



Communication Research in Environmental Health Sciences: Environmental Health Literacy

September 22-24, 2014

NIEHS Building 101, Rodbell Auditorium • Research Triangle Park

Poster Abstracts

1. In Their Own Words: A multimedia experience of environmental health literacy

Sarah Pomerantz

Contributing Authors:

Adams-Gregg, A., CommunicateHealth
Scrimgeour, X., CommunicateHealth
Williams Hilfiker, S., CommunicateHealth
Robison, S., CommunicateHealth
Good-Schiff, K., CommunicateHealth

Organization:

CommunicateHealth, Inc.

Theme:

Cultural Communication: Needs of Diverse
Audiences, Tools and Technology

Abstract:

What does environmental health sound like? We invite you to listen. CommunicateHealth set out to give a voice to those on the front lines of environmental health — mothers, neighbors, nurses, and grandfathers. The result is a 6-minute video that addresses questions such as: What sort of information do people need to keep themselves and their families healthy? What is frustrating, confusing, or overwhelming about the process of accessing environmental health information? What do people think “environmental health” means?

Quotes in the video are excerpted from field interviews conducted by CommunicateHealth, Inc. on behalf of CDC National Center for Environmental Health, ATSDR, and other federal agencies. Additional quotes are taken from "People, Polar Bears, and Potato Salad: Mapping the Gaps between Expert and Public Understanding of Environmental Health," a 2011 report produced by the FrameWorks Institute. We encourage you to listen, reflect, and join us in recognizing the impact of words on our health.

Please view our poster to read quotes and see pictures from the video, and visit us during the poster session to experience the multimedia presentation.

2. Streamlining environmental health messaging: Lessons learned from the healthy home, healthy child educational campaign

Alyssa Creighton

Contributing Authors:

Rhodes-Bratton, B., Columbia University Mailman School of Public Health

Shepard, P., WE ACT for Environmental Justice

Dotson-Newman, O., WE ACT for Environmental Justice

Evans, D., Columbia University, Columbia Center for Children's Environmental Health

Organization:

Columbia Center for Children's Environmental Health

Theme:

Other: Developing Environmental Health Messaging

Abstract:

Background: The Columbia Center for Children's Environmental Health (the Center) and WE ACT for Environmental Justice (WE ACT) have collaborated for 15 years to translate the Center's findings on environmental health. The Community Outreach and Translation Core (COTC), comprised of staff from the Center and WE ACT, initially developed the Healthy Home Healthy Child (HHHC) educational campaign in 2000 to address environmental concerns of the Northern Manhattan community and provide information about reducing harmful exposures. With community input, our approach, style, and development process has evolved significantly over time into a new educational approach that shifts the focus of prevention from steps tailored for each harmful exposure to broad strategies of daily living that protect against many exposures. Along with our community advisors, we focused on developing materials that utilized concise messaging and effective design. *Methods:* During July 2012 to August 2013 the HHHC campaign was redesigned to provide easy-to-implement, cost-effective tips for reducing environmental exposures identified by the Center's scientific findings as harmful to health. COTC led the process of developing materials with input from the Community Advisory and Stakeholder Board (CASB) as well as Center investigators. The collaborative process contributed to the creation of new educational materials for the HHHC campaign. Our development team aimed to create messaging that was focused, concise, and accompanied by captivating visuals. *Results:* The revised HHHC materials present environmental health information in a manner that is easy to comprehend and provides simple strategies for reducing common exposures. COTC and the CASB worked together to develop content that would meet these goals. Key lessons learned by the development team include: (1) Central themes focus the health message. Being clear about the main goals of the communication is vital to actually getting your point across. We created separate documents for each strategy to keep focused while also addressing the overarching theme. (2) Keep it short. Limiting the text helped us focus on the key message and decreased extraneous information. (3) Simplify the vocabulary of scientific findings. We provided the scientific basis for preventing exposure without relying on technical jargon that could be overwhelming or confusing. (4) Provide eye-catching but relevant graphics. Pairing concise text with well-designed images resulted in better communication of information while also enticing the reader to learn about environmental health. (5) Remain relevant. Receiving feedback from community partners who have an understanding of the community's needs is essential to crafting messages that are helpful and applicable. *Conclusion:* The process to redesign the HHHC campaign prioritized community input, which resulted in better understanding of how to effectively frame our educational messaging.

3. Communicating environmental health risks to Puerto Rican adults in the Boston area

Brianna Dayer

Contributing Authors:

Thayer, K., Tufts University School of Medicine

Tracy, M., Tufts University School of Medicine

Organization:

Tufts University School of Medicine

Theme:

Cultural Communication: Needs of Diverse Audiences

Abstract:

Minority populations are disproportionately affected by air pollution from motor vehicle exhaust. To our knowledge there have been no published academic articles that address communication of environmental health information to Puerto Ricans. Therefore, we sought to investigate how to communicate the risks of air pollution emissions from cars and their threat to human health to a Boston area Puerto Rican population. We created three fact sheets in Spanish that contain information about the dangers of motor vehicle exhaust and the research conducted by the Community Assessment of Freeway Exposure and Health Study (ES015462; Brugge, PI). CAFEH research was aimed at better understanding the health risks of ultrafine particles (UFP's) close to highways. We held two Focus Groups to assess the quality of our fact sheets and to gather feedback that might be used to improve them. A total of sixteen people (mostly women), all of whom were participants in the Boston Puerto Rican Health Study (CA148612; Tucker center PI; Brugge, project PI), attended. The response to the fact sheets at the focus groups was positive overall. For example, participants liked how informative the text regarding the origin of pollution-related diseases was. They were surprised to learn that the heart and blood are also affected by pollution, not just the lungs. They liked that the fact sheets gave more specific information on heart disease and UFP's effects on people who live close to heavy traffic. The participants wanted more information and longer and clearer fact sheets. They were surprised to find out that certain risk factors were affected by pollution (e.g., Diabetes). They also wanted to know what they can do about the problem and why they had not heard anything about it prior to the focus groups.

4. Reducing risks of acute gastrointestinal illnesses due to microbial contaminants in North Carolina drinking water by expanding community water systems

Nicholas DeFelice

Contributing Authors:

Johnston, J., UNC-Chapel Hill

MacDonald Gibson, J., UNC-Chapel Hill

Organization:

University of North Carolina-Chapel Hill

Theme:

Evaluation, Capacity Building Strategies

Abstract:

Previous analyses of drinking water health risks in the U.S. concluded that the greatest risk is of acute gastrointestinal illnesses (AGI) from microbial contamination and have suggested that domestic water systems (DWSs) carry a higher risk of exposure to microbes compared with regulated water systems. In NC, approximately one-quarter of the state's population is serviced by DWSs but the health impact associated with widespread reliance on DWSs is unknown. To evaluate the burden of AGI attributable to drinking water and identify the potential benefits from providing regulated water service to people currently using DWSs, we constructed a stochastic model to determine the reduction in disease as DWSs users are moved to community water systems (CWSs). We analyzed microbial contamination data for CWSs and DWSs at the county level along with emergency department visits for AGI from 2007 to 2013. In total, an estimated 46,690 (95% CI 32,800-60,800) annual cases of AGI were attributable to microbial contamination in drinking water, constituting approximately 11.4% (95%CI 8.0-14.8) of all ED visits for AGI. We estimated that 46,300 (95% CI 32,400 - 60,500) of the cases attributable to drinking water came from DWSs and the remaining 390 (95% CI 150-630) cases were attributable to CWSs. We determined that each 10% shift in the percentage of the county population from DWSs to CWSs could reduce emergency department visits for AGI by 1.4%. Providing regulated water to current DWSs users may provide substantial health benefits.

5. Community Health Workers (CHWs) as environmental health navigators: Narrowing the gap in environmental health literacy in Gulf Coast communities

Stacey Denham

Contributing Authors:

Denham, S., Tulane University Center for Gulf Coast Environmental Health Research, Leadership, and Strategic Initiatives

Fox, L., Tulane University Center for Gulf Coast Environmental Health Research, Leadership, and Strategic Initiatives

Covert, H., Tulane University Center for Gulf Coast Environmental Health Research, Leadership, and Strategic Initiatives

Lichtveld, M., Tulane University

Organization:

Tulane University: Center for Gulf Coast Environmental Health Research, Leadership, and Strategic Initiatives

Theme:

Capacity Building Strategies

Abstract:

Communities living on the US Gulf Coast consistently confront health disparities, persistent environmental health threats and disasters. In the aftermath of the Gulf of Mexico Oil spill, the Environmental Health Capacity and Literacy Project (EHCLP), part of the Gulf Region Health Outreach Program, was created to advance environmental health knowledge, ability, and literacy in the culturally diverse Gulf Coast communities of Louisiana, Mississippi, Alabama, and the Florida Panhandle. One initiative of EHCLP is to place competency-based trained CHWs in community-based organizations and federally qualified health centers to work as environmental health navigators. These CHWs, integrated into health systems and communities, connect community members with environmental health information and - services, thereby narrowing the gap in environmental health literacy. As community leaders with built-in trusted partnerships these CHWs are instrumental in improving the quality and cultural competence of service delivery. Integral to the CHW placement program is collaborative learning through face-to face workshops and an interactive e-peer network. The program team deploys adult pedagogical learning strategies to address community environmental health concerns such as seafood safety and air quality. A robust evaluation component assures success and sustainability at the individual, organization, and overall program levels.

6. Perinatal environmental health education

Valerie Garrison

Contributing Authors:

Korfmacher, K., University of Rochester Environmental Health Sciences Center

Organization:

University of Rochester Environmental Health Sciences Center

Theme:

EHL for Healthcare Professionals

Abstract:

Related to EHSC research on early life exposures, the COEC has partnered with Center researchers to develop new approaches for environmental health outreach to pregnant women. Dr. Chen has spearheaded efforts to understand how women conceptualize environmental risks during pregnancy. These projects have involved several EHSC researchers and other COECs. In 2012, Dr. Korfmacher initiated an IHSFC mini-pilot project with Dr. Ann Dozier, who included several environmental health questions in local implementation of the Perinatal Risk Assessment and Monitoring System (PRAMS) survey. This mini-pilot found that PRAMS has great potential for monitoring environmental health knowledge, but that existing PRAMS environmental health questions are inadequate. These translational efforts highlighted the opportunity and need for perinatal environmental health outreach. Based on these findings, we have begun to implement outreach to high-risk pregnant women (Perinatal Network of Monroe County), clinicians (Highland Family Medicine), and local government (Monroe County Department of Public Health). These projects involve developing environmental health education messages for pregnant women, provider outreach to increase discussion of these topics, and piloting innovative ways of delivering these messages through group prenatal visits.

7. Hispanic millennials and healthcare

Julia Gladnick and Kimberly Goss

Contributing Authors:

Sensis

ThinkNow Research

Organization:

Sensis and ThinkNow Research

Theme:

Cultural Communication: Needs of Diverse Audiences

Abstract:

The Hispanic Millennial Project (HMP) is a joint research study developed by cross-cultural advertising agency Sensis and leading market research firm ThinkNow Research. The study aims to develop a better understanding of Hispanic Millennials living in the United States and dig deeper into segmentation, points of tension, and differences between U.S.-born vs. foreign-born Hispanic Millennials, as well as with older Hispanics and non-Hispanic Millennials. This second wave of the research in early 2014 focuses on healthcare, exploring attitudes and behaviors associated with health, diet, and exercise and perception of typical sources of health information, as well as health-related technology, insurance, and the Affordable Care Act. This study shows that healthcare is a vital topic for Hispanic Millennials. On the one hand, the data suggests that Hispanic Millennials are at the forefront of the well-documented health “craze” sweeping the nation. On the other hand, Hispanic Millennials’ cultural views about health are rooted in traditional ideas inherited from their older Hispanic cohorts. While they clearly diverge from conventional notions about health and wellness, they are also reinventing them at the same time. By diving into the mindset of Hispanic Millennials on the topic of health, health campaigns and health-related brands will be able to gain a deeper understanding of how to message to them and engage with them in a culturally relevant and effective way.

8. Engaging North Carolina's public health professionals in improving environmental health literacy

Neasha Graves

Contributing Authors:

Gray, K., UNC Center for Environmental Health and Susceptibility

Graves, N., UNC Center for Environmental Health and Susceptibility

Hughes, M., UNC Center for Environmental Health and Susceptibility

Robinson, K., UNC Center for Environmental Health and Susceptibility

Crump, C., UNC Gillings School of Global Public Health

Organization:

UNC Center for Environmental Health and Susceptibility, Community Outreach and Engagement Core

Theme:

EHL for Healthcare Professionals

Abstract:

In the past year, the Community Outreach and Engagement Core (COEC) of the UNC Chapel Hill Center for Environmental Health and Susceptibility (CEHS) has engaged a variety of public health professionals, providing environmental health training and educational materials that enable them to improve their patients' and clients' environmental health literacy, particularly in the areas of healthy homes and asthma. Thirty public health and housing professionals who conduct hundreds of home visits in central North Carolina participated in the COEC's 7-hour Healthy Homes for Community Health Workers training, which is certified by the National Center for Healthy Housing. To date, ten participants have shared information from the training during home/clinical visits and presentations with more than 530 individuals and families. In another training, Environmental Asthma Triggers, we prepared 172 public health nurses, social workers, housing professionals and asthma advocates to inform patients and their families about reducing triggers in the home. The COEC also engaged 270 nurses in a webinar that outlined federal guidelines to protect the health of young mothers and their infant children from lead poisoning. With supplemental funds, the COEC is working with CEHS researchers to share emerging science on skin cancer with child care health consultants and also collaborating with the UNC School of Information and Library Science to develop a web-based tool to educate younger African American women and their healthcare providers about breast cancer risk.

9. FRESH: Dual home screening for lung cancer prevention

Ellen J. Hahn

Contributing Authors:

Rayens, M.K., University of Kentucky

Butler, K., University of Kentucky

Begley, K., University of Kentucky

Wiggins, A., University of Kentucky

Organization:

University of Kentucky College of Nursing

Theme:

Capacity Building Strategies

Abstract:

This RCT tests the effectiveness of an environmental feedback intervention delivered in a primary care setting and via phone to reduce home exposure to radon and secondhand smoke (SHS) among homeowners and renters. An estimated 15% of lung cancer cases in men and 53% in women are not caused by firsthand smoking. There are synergistic effects between radon and tobacco smoke exposure on the development of lung cancer. Learning radon and SHS levels in one's home may motivate behavioral change. A purposive sample of homeowners (n=340) and renters (N=47) have been recruited. Recruitment is ongoing through March 2015. After homeowners were randomly assigned to treatment or control groups, participants completed iPad surveys. Treatment group and renter participants received free test kits for radon and SHS. All participants are followed for 17 months. A preliminary analysis of the sample and testing characteristics show that renters are younger, less likely to be White, and less educated than both homeowner groups. Renters had higher air nicotine levels than either homeowner group. Those with higher education were more likely to test their homes. Participants tested for radon and SHS regardless of having smokers in the home. The ambulatory healthcare setting may be a promising location for environmental health risk reduction activities especially those at high risk for secondhand smoke in the home. More research is needed to determine factors associated with home screening and to develop and test preventive interventions with low SES renters.

10. Engaging stakeholders in environmental health research and return of results

Erin Haynes

Contributing Authors:

Haynes, E., University of Cincinnati
Elam, S., University of Cincinnati
Spencer, A., East Liverpool Community Member
Burns, R., Kent State East Liverpool Campus
Yancey, E., University of Cincinnati

Organization:

University of Cincinnati

Theme:

Cultural Communication: Needs of Diverse Audiences
Evaluation
Other: Community Outreach and Return of Research
Results

Abstract:

Federal funding agencies increasingly support stakeholder participation in environmental health research from research study inception to return of results, and yet there is little to no published research on engagement of community stakeholders in the development of the return of research results to research participants and the community-at-large. This is particularly relevant for low resource populations and in communities faced with potentially significant environmental exposures. The Ohio EPA reported airborne manganese concentrations in East Liverpool, Ohio 30 times higher than the reference concentration. An academic-community partnership was formed between the University of Cincinnati and stakeholders in East Liverpool, Ohio to address the community concern. A pilot study was conducted with stakeholders engaged throughout the research process and development of return of result strategies. Children were recruited to participate in the East Liverpool Pilot Study if they were 4 to 18 years of age and resided in East Liverpool, Ohio or the surrounding area. Recruitment postcards were sent home with children through schools and advertisements were aired on local radio and printed in local newspapers. Blood and hair samples were analyzed for metals. An iterative approach was used to develop the report-back communication strategy, including blood tube sample and hair images for explaining metal results. Community meeting attendees responded to a questionnaire about the research result return. A total of 106 children, ages four to 17 participated in the study; the average age was 10 years. The community report-back meeting was attended by nearly 50 community members. The majority of respondents (82%) indicated that the blood tube sample image was more easily understood compared to 11% who choose the scatter plot image. Each attendee (100%) indicated that the information presented at the community meeting was clear and understandable and that the fact sheet was easy to read and was helpful to their understanding of the study results, clearly explained the blood metal and hair Mn results, and that the accompanying pictures made the results more clear. To our knowledge, this is the first study to describe the process of engaging community stakeholders in the development of report-back communication strategies for individual and community level research results.

11. Environmental injustice and industrial hog operations in North Carolina: An updated analysis

Jill Johnston

Contributing Authors:

Johnston, J., UNC- Chapel Hill

Wing, S., UNC- Chapel Hill

Organization:

UNC- Chapel Hill

Theme:

Capacity Building Strategies

Abstract:

Using information from the US Census of 1990 and locations of industrial hog operations (IHOs) reported by the North Carolina Department of Environment and Natural Resources in 1998, we found that the state's IHOs were disproportionately located in areas where more people of color live. IHOs emit pollutants that negatively impact human health and quality of life, therefore their disproportionate location in communities of color represents a threat to both civil rights and public health. This community-driven research builds upon the capacity of organizers in the NC Environmental Justice Network, and residents of NC, to access and utilize quantitative data related to environmental disparities. Since 1998 additional IHOs have obtained permits to operate and others are no longer in business. Additionally, between 1990 and 2010 the state's population grew 44% from 6,628,637 to 9,535,483. This growth was most pronounced among Latino residents. Here we evaluate whether the disproportionate racial impact seen in our earlier study remains in 2014. We analyzed the location and characteristics of 2,055 intensive hog operations in relation to racial and ethnic characteristics of 2010 census block groups. We used multivariate logistic and linear regression analysis to evaluate the extent to which relationships between environmental justice variables and the number of hog operations persisted after consideration of population density. An estimated 985,900 residents in NC live within 3 miles of an IHO. Hog operations within 3 miles of a census block are approximately 5 times as common in majority people of color blocks compared to majority white blocks, adjusted for population density. A one percent increase in the people of color in a census block is associated with an increase in 10,000 lbs. of hogs within 3 miles, on average. Disproportionate impacts of intensive hog production on people of color and on the poor may impede improvements in economic and environmental conditions that are needed to address public health in areas which have high disease rates and low access to medical care as compared to other areas of the state.

12. Environmental health in early care and education: Reaching child care providers

Victoria Leonard

Contributing Authors:

Leonard, V., University of California, San Francisco

Bradman, A. University of California, Berkeley

Westinghouse, C., Informed Green Solutions

Alkon, A. University of California, San Francisco

Organization:

University of California, San Francisco PEHSU

Theme:

Cultural Communication: Needs of Diverse Audiences

Abstract:

Young children and pregnant women are most susceptible to the health effects of toxic chemicals. Child care settings where toxic chemicals are used risk exposing both pregnant women and very young children who spend many of their waking hours in these settings. Child care providers are demographically low income, female (half are of childbearing age) and often non-English speaking. Reaching this group in order to change policies and practices in child care settings is challenging. We will present two Toolkits developed with funding from the California Department of Pesticide Regulation to encourage child care providers and programs to adopt safer policies, products and practices for pest management and cleaning, sanitizing, and disinfecting.

13. Environmental health literacy and leadership with Mexican-American adolescents in Salinas, CA: The CHAMACOS Youth Community Council

Daniel S. Madrigal

Contributing Authors:

Madrigal, D.

Cardenas, J.

Jimenez, R.

Cardenas, M.

Camacho, J.

Parra, K.

Harley, K.

Bradman, A.

Eskenazi, B.

Minkler, M.

Organization:

Center for Environmental Research and Children's Health

Theme:

EHL in the Classroom, Capacity Building Strategies

Abstract:

In 2010, the CHAMACOS Study's community outreach program began the Youth Community Council (YCC) to train the next generation of environmental health leaders. High School students from an agricultural community in the Salinas Valley in California were recruited to participate in the program to: 1) learn about priority environmental health issues; 2) conduct environmental health research; and 3) take action to create a healthier environment in their community. The students of the YCC worked on three projects to learn about the intersection between health and the environment. In the Photovoice project, students used photography to assess the negative and positive environmental factors that impact health in their community. In the Community Walkability Survey, students learned how to construct a survey and administer it to local residents in their community. In the third project, the HERMOSA Study, students developed and conducted an intervention study to investigate exposure to endocrine-disrupting chemicals found in cosmetics. In each of these projects, YCC members learned about environmental health concerns, conducted environmental health research, and shared what they learned with their friends, families, peers, and neighbors. YCC members have improved their understanding of environmental health through their participation in the program, by learning about environmental health threats and by sharing this knowledge with others. Six key elements of the YCC include: 1) Teaching about environmental health; 2) Teaching leadership skills; 3) Conducting environmental health research; 4) Sharing the work with their community; 5) Taking action; and 6) Making the work fun. With these six elements, the program has empowered youth in this low-income farmworking community and successfully taught YCC members the importance of the connection between environmental factors and health. The experience of the CHAMACOS Youth Community Council can inform similar projects that aim to train adolescent environmental health leaders.

14. U.S. EPA Environmental Justice Research Roadmap: Cross agency research priority

Mary Manibusan

Contributing Authors:

Manibusan, M., U.S. EPA, Office of Research and Development

Jarabek, A., U.S. EPA, Office of Research and Development

Gwinn, M., U.S. EPA, Office of Research and Development

Darney, S., U.S. EPA, Office of Research and Development

Quackenboss, J., U.S. EPA, Office of Research and Development

Hauchman, F., U.S. EPA, Office of Research and Development

Organization:

U.S. Environmental Protection Agency, Office of Research and Development

Themes:

Capacity Building Strategies

Tools and Technology

Abstract:

Consideration of how to assess the health risk of mixtures and to characterize cumulative risk has long been a challenge in toxicology and public health. The 1994 White House Executive Order (EO) 12898 Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations has helped focus EPA research activities to address risk in overburdened communities that may experience greater risk due to disparities in exposure at different lifestages or from multiple different sources; factors that may modify health impacts include other stressors (e.g., genetic background, other disease states such as diabetes or cardiovascular, and socio-economic factors). The EPA's Office of Research and Development is developing a "roadmap" or strategic plan that provides an integrative framework for EJ research. It is intended to stimulate research activities, both within the Agency and in other sectors, to develop critical data and tools to address issues specific to EJ. The core components of the strategic plan that address the critical factors that contribute to environmental health impacts and disparities are identified and discussed. These include extending cumulative risk methods, developing innovative decision-making tools, and enhancing efforts to have more meaningful engagement with public stakeholders. Key EJ research activities in these areas will be illustrated and important data gaps will be highlighted.

The views expressed in this abstract does not necessarily represent those of the U.S. EPA.

15. Community-based outreach: Promotora designed transferable training modules on environmental risk assessment

Denise Moreno Ramirez

Contributing Authors:

Morales, M., Sonora Environmental Research Institute, Inc. (SERI)

Morales, F., SERI

Vasquez, S., SERI

Henriquez, P., SERI

Wells, N., SERI

Loh, M., University of Arizona, Superfund Research Program

Maier, R., University of Arizona, Superfund Research Program

Organization:

University of Arizona Superfund Research Program

Theme:

Cultural Communication: Needs of Diverse Audiences, Capacity Building Strategies

Abstract:

One of the most common questions asked by community members living adjacent to contaminated sites is, “How will the hazardous substance affect my health?” Health workers, medical practitioners, and environmental professionals hear this concern constantly when people discover that a pollutant they are exposed to can impact their health. The answer to this question is complex and can be difficult to formulate since there are so many unknowns when it comes to risk exposure. The community health worker (promotora de salud) is many times the least equip to answer such question, yet is approached by community members when environmental problems erupt. Promotoras de salud are a proven model that successfully promotes health outreach and transfers technical information to Hispanic communities. Therefore, training promotoras de salud on how risk assessment plays out in both their daily lives and as a formalized process can help them better answers questions. The University of Arizona Superfund Research Program (UA SRP) Community Engagement Core has successfully collaborated with promotoras de salud from the Sonora Environmental Research Institute, Inc. (SERI) to design and develop a transferable training module on risk assessment in the environment. This module was created to help promotoras de salud understand what is risk assessment and how federal agencies use it to make decisions. In this project, SERI promotoras de salud partnered with UA SRP community engagement and public health personnel to design a practical module that presents diverse concepts within risk assessment. Promotoras de salud were full partners in the designing and testing phases of module materials. The module consists of risk assessment background information for the trainer, web- and video-based supplemental resources, prepackaged risk assessment presentation, and correlated hands-on activities. This draft module was piloted by SERI promotoras de salud to promotoras de salud groups and community members in Naco, Sonora, Mexico and Tucson, Arizona. The finalized module will be posted online and accessible for download by non-profit organizations, academic institutions, and promotoras de salud groups dealing with community concerns about contaminant exposure.

16. Advancing cultural literacy through community-based participatory ethnographic research

Chris Mundorf

Contributing Authors:

Hassan, A., Tulane University School of Public Health and Tropical Medicine (SPHTM)

Davis, P., Tulane University SPHTM

Dennis, C., Tulane University SPHTM

Harris, O., Tulane University SPHTM

Maharaj, S., Tulane University SPHTM

Schultheis, C., Tulane University SPHTM

Lichtveld, M.Y., Tulane University SPHTM

Organization:

Tulane University School of Public Health and Tropical Medicine

Theme:

Cultural Communication: Needs of Diverse Audiences

Abstract:

Background: The Deepwater Horizon oil spill caused significant damage and distress to Southeast Louisiana communities already suffering the cumulative effects of health disparities, natural disasters, and poor environmental quality. Pregnant women were thought to be at-risk for poor health outcomes from the stress of managing health behaviors in this post-disaster environment. As a part of a larger research consortium studying the health effects of this sub-population, an innovative CBPR-centered research design proposed an additional investigation into the role of culture. To address the question from the community partnership, locally-trained community health workers administered free listing ethnographic methods to survey a diverse population of pregnant women for the subjective threats in the environment and ways to respond. Women were also asked to describe appropriate risk behaviors related to these threats. *Results:* First-time mothers completing free listing tasks (n=20) generated 67 threats in the environments, with 7 items being listed by at least 30% of the mothers (mean salience 0.22). Additionally, 83 culturally salient risk behaviors were generated with only 9 being listed by at least 20% of the women (mean salience 0.084). Non-chemical environmental threats (e.g. community violence) generated more culturally salient responses than traditional environmental risks (e.g. indoor air pollution, water pollution, hurricanes). Many responses also consistently differed across socio-demographic group (race, age, regional location). Finally, effects from the Gulf Oil Spill were not listed by any of the women. *Discussion:* Strong academic-community partnerships allow for the discovery of culturally salient research questions. Ethnographic methods offer a tool in further detailing these local concerns. Exploring beliefs among a diverse population helps to uncover cultural differences in a population, and the need for different points of concern for risk communication. Additional work will strengthen public health practice through the lens of environmental health by collaboratively designing, implementing, and evaluating culturally-appropriate interventions in at-risk populations.

17. Addressing researcher environmental health literacy through innovative training: The University of Kentucky Superfund Research Center as a case study

Brad Newsome

Contributing Authors:

Pennell, K., College of Engineering, University of Kentucky

Newsome, B., College of Agriculture, Food, and Environment, University of Kentucky

Hoover, A., College of Public Health, University of Kentucky

Ormsbee, L., College of Engineering, University of Kentucky

Organization:

University of Kentucky Superfund Research Center

Theme:

EHL for Healthcare Professionals, EHL in the Classroom

Abstract:

Environmental and health scientists often lack training in how to communicate with the policy makers and community members who need to make decisions about the very issues their research addresses. While scientists regularly communicate directly with disciplinary peers, limited researcher capacity to engage other audiences constrains the reach and, ultimately, the potential impact of findings. Because environmental health literacy is context-based, researchers should be proficient in engaging both community- and practice-based knowledge to effectively identify and communicate the implications of relevant findings. We posit that individual and community levels of environmental health literacy should be balanced with researcher-level environmental health literacy (REHL). REHL provides scientists with skills, tools, and knowledge to identify stakeholder-specific needs and develop targeted resources. The University of Kentucky Superfund Research Center (UK-SRC) is conducting a multi-directional REHL case study, training its graduate students and postdoctoral scholars in two separate but complementary skills: 1) translating research findings for diverse stakeholders, and 2) translating stakeholder-identified needs into research questions. This presentation will highlight the communication theories and methods, as well as specific activities that the UK-SRC is deploying to promote REHL. Interactive workshops, hands-on work with communities and regulators, and concerted “internships” within our research translation and community engagement cores form a portfolio of training activities to prepare 21st century research leaders to address environmental health concerns more competently and comprehensively.

18. Communication strategies for metal biomonitoring in the Navajo Birth Cohort Study

Jennifer Ong

Contributing Authors:

Erdei, E., University of New Mexico, College of Pharmacy

O'Donald, E., University of New Mexico, College of Pharmacy

Pacheco, B., University of New Mexico, College of Pharmacy

Rondon, A., Navajo Nation Division of Health

Shuey, C., Southwest Research and Information Center

Organization:

University of New Mexico, College of Pharmacy -
Community Environmental Health Program

Theme:

Cultural Communication: Needs of Diverse
Audiences, EHL for Healthcare Professionals

Abstract:

The legacy of >40 years of Cold War uranium (U) mining has left >1000 abandoned mine-waste sites on Navajo Nation. The impact to the health of future generations from exposures to metal mixtures in these wastes is of primary concern. The Navajo Birth Cohort Study was developed to determine the relationship among these exposures, reproductive outcomes and child development. Exposures are confirmed through CDC biomonitoring of parents' and babies' blood and urine for 36 metals/metal metabolites. For effective feedback of results, cross-cultural Environmental Health Literacy (EHL) must be developed among not only Navajo community members, but clinicians who, with minimal background in environmental exposures and their relationships to health, treat Navajo patients and face questions about these exposures' potential impact on disease. As wastes are likely to remain in these communities for decades, awareness of personal environmental metal exposures and nutrient sufficiency will impact both parental and community decision-making. Thus, it is vital that these biomonitoring results be communicated in an effective, culturally-appropriate manner to stimulate risk-avoidance/reduction, and not induce hopelessness. Communication strategies are developed through extensive interactions with community partners, and are an iterative work in progress. To date, 14.1% (58/412) of samples exceed the 95th percentile for U measured in the US population by the National Health and Nutrition Survey (NHANES). Although U was not thought to cross the placental barrier, U is detectable in the urine of newborn babies, in some cases exceeding the 50th & 95th percentiles for NHANES adults. Arsenic, lead and mercury are also detected in newborns. The cross-cultural EHL challenge is exacerbated by lack of information on how metal concentrations affect health. NHANES does not provide health reference values, only population distributions, and those have questionable relevance to babies and Navajo, as Native American reference values are not compiled. Of micronutrients measured, 40.4% (114/282) of samples were below the World Health Organization's (WHO) sufficiency level for iodine, and 62.7% (254/405) were below the sufficiency level for zinc. Hence, biomonitoring letters containing participant results and summary information about current knowledge of the health impacts of metals were developed, and presentations/Q&A sessions for community members and clinicians are regularly conducted.

19. Secondary science education in Southeast Louisiana- Connecting with teachers and students through higher education environmental health sciences

Lynette Perrault

Contributing Authors:

Lichtveld, M., Tulane University

Wickliffe, J., Tulane University

Organization:

Tulane University

Theme:

EHL in the Classroom

Abstract:

The Emerging Scholars Environmental Health Sciences Academy at Tulane University was designed to help bolster science education in southern Louisiana through active participation in the environmental health sciences. With funding from the Environmental Health Literacy and Capacity Project under the Gulf Region Health Outreach Program, we developed a multipurpose training grant for developing mentoring skills in postdoctoral fellows, PhD candidates, and graduate students, while simultaneously engaging high school students in rigorous environmental health science research and instruction. Nine scholars were selected for the program following intensive outreach and recruitment of 11th and 12th grade students from public/charter/magnet high schools. Scholars completed an 8-week program in summer 2014 that resulted in the completion and presentation of an environmental health sciences research project. In addition, 10 high-school science teachers participated in a 2-day Environmental Health Sciences Teacher Workshop that provided them with materials, classroom tools, instructional modules, and field experience demonstrating environmental health and scientific principles. All objectives were aligned with Louisiana Environmental Science Grade Level Expectations, common core integrated science standards, and the recently released Next Generation Science Standards. Our continuing goals include program evaluation and impact with an overarching objective of helping to improve environmental health and science literacy in secondary public education.

20. Reporting air quality data to a rural Appalachian community concerned about unconventional natural gas drilling

Diana Rohlman

Contributing Authors:

Elam, S., Center for Environmental Genetics, University of Cincinnati

Paulik, B., Environmental and Molecular Toxicology, Oregon State University

Anderson, K., Environmental and Molecular Toxicology, Oregon State University

Haynes, E., Center for Environmental Genetics, University of Cincinnati

Kincl, L., Environmental Health Sciences Center, College of Public Health and Human Sciences, Oregon State University

Organization:

Environmental Health Sciences Center, Oregon State University

Theme:

Evaluation

Abstract:

Residents of Carroll County in rural Appalachian Ohio have expressed concerns regarding the effect of unconventional natural gas drilling (UNGD) on air quality. Researchers from Oregon State University and the University of Cincinnati investigated air quality using passive samplers at 23 locations near well pads within Carroll County. Sampling locations were on private property and landowners were recruited through a community-based organization. Participating landowners were trained to remove and return the passive sampling media to the research team. Samples were analyzed for 62 polycyclic aromatic hydrocarbons (PAHs). To report results to participants, a report was drafted based on a review of relevant literature regarding reporting exposure results. The report used visuals as well as accompanying descriptive text about the study and exposures. Divided into two parts, the first part presented a summary of all the results averaged together. For comparison, PAH concentrations in rural and urban locations were also listed. The second portion presented individual results within the context of all the samplers analyzed. The report was reviewed/amended internally by environmental chemists, community outreach and engagement specialists and by a key community contact. As reporting data is key to the study, participant feedback was also sought so individual reports were mailed to participants. Importantly, soliciting feedback allowed the research team to directly address participant concerns, as well as increase scientific literacy by discussing current knowledge regarding air quality and chemical exposure. Two weeks after receipt, each participant was contacted by telephone and asked: 1) Did you understand the results as presented? 2) Was there anything confusing about how the data was presented? 3) What could we do to make the results more clear? Results demonstrated that participants wanted more detailed information about the study design and future plans. The majority liked the visual representation of the data, but requested more context for the data, or a better understanding of what the data meant for their everyday lives. In addition to requests for any health information correlated with PAHs, participants wanted information about common sources of PAH exposure, organized in a reference table. This feedback is being used to inform the reporting procedures for the second phase of the study, which includes environmental and personal sampling.

21. Mercury, the Community, and Me: Increasing environmental health literacy in school-aged children using a community history of mercury mining

Diana Rohlman

Contributing Authors:

Hirsch, N., Oregon State University

Lynch, K. United States Environmental Protection Agency

Conley, A. United States Environmental Protection Agency

Dreyfus, M., United States Environmental Protection Agency

Briggs, L., London School

Muza, R., United States Environmental Protection Agency

Fisher, C., Oregon State University

Kile, M., Oregon State University

Stone, D., Oregon State University

Organization:

Oregon State University

Theme:

EHL in the Classroom

Abstract:

Environmental health literacy encompasses scientific reasoning and a conceptual understanding of environmental determinants of human health. Therefore, an individual must understand 1) the scientific method, 2) hazards within the environment, 3) how people can be exposed to those hazards, 4) principles of toxicology, and 5) evidence-based decision-making for risk reduction strategies. Here, we describe a K-8 curriculum entitled “Mercury, the Community, and Me” designed by the Superfund Research Program and the Environmental Health Sciences Center at Oregon State University (OSU), in partnership with London School (Oregon) and the United States Environmental Protection Agency (EPA) under the Partners in Technical Assistance Program (PTAP). The goal of PTAP is to increase cooperative opportunities between the EPA and universities while addressing the technical assistance needs of communities impacted by Superfund sites. Cottage Grove, OR is situated near the Black Butte Mine and home to London School. The mine was one of the largest mercury mines in Oregon, operating between the 1890s and the 1960s, and was placed on the National Priority List in 2010 due to mercury and other contamination from mine tailings. Through PTAP, London School requested expertise to improve students’ understanding of mercury-related exposure and health effects, environmental health, and scientific reasoning in general. The overarching goal of the curriculum was to empower students to identify potential hazards in their environment, describe them within the context of exposure, dose and health effects, and design risk mitigation strategies. A modular curriculum was designed that matched conceptual learning with experiential learning to engage students. For instance, the curriculum includes a “Learning the Language of Science” segment which teaches students scientific terms in the context of real-world scenarios. These terms are applied in ‘chemical surveys,’ wherein students identify environmental hazards, potential health effects and risk mitigation strategies within the home. From there, students scaffold this knowledge and expand their scientific reasoning skills through a classroom toxicological experiment, where they form a hypothesis, design an experiment and gather and interpret data about the toxicity of household chemicals. Finally, the basics of environmental health are applied to the real life scenario of mercury in the environment in Cottage Grove.

22. Reporting exposure biomonitoring results to study participants: An environmental health literacy strategy

Serena Ryan

Contributing Authors:

Brody, J.G., Silent Spring Institute
Susmann, H., Silent Spring Institute
Brown, P., Northeastern University
Morello-Frosch, R., University of California, Berkeley
Arnold, K., Harvard School of Engineering and Applied Sciences
Gajos, K., Harvard School of Engineering and Applied Sciences
Patton, S., Commonweal

Organization:

Silent Spring Institute

Theme:

Evaluation, Tools and Technology

Abstract:

One of the common objections to reporting individual exposure biomonitoring results is that people won't understand them. Particularly in environmental justice settings, researchers and IRBs are concerned that low literacy and numeracy and lack of background knowledge are barriers. However, our interviews with study participants who received their results suggest that when these challenges are thoughtfully addressed, individual report-back of personal exposures creates an effective "teaching moment" to increase environmental health literacy (EHL) and motivate action. Participants learned, for example, that certain chemical contaminants are more prevalent indoors than outside and that chemicals in consumer products migrate into household air and dust and people's bodies. They also learned about scientific methods and limitations, for example that researchers cannot always identify the sources of exposures, in part because ingredients in consumer products are not fully labelled. In order to develop methods that use report-back effectively to advance environmental health literacy, we interviewed participants, IRB representatives, and researchers in 7 studies and systematically coded and analyzed transcripts. Results show that participants want to receive their results, can generally understand uncertainties about links to health, and are motivated to reduce exposures. Results reports supported community empowerment and policy change. Both narrative results and graphs are helpful. Comparisons of individual results with others in the study, national norms, and health guidelines are helpful. To facilitate adoption of effective report-back practices, we developed a handbook, including guidelines and examples (silentspring.org/reportbackhandbook). Using results of our earlier investigation as well as risk communication and data visualization literatures, we are currently developing a user-centered, personalized digital interface for report-back that will provide a powerful tool for other teams who want to report personal results, including in large studies. We also pilot-tested a structured assessment of EHL among participants in the Child Health and Development Studies so we can compare baseline knowledge with results after participants receive their results.

23. Advancing environmental health literacy in arctic Alaska through a community-based research institute

Samarys Seguinot-Medina

Contributing Authors:

Seguinot-Medina, S., Alaska Community Action on Toxics

Waghiyi, V., Alaska Community Action on Toxics

Miller, P., Alaska Community Action on Toxics

von Hippel, F., Department of Biological Sciences,

University of Alaska Anchorage

Carpenter, D., Institute for Health and the Environment,

University at Albany

Organization:

Alaska Community Action on Toxics

Themes:

Cultural Communication: Needs of Diverse Audiences

EHL in the Classroom

Capacity Building Strategies

Tools and Technology

Abstract:

This poster provides information on the design and implementation of a college-credited environmental health science and community-based research institute that advances environmental health literacy in rural Alaska. The course explores the significance of environmental contaminants that are globally transported as well as those generated from local sources (i.e. past and current use mining sites, formerly used defense sites, local landfill sites) on community health in the Arctic. The institute includes both a classroom and field component. The classroom component provides an overview of environmental health science and policy, focusing on explaining why the chemicals are present, the impact of environmental exposures to human and environmental health. It includes introductions to environmental justice, the science of endocrine disruption, an environmental health care toolkit, and children's environmental health. Instructors describe how environmental sampling can be useful to and empower communities. The course details the proper methods for collecting various environmental samples and explains what happens during the analysis of each sample. The classroom component elaborates on how GIS and community mapping can assist communities in their environmental health work. The field component provides participants with the opportunity to practice environmental sampling methods discussed in the classroom including: sediment core (to measure contaminants in soil and have the ability to date the deposition of the contaminants), stickleback collection (to determine if endocrine disrupting chemicals are present in water bodies and the aquatic food web), semi-permeable membrane devices (which mimic fish membranes to measure the hydrophobic contaminants present in a water body), and basic water quality assessment (consisting of water chemistry, physical habitat assessment, and benthic macroinvertebrates). The field component of the course also provides a hands-on training in using a GPS in the field. An additional ecotoxicology lab practicum includes instruction and hands-on experience with DNA extraction, gel electrophoresis, endocrine assays, analytical chemistry, and aquatic macro-invertebrate identification. The course is taught through a collaboration of the University of Alaska, Alaska Community Action on Toxics, and the University at Albany and is supported through a grant from the National Institute of Environmental Health Sciences.

24. White Coats & Blue Collars: How a CBPR collaboration among fishermen and scientists to investigate Deep Water Horizon health impacts builds environmental health literacy in Gulf Coast fishing communities

John Sullivan

Contributing Authors:

Croisant, S., UTMB / NIEHS P30 CET COEC, IHSFC CBPR

Division; GC-HARMS

Subra, W., Subra Company, LEAN

Louisiana Environmental Action Network (LEAN)

Lower Mississippi River Keeper (LMRK)

United Houma Nation (UHN)

Bayou Inter-Faith Shared Community Organizing (BISCO)

Mississippi Coalition of Vietnamese-American Fisher-Folk & Families (MSCV-AF&F)

Center for Environmental & Economic Justice (CEEJ)

Elferink, C., UTMB / NIEHS P30 CET, Sealy Center for

Environmental Health & Medicine, GC-HARMS

Organization:

UTMB / NIEHS P30 Center in Environmental Toxicology (COEC)

Themes:

Cultural Communication: Needs of Diverse Audiences

Capacity Building Strategies

Abstract:

A Community Based Participatory Research (CBPR) design promotes grassroots environmental health education and meaningful citizen involvement in all aspects of the research cycle. The “Gulf Coast Health Alliance: health Risks Related to the Macondo Spill” (GC-HARMS) fosters a strong collaborative network informed by CBPR values and principles shared among community hub coordinators, Community Outreach & Dissemination Core (CODC) project staff, and fishing communities affected by the DWH oil spill. Participating fishermen infuse local knowledge into the implementation of research as they determine where various samples may best be captured and provide information on tar balls, sheens or other evidence of oiling encountered in the course of fishing. Direct collection of field data empowers community fishermen to actively participate in the process as citizen field scientists and peer-to-peer environmental health educators within their communities. Using instructional materials developed and deployed by GC-HARMS staff and the Louisiana Environmental Action Network, fishermen volunteers are trained in sampling techniques, sample preparation protocols, and sample handing / chain of custody maintenance. They gather, label and GPS log samples of targeted species during commercial and subsistence fishing activities and prepare / deliver samples for GC-MS analysis of petrogenic PAH content. COD staff and community sampling hub coordinators present fishermen’s forums to disseminate site-specific updates on sampling data, communicate human health risks associated with seafood consumption, discuss evolving data interpretation and general ecosystem health, and brainstorm site-specific methods to enhance community resiliency. These iterative meetings are hosted by each community sampling / information dissemination site in the network, sometimes in multiple communities. By focusing on the ways in which spill-related exposures impact lived realities in fishing communities, this collaborative approach extends the scope and range of environmental health concepts associated with outcomes of the Macondo spill beyond the usual range of science and into the fabric of community life.

25. "Understanding Air" A hands-on package for learning about climate change and air pollution designed for both general audiences and classroom settings

Kathleen M. Vandiver

Contributing Authors:

Cross, E., MIT Dept of Civil and Environmental Engineering

Gruhl, A., MIT Center for Environmental Health Sciences

Daumit, K., MIT Dept of Civil and Environmental Engineering

Boulanger, K., MIT Dept of Civil and Environmental Engineering

Fitzgerald, A., MIT Edgerton Center

Garrett, J., MIT Edgerton Center

Kroll, J., MIT Dept of Civil and Environmental Engineering

Organization:

MIT Center for Environmental Health Sciences

Themes:

EHL in the Classroom

Evaluation

Tools and Technology

Abstract:

Often people do not take a stand on environmental health issues because they feel uncertain about the basics. Thus educational activities on climate change and air pollution were developed, working with an MIT-developed Atoms & Molecules Set where each LEGO(TM) brick represents an atom. Molecules can be constructed according to specifications both didactic and enjoyable for the visualization of the basic molecular composition and chemical reactions occurring in air. Students in teams construct the tiny lumps of matter which make up air, creating visualizations of the invisible molecules. Eighth graders in Revere, MA (n=137) responded positively by 100% to "Did you learn something?" With a 4.0 Likert scale, "Liked this activity" averaged 3.4; "Learned from this activity" averaged 3.3; and "Would like to learn more" averaged 3.2. Since outreach audiences are informal, COE2C is perfecting the delivery to the general public. In Feb 2013, "Understanding Air" at AAAS Family Days event in Boston had these results (n=88): "Liked this activity" averaged 3.8; "learned from this activity" averaged 3.3; and "would like to learn more" averaged 3.5. These teaching tools are available online: <http://edgerton.mit.edu/atoms-molecules>. With this success, COE2C along with the Kroll Lab in the MIT Civil and Environmental Engineering Dept. and MIT Edgerton Center look forward to adding a turn-key instructional package online for outreach educators.

26. Evaluating the effectiveness of educational materials on fish consumption advisories around Lake Crabtree, Morrisville, NC

Sarah Yelton

Contributing Authors:

Bawden, K., UNC Superfund Research Program

Gray, K., UNC Superfund Research Program

Yelton, S., UNC Superfund Research Program

Organization:

University of North Carolina- Chapel Hill Superfund Research Program

Themes:

Cultural Communication: Needs of Diverse Audiences
Evaluation

Abstract:

Our program seeks to educate recreational anglers and their families about a fish consumption advisory (FCA) on dangerous polychlorinated biphenyl (PCB) levels in fish found in Lake Crabtree County Park and its tributaries, popular fishing sites located near the Ward Transformer Superfund site in Morrisville, North Carolina. While educational materials on PCBs are available to recreational anglers, and there is a catch-and-release policy in place at the park, the lake and its tributaries remain popular fishing sites, and many people take home their catch. FCAs alone have been found to be ineffective as people do not always understand, trust, or follow them, in particular among non-English speakers and people with lower levels of education and income. The literature on FCA education and risk communication overwhelmingly support involving target audience members in the process of crafting and disseminating FCA educational materials, but this idea remains largely untested in the literature. We will present on the preliminary results from our pilot program to engage community members in the process of creating and disseminating educational material on PCB risk from Lake Crabtree and surrounding waters. We developed a map of safe fishing sites for recreational anglers, which included a guide to safely consuming locally-caught fish. We involved stakeholders who share information on safe fishing in the process of developing the prototype of this material. Now, we are piloting this material with target audience members (particularly Spanish-speakers, who are least likely to be aware of the FCA) with four objectives: 1) to understand anglers' perceptions of PCB risk; 2) to solicit feedback on the material; 3) to evaluate our material's impact on participant knowledge and intent to change behavior; and 4) to identify possible outlets for disseminating the material. This research represents an integral step for our process of developing responsive community-based educational programs to disseminate FCA information. This work is supported by the National Institute of Environmental Health Sciences through a grant to the UNC Superfund Research Program (grant number P42ES005948).