the UW-SRP and a unique regional community coalition has been cemented in the last two years. Common goals and priorities have been identified and tangible outcomes are now within reach.

The Northwest Toxic Communities Coalition (NWTCC) is comprised of community organizations located near hazardous waste sites. The founding members of the coalition represent a range of non-profit organizations, some in existence for over 20 years. The coalition focuses on improving public health by ensuring remediation of their sites. They seek to establish greater capacity and parity among communities impacted by toxic waste by increasing transparency and access to information and promoting enhanced public participation at all levels of government. Since 2005, the coalition has held regular annual summits with presenters that include regional, state and federal agency staff. As academic partners, Antioch University and UW-SRP have provided support and resources for the annual summits.

EPA Region 10 serves the states of Alaska, Idaho, Oregon and Washington. There are approximately 100 Superfund sites in Region 10 over which the EPA has the primary regulatory responsibility. Community members impacted by hazardous waste site issues interact with a range of EPA staff that may include the environmental justice program, community engagement coordinators assigned for each site and remedial site managers who are directly involved in decision making during site cleanup.

The poster will highlight components of the successful collaboration between community, agency and academia. Progress has been made in reaching two concrete outcomes that represent a benchmark in capacity building: a commitment to improve video documentation of public meetings as a way to increase information access for the wider community; and the creation of a regional workshop on air quality issues to be held in 2012. The workshop objectives are to improve citizens' understanding of federal and state regulations and enforcement, and to explore strategies that help address any gaps which exist between the laws.

Organization:

University of Washington Superfund Research Program, Research Translation Core

PEPH Program Affiliation:

Superfund Research Program

Topic area(s):

Capacity Building

41. From Advancing Science to Ensuring Prevention

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Abstract

Virtually every pregnant woman in the United States has measurable levels of multiple chemicals in her body that can harm human reproduction and development. Chemical exposures during the prenatal period can have effects across the life span of individuals, ranging from short term effects such as birth defects to long term effects such as adult cancers. Thus, preventing harmful exposures incurred during the preconception and prenatal periods can have a lifetime of health benefits. Obstetricians and other reproductive health professionals are uniquely poised to intervene at key points of development for women's and children's health. To leverage this largely untapped opportunity to prevent developmental exposure to reproductive and developmental toxicants, in 2008 the University of California San Francisco's Program on Reproductive Health and the Environment (PRHE) formed the From Advancing Science to Ensuring Prevention (FASTEP) Alliance. The goal of FASTEP is to secure each and everyone's right to optimal reproductive health by fostering environments that prevent exposure to potential reproductive toxicants and provide the nutritive and social sustenance necessary for healthy pregnancies, children, adults, and future generations.

This poster will describe: (1) the results of FASTEP activities over the past 4 years to engage reproductive health professionals in the prevention of harmful environmental exposures in clinical and policy arenas; (2) preliminary data on the first empirical data gathered to assess obstetricians' beliefs, attitudes and practice about environmental health; and (3) limitations and strengths of this prevention strategy.

Organization:

University of California San Francisco, Program on Reproductive Health and the Environment

PEPH Program Affiliation:

Formative Children's Center

Topic area(s):

Research Translation

42. Mapping Environmental Hazards and Black Carbon Measurements in an Immigrant Community

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Abstract

Background and Aims: Vietnamese represent a rapidly growing immigrant group in the US. This population shows increasing trends for many chronic health problems with increasing number of years in the US, which may be attributed in part to environmental stressors. The objective of this project is to use qualitative and quantitative methods to identify and characterize neighborhood-level environmental hazards for the Vietnamese population in California. Key to this work is the integrated participation and perspective of Vietnamese community members to identify and prioritize elements of their community that potentially impact their health.

Methods: Community members (N=66) from four counties (Alameda, Marin, Orange and Santa Clara counties) in California were trained to conduct walking street audits to document environmental hazards in their neighborhoods. Each street segment was approximately one city block long. Participants carried GPS devices, collected black carbon measurements using small real-time personal monitors, conducted five-minute car and truck counts and used Photovoice documentary methods.

Results: Community auditors conducted a total of 276 audit street segments, including 134 business (48.6%) and 142 residential (51.4%) segments. Audit survey and Photovoice results in each county reflected perceived negative characteristics for selected segments, including graffiti, litter and bars on windows. The mean five-minute truck count was 2 (range: 0 -10) on business streets and 0.3 (range: 0-4) in residential areas. The mean black carbon concentration for a segment was 1.7 ug/m³ (Alameda County mean=1.8; Marin County mean=1.5; Orange County mean=2.0; Santa Clara County mean=1.7) relative to the statewide mean of 0.92 ug/m³. Observational audit survey data highlighted issues around litter and smoking, as well as traffic-related odors and noise. Qualitative data from Photovoice and written comments from auditors reflected concerns around neighborhood safety.

Conclusions: We successfully engaged community members in collecting qualitative and quantitative environmental data on their local neighborhoods. Comparisons between these community-collected snapshot data to governmental monitoring data for traffic and black carbon helps to inform how well existing secondary data can capture local environmental hazards. Of particular interest, community-

collected black carbon data emphasized the roles of geographic scale, time scale, and timing of measurements.

Organization:

Cancer Prevention Institute of California

PEPH Program Affiliation:

ARRA Challenge Grant

Topic area(s):

Capacity Building

43. National Conversation on Public Health and Chemical Exposures

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Abstract

The National Conversation on Public Health and Chemical Exposures was a two-year project with the vision that chemicals should be used and managed in ways that are safe and healthy for all people. Supported by the Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR), the National Conversation provided an opportunity for thousands of Americans to contribute to the development of recommendations to help government agencies and other organizations strengthen efforts to protect the public from harmful chemical exposures. The National Conversation was conducted in a participatory, collaborative, and transparent manner, and included participants with the experience and perspectives of communities, government, health professionals, businesses, NGOs, and research institutions.

CDC/ATSDR and the American Public Health Association created a Community Conversation Toolkit in English and Spanish to help community leaders conduct local conversations and gather community-based ideas related to public health and chemical exposures. More than 1,000 people participated in more than 50 community conversations in 24 states in spring 2010. WestEd, CDC/ATSDR, and RESOLVE also hosted two WebDialogues at key points in the process to engage a broad range of stakeholders from across the United States. The first WebDialogue included more than 300 registrants from 40 states, the District of Columbia, and Puerto Rico. The second WebDialogue included more than 500 registrants from 48 states and the District of Columbia. In addition, six National Conversation work groups contributed detailed, topic-specific reports, which helped inform the National Conversation Leadership Council's final Action Agenda, released in June 2011. Today, CDC/ATSDR and others are taking action to address recommendations that emerged from the National Conversation.

Organization:

CDC/ATSDR

Topic area(s):

Communication

Capacity Building

44. Packaging Environmental Science Trainings: Transferable Training Modules Targeting Community Health Advocates

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Abstract

As part of The University of Arizona Superfund Research Program (UA SRP) Community Engagement Core's ongoing interaction with community health advocates (promotores), environmental science trainings have been formalized into transferable modules. Four themes were selected by project partners, which include pesticides, arsenic, environmental toxicology, and fate and transport of environmental contaminants. The overall goal of the modules is to improve environmental trainings for promotores, while providing a basis for multiplying such efforts. This endeavor is a binational effort that incorporates science experts from UA SRP, Universidad de Sonora, and Instituto Tecnológico de Sonora. In addition, a diverse group of promotores has been assembled from the targeted regions to provide guidance and input. They include the Sonora Environmental Research Institute, Inc. (Tucson, Arizona), Regional Center for Border Health, Inc. (Somerton, Arizona), and the Consejo Nacional para la Cultura y las Artes/Instituto Tecnológico de Sonora (Valle del Yaqui, Sonora).

Currently, we are testing the draft modules on groups of promotores located in Arizona and the US-Mexico Border. At module trainings, we are piloting the theoretical and practical content in addition to the supportive tools that have been integrated. Lessons learned have been acquired through post training surveys. Feedback has established the importance of emphasizing engaging tasks such as hands-on demonstrations, problem simulations, and story-based learning. It has also been determined that environmental science themes need to be practical while supporting outreach work; science material presented in lectures must easily translate to audience; and training presentations must balance attractive design and the basic science to be transmitted.

Organization:

The University of Arizona

PEPH Program Affiliation:

Superfund Research Program

Topic area(s):

Capacity Building

45. Personal Exposure Report-back Ethics (PERE) Study

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Abstract

For emerging contaminants with unknown health implications, uncertainty about the interpretation of personal exposure results raises questions about whether and how to report individual results to study participants. Our project develops guidelines for ethical practices in reporting personal exposure results by investigating the experiences, values, and attitudes of participants in personal exposure studies, as well as the perspectives of institutional review board (IRB) members, researchers, clinicians, and legal experts. Through this grant, we formed a research collaborative that includes Silent Spring Institute and faculty from Brown University, the University of California-Berkeley, and Harvard University. Our team has had a pioneering role in expanding the discussion on report-back, building partnerships between researchers and community based organizations (CBOs), and integrating the values of community-based participatory research (CBPR) into personal exposure research. Members of our team have partnered with the California Biomonitoring Program to conduct usability testing of report-back methods and educated IRBs on CBPR and the reporting of exposure results. The project investigates the report-back methods of four studies, in which participants chose to receive their individual results for chemicals. The four case studies encompass government, academic, and advocacy research. Our project held a workshop in September 2010 at the Harvard Law School, which brought together 44 ethicists, environmental health researchers, lawyers, clinicians, study participants, health advocates, and IRB officials to discuss legal and ethical issues related to report-back. Since responsible reporting of individual exposure results requires tailoring report-back to participants' social and historical context, we are investigating a method for digital report-back that can be modified by participant's language, health concerns, and scientific literacy. This project will lead to guidelines for effective, ethical, and logistically feasible report-back protocols for personal exposure research.

Organization:

Silent Spring Institute

PEPH Program Affiliation:

Research Ethics

Topic area(s):
Communication
Research Translation

46. Polycyclic Aromatic Hydrocarbon (PAH) Exposure from Traditional Native American Food Smoking Practices

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Abstract

Polycyclic Aromatic Hydrocarbons (PAHs) are a group of chemicals generated by incomplete combustion and some are known to be carcinogenic. The Confederated Tribes of the Umatilla Indian Reservation, like many other Native Americans, may be at a higher risk for exposure to PAHs from inhalation of smoke during the smoking of fish and game using traditional practices, and from ingestion of smoked foods. In local tribal communities, smoked fish and game constitutes an important proportion of their diet and plays a major role in their culture and development. The present study describes the traditional smoking practices of salmon in two different structures, a tipi and a wood shed, and using two different types of wood. Two main exposure pathways are evaluated utilizing urine samples and personal air samplers to best characterized the degree of human exposure during the smoking events. Traditional smoking practices will be described along with the use of modern metrics to quantify exposure. Preliminary data from the personal air sampler and the urine samples will be presented as it becomes available.

Organization:

Oregon State University

PEPH Program Affiliation:

Superfund Research Program

Topic area(s):

Capacity Building

47. Reproductive Health After Disaster Toolkit: Building Community Capacity and Improving Emergency Response

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Abstract

Background. Women in Louisiana and throughout the Gulf Coast are at greater risk for adverse pregnancy and birth outcomes. Women are especially vulnerable during disaster for a number of reasons, including exposure to contaminants, separation from their medical home and fragmented access to family planning options, while healthcare systems struggle to manage secondary surge in the aftermath. An improved method for emergency response necessitates building a Gulf Coast-wide network of providers prior to disaster and revising an assessment to gather information from women regarding their service needs. **Methods.** As part of the Transdisciplinary Research Consortium for Gulf Resilience on Women's Health a working group was convened of regional experts and community leaders entrenched in eliminating health disparities and improving women's health. The foundation of the working group forum is the Reproductive Health Assessment After Disaster (RHAD) Toolkit, a set of tools designed to guide users through the planning, implementation, and analysis stages of conducting a reproductive health assessment post-disaster. The working group is charged with meeting monthly for the complete and conclusive review of the RHAD Toolkit methods for assessment, survey item construction, the building of a comprehensive regional resource guide, and ultimately identifying a corps of CHWs to serve as disaster interventionists – the bridge to healthcare services Gulf-Coast wide. **Results.** A key area of concern identified by working group members was the ability of disaster interventionists to manage women's anxiety and stress during a crisis, while at the same time collecting information and providing referrals. The group conceptualized a phased approach to the process, whereby baseline data is collected from women prior to disaster, followed by a needs assessment administered 4-6 weeks post-disaster and finally, a more in-depth interview to take place 6 months after disaster. **Conclusions.** Although real-time application of the toolkit has not been implemented, the group's phased approach seeks to create a relationship with women prior to disaster, facilitating contact during and following the disaster. Utilizing this community-based approach can enhance the scope and power of public health research, strengthen the region's overall capacity and may increase engagement and adherence to health services.

Organization:

Tulane School of Public Health and Tropical Medicine

Topic area(s):

Capacity Building

48. Technology Transfer Activities from the UC Davis Superfund Research Program

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Abstract

The University of California Davis Superfund Research Program broadly focuses on determining the fate and transport of hazardous materials in ground water, surface water, and air as they move from toxic waste sites using classical and innovative methodologies. Concurrently, we are developing sensitive systems for evaluating the exposure and effect of populations to these materials. Rapid immunochemical and cell-based analysis supplement classical technologies for the evaluation of sites, validating models of transport from these sites, as well as determining human susceptibility, exposure and effect. We also explore new technologies for thermal and bioremediation of toxic waste and address possible health risks associated with these technologies. We are expanding the use of transcriptomics, proteomics, metabolomics and integrated bioinformatics technologies to discover new mechanisms of action of hazardous materials and biomarkers for their action. The biomarkers developed in this project will serve as biological dosimeters in epidemiological and ecological studies in this and sister projects. The technologies developed are tested at field sites and transferred to end users through a research translation core.

Here we will present a few of the technologies that are in varying stages of development. For those more fully developed technologies, the efforts and strategies used as it pertains to research translation will be described. Some of these technologies under development are novel immunoreagents for employment in analytical methods, fabricated nanoparticles for ultrasensitive detection of biomolecules, and fabricated nanomaterials for metal remediation. Technologies that are currently in the process of moving from research findings into products useful for various applications include immunoassays for pesticide quantification, a biodegradation strategy for site remediation, and an enhanced cell-based assay for the detection and relative quantitation of dioxin and related arylhydrocarbon-active molecules.

Organization:

University of California, Davis

PEPH Program Affiliation:

Superfund Research Program

Topic area(s):
Research Translation

49. The Libby Community Childhood Health Investigation and Follow-Up Study (CHIEFS)

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Abstract

Background: Mined since the 1920s and up to 1990, the Libby vermiculite deposits are characterized by the composition of asbestos minerals found commingled with the vermiculite mined in Libby and is referred to as Libby Amphibole (LA). In 2000, a total of 600 children aged 10-17 participated in a screening program. Our study focuses on the follow-up of this cohort.

Hypothesis: We hypothesize that childhood exposure to LA asbestos will be significantly associated with increased respiratory disorders.

Aim 1: Determine if childhood exposure to LA is associated with an increase in adverse respiratory symptoms, age-adjusted decrements in pulmonary function, decrements in diffusing capacity and lung volumes, and increases in pleural changes.

Aim 2: Develop an environmental exposure matrix to determine childhood exposures to LA including factors such as age at exposure, geography, personal activities and home environmental sampling undertaken by the EPA.

Aim 3: Develop, implement and evaluate a well-defined reciprocal outreach and communication program. This program includes residents of Libby MT, CARD, UC investigators, local health professionals, and federal agencies.

Methods: A clinical examination, including an exposure and health questionnaire, PFT, chest x-ray, and HRCT scan, are obtained. Testing is done at the Center for Asbestos Related Disease (CARD) and St. John's Hospital.

Current Progress: Currently, 223 of the targeted 360 subjects (62%) have completed their health evaluation at CARD. There has been considerable community outreach by CHIEFS investigators and staff through participating in the inaugural and second annual Libby Community Research Rally and Symposium. Families with their children were invited to attend the "Research Rally" portion to meet the researchers to learn about the asbestos related disease and respiratory health as well as the various ongoing research projects in Libby. For the children, CHIEFS prepared fun educational activities, which included a lung health quiz and model lungs made from plastic bottles and balloons. Children were given directions on how to make the

model lung as a fun science project. In the following days, researchers presented their current findings to the public and scientific community. During the symposium, community members were given an open forum to address researchers with questions. The CARD staff has been pivotal in many CHIEFS recruitment and outreach efforts.

Organization:

University of Cincinnati and the Center for Asbestos Related Disease (CARD)

PEPH Program Affiliation:

EHS Core Centers

ARRA Challenge Grant

Topic area(s):

Research Translation

50. Translating Gulf Oil Spill Research to Educate Impacted Communities

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Abstract

The 2010 Deepwater Horizon oil spill in the Gulf of Mexico adversely impacted the diverse coastal communities living along the Gulf Coast states. These communities may be at increased risk of disease due to elevated exposures to a wide range of contaminants associated with crude oil and its breakdown products. Potential contaminants of particular interest are polycyclic aromatic hydrocarbons (PAHs). Part of this BRIDGES (Biological Response Indicator Devices for Gauging Environmental Stressors) related research project seeks to provide pertinent PAH-related outreach education to the diverse communities impacted by the oil spill. This presentation reports on (1) the potential health effects from exposure to PAHs from crude oil, (2) passive sampling devices (PSDs) that mimic cellular membranes and absorb the bioavailable fraction of certain chemicals, and (3) stepwise approaches to outreach from a logistically challenging distance.

Organization:

Oregon State University

PEPH Program Affiliation:

EHS Core Centers

Superfund Research Program

Topic area(s):

Communication

51. Translating Research to Prevention, Clinical Care, and Policy Decisions

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Abstract

The Dine Network for Environmental Health (DiNEH) Project has been working with Navajo communities for 12 years to determine the impacts of environmental exposures from more than 1100 unremediated uranium waste sites associated with more than 500 abandoned uranium mines and mills that are a legacy of the cold war. The DiNEH team has worked with 20 of the 110 Navajo chapters where more than 100 of these abandoned sites are located. Over the past decade, the DiNEH team has trained community members in research methods; learned about effective strategies for obtaining information on exposures, land use, medical histories, and other associated risk factors; built effective partnerships that include health care providers, tribal government agencies, federal agencies, and local and national congressional committees to ensure the results and implications of the research are not only effectively disseminated to community members to protect health, but also to clinicians to inform diagnosis and care, and to regulators and other policy-makers to inform remedial action decisions. The DiNEH project has had success in all of these arenas. Results of the self-report data from the original 1304 participants are being validated through analyses of biomarkers of effect and clinical diagnoses in a subset of the participants, as well as through comparison with summary data from a medical monitoring program initiated by Navajo Area IHS in collaboration with the Dine team. Methods for conveying results of water sampling to communities across Navajo Nation developed by the project communities are now being used Navajo-Nation wide, and modeling results are being used by communities in their negotiations on remedial actions. With support from USEPA Region 9, the team has also worked with communities to produce a video, primarily in Navajo, to inform people on the risks from contamination of water, historic impacts to water, and some of the actions being taken to improve the situation. The team is now leading a multi-agency, multi-institutional effort to assess the potential impacts of exposures to these sites on reproductive and developmental outcomes. The partners in this new effort include the Navajo Nation Division of Health, the Navajo Area IHS and PL638 hospitals, and the Centers for Disease Control/Agency for Toxic Substances Disease Registry.

Organization:

Community Environmental Health Program, University of New Mexico Health Sciences Center, College of Pharmacy

PEPH Program Affiliation:

RO1

Topic area(s):

Communication, Research Translation

52. Teachers' Domain Environmental Public Health Media Collection and Teacher Training Lessons

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Abstract

WGBH Educational Foundation has completed our K-12 Environmental Public Health collection of 60 media resources, adapted from a range of sources including public television, NIH, EPA, and other PEPH participants. Each media asset (generally a short video or an interactive experience for students) is accompanied by a background essay for teachers and discussion questions for use in the classroom. They are now distributed through Teachers' Domain at <http://www.teachersdomain.org>. Since the initial launch of the first set of these resources in the summer of 2010, they have garnered nearly 20,000 page views.

In the final phase of our grant, we are building upon these media resources, completing three lesson plans, a set of three self-paced lessons for students, and a set of four self-paced lessons for teacher professional development. In our poster session, we will demonstrate examples of the media as well as one of the self-paced lessons for teachers.

Later in 2012, the entire project will migrate to a new digital library platform, PBS LearningMedia.

Organization:

WGBH Educational Foundation

PEPH Program Affiliation:

ARRA Challenge Grant

Topic area(s):

Communication