Partnerships for Environmental Public Health
PEPH 2020: Past, Present, and Future
February 12-13, 2020

Contents

A Look Back to Move Forward

Ten years after the inaugural PEPH Meeting, "PEPH 2020: Past, Present, and Future" brought together nearly 200 researchers, community leaders, public health professionals, and government representatives to reflect on the past of the PEPH network, discuss the present, and consider future opportunities.

A morning of workshops preceded two days of presentations, breakout discussions, and poster sessions. The meeting was organized around the PEPH framework developed at the beginning of the program focused on research, communication, capacity building, and evaluation. Discussions at the meeting centered on these topics and showed how the framework is still relevant to the network today, although the connections between these PEPH framework topics has grown.

Over the two-day meeting, participants revisited and reflected on the PEPH program vision and goals, highlighted the impact of communication efforts and NIEHS-funded research in communities, and provided examples of successful community-engaged work. Through sharing accomplishments, participants also reflected on common interests and future opportunities to enhance the network moving forward.

A hallmark of the PEPH program is that communities will be actively engaged in all stages of the research, dissemination, and evaluation. See the PEPH Framework and Goals page for more information.
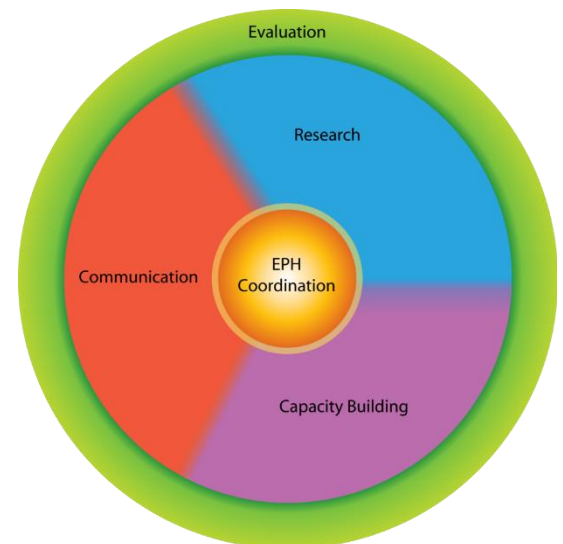
Participants emphasized the importance of building on the past successes of PEPH and looking for new opportunities. Emerging and future topics discussed included data science, vaping, microplastics, the exposome, and precision environmental health.

Looking to the future, presenters described opportunities to broaden stakeholder and partner networks. They discussed how the results from PEPH can help inform other networks such as healthcare professionals, state legislators, and state health departments.

NIEHS Leadership Congratulates the Network

Opening session presenters focused on revisiting the PEPH vision and goals, reflecting on successes, and considering future opportunities to inform a new 10-year vision for the PEPH program. NIEHS leadership congratulated PEPH participants on a decade of inspiring work promoting and advancing environmental public health. They also emphasized the importance of community engagement in environmental health research, describing the network as vibrant and constantly evolving with changing community needs.

J. Patrick Mastin, Ph.D., the acting director of the NIEHS Division of Extramural Research and Training (DERT), highlighted the range of participants and organizations at the meeting, emphasizing the importance of diversity in community engagement. He described how the PEPH network is integral to DERT and a cross-cutting program that helps raise awareness of needs and opportunities in community engagement.

NIEHS Acting Director Rick Woychik, Ph.D., explained how PEPH activities are integral to the 2018 – 2023 NIEHS strategic plan goals. He provided examples of how the work being done by the PEPH network relates to all of the goals within Theme 2: Promoting Translation – Data to Knowledge to Action.

NIEHS Health Specialist Liam O'Fallon, who leads the PEPH network, discussed how PEPH stemmed from seeing that many NIEHS-funded programs were doing similar community engagement work, but they were stuck in programmatic silos. PEPH brings these different grant programs together around shared interests and research, communication, and evaluation approaches. According to O'Fallon, PEPH has helped advance the concepts of environmental health literacy (EHL), citizen science, and tribal ecological knowledge (TEK). O'Fallon posed a question to the participants, requesting their input throughout the meeting on future opportunities and next steps for the next 10 years of PEPH.

> "PEPH has helped give community engagement more visibility and has helped it become a real discipline within the environmental health field. It is now hard to image doing environmental health work without community engagement."
> – Gwen Collman, Ph.D. NIEHS

Acting Deputy Director Gwen Collman, Ph.D., explained how the PEPH network is living, vibrant, and evolving, changing with community needs. Through interactions with the PEPH network, NIEHS leadership learns about community priorities and how they can provide resources and support to improve community partnerships and address emerging community needs.

Key Messages from Breakout Groups

The meeting focused on the following four PEPH themes: research, communication, capacity building, and evaluation. The research, communication, and capacity building sessions included short presentations followed by four breakout sessions on topics within each theme. The evaluation session included a panel discussion as well as a rapid rotation discussion, where participants were invited to answer and discuss questions on flip charts.

Research

The research session included short presentations followed by breakout groups focused on environmental health disparities, new technologies, exposure science, and community-engaged research.

Much of the discussion in the environmental health disparities breakout focused on moving from engagement and EHL to creating equal partnerships and increasing environmental health "agency," or the ability to carry out actions related to environmental health based on knowledge and intentions. The groups focused on enhancing environmental health agency to reduce health disparities. The groups also discussed translating research results into action to address environmental exposures and health risks of concern to communities.

The new technologies breakout discussed the need for quality control measures as researchers move toward more citizen science data and crowdsourcing. As we are able to test more contaminants at lower

Key Points – Research

1. Identifying new ways to involve community members from the beginning and at all points of the research process.
2. Expanding the range of disciplines involved in community engagement.
3. Addressing issues of tool validity, data sharing, and privacy as new tools and technologies are developed.

levels, participants discussed the importance of handling large amounts of data and translating that data to individuals and communities in a legal and ethical way.

With more and more ways to measure exposure, the ways to measure contaminants is expanding. The exposure science breakout discussed the importance of developing tools to share data but also to protect the privacy of study participants. They also focused on the importance of working with communities on the best ways to communicate exposure data when there is no scientific consensus yet about what it means for their health.

"To capture the full picture of how a person is exposed to different chemicals and stressors, we need to understand how they live their lives." – Jane Hoppin, Ph.D., North Carolina State University

In the community-engaged breakout, participants discussed the process of bringing communities to the table and the importance of recognizing that the knowledge the community brings is just as valuable as the knowledge the researcher brings. They discussed working with communities at all levels and the ways communities can be involved meaningfully.

Opportunities & Recommendations

The four breakouts from the Research Session generated a long list of ideas for consideration. Ideas included the following:

- Develop best practices for initiating community engagement and community-engaged research projects. This could include training videos for both trainees/researchers on community-engaged research as well as training videos for community members on the research process.
- Develop a more interdisciplinary approach in research and engagement that include lawyers, anthropologists, communication experts, exposure and mechanistic scientists, industry partners, regulators, and rural health departments.
- Consider the importance of equity in resource distribution and decision making.
- Build capacity for a Community Ethics Review Board.
- Develop and disseminate low cost sensors that are affordable for communities and fit technical capacities.
- Quantify the accuracy of citizen science tools with known standards and provide instrumentation validation for communities.
- Develop standards for data ownership and confidentiality with communities.

Communication

The communication session included short presentations followed by breakout groups focused on social media, culturally appropriate messaging, reporting back research results, and environmental health literacy (EHL).

With ever-growing options of social media platforms, the social media breakout group discussed how researchers can use different platforms to reach unique audiences. For example, while Twitter is more useful for reaching other scientists and public health colleagues, Facebook may be more useful to reach a specific study population. They also brainstormed opportunities to not just push out messaging but to also engage and reach new communities and report back research results.

The culturally appropriate messaging breakout group focused on the importance of providing information to a group so they both understand and trust the message. To do this, researchers need to both learn about the culture to adapt messaging so that it is culturally appropriate and work with the communities to get feedback on their approach.

> **Key Points – Communication**
>
> 1. Different social media platforms reach different audiences.
> 2. Feedback from community members helps ensure you are using culturally appropriate messaging.
> 3. Reporting back research results can increase EHL and facilitate action.
> 4. Informal and formal educators can increase EHL and facilitate behavior change.

The report back breakout group focused on how reporting research results back to study participants can be a way to increase EHL and facilitate their efforts to advocate for health protective policies at the community level. They also discussed digital tools, such as the Silent Spring Institute's Digital Exposure Report-Back Interface (DERBI), that help researchers offer personal exposure results to study participants.

The EHL breakout group discussed the definition and future vision of EHL and how to move the field from helping people know things to helping people do things to protect their health and the environment. They also talked about creating validated tools to measure EHL and how new partnerships with informal and formal educators can increase EHL.

Opportunities and Recommendations

The four breakouts from the Communication Session generated a long list of ideas for consideration. Ideas included the following:

> "Now that we have answered the question 'Should we report back?', we have to identify the best ways to report back."
> – Katie Boronow, Silent Spring Institute

- Develop guidance for accommodating culturally appropriate norms for group engagements, such as providing food at meetings.
- Support gap funding between research grants that focus on the community partnership as a way to sustain relationships and community trust.
- Link result report back to action by facilitating individual and collective action to reduce exposures and improve health based on community input.
- Talk to fellow scientists about the importance of including result report back in research.

- Develop an EHL working group and workshop with the goal of community empowerment and recognition of varied community expertise and to identify and share successful examples of EHL and community change.
- Offer more social media training ranging from basic to advanced.
- Collaborate with communication scientists to inform strategy, create tools for measurement, and use social media for behavior change.
- Identify social media best practices and create and disseminate social media toolkits across the network.

Capacity Building

The capacity building session included short presentations followed by breakout groups focused on science, technology, engineering, and mathematics (STEM) education, environmental health in the health care curriculum, organizational capacity, and individual partner capacity.

The STEM education breakout group focused on strengthening capacity to teach students about current environmental health issues, engage diverse audiences, promote EHL, and advance public health. Improving EHL for students and communities often starts with educators, and participants discussed capturing what current PEPH members are doing in STEM education and how that can be expanded to serve more students.

> **Key Points – Capacity Building**
>
> 1. Capacity building is bi-directional.
> 2. Building capacity in community-based organizations and with teachers requires funding to develop programs and build relationships.
> 3. Outreach and technical assistance will help bring new partners and researchers into the environmental health pipeline.

The health care breakout group focused on bringing environmental health into the health care curriculum. Participants discussed opportunities to interact with medical students at every aspect of their training, including through lectures, grand rounds, academic detailing, and clinical rotations. They provided recommendations for engaging medical professionals and opportunities to teach environmental health in ways similar to how medical students are taught about infectious disease, which does not focus on the effects of a single organ but provides a more holistic view of the health effects to a population.

The organizational capacity breakout group focused on building capacity of community organization partners. They emphasized the importance of bi-directional capacity building. By establishing an equitable, horizontal partnership structure, the group discussed how they may be able to build better relationships with communities. Discussions focused on what equity between partners looks like in terms of governance, management, and organizational capacity.

In the individual partner capacity group, participants emphasized that in order for individual partners to build capacity, the network must ensure diversity, equity, and inclusion is part of both the community engagement process and grant review. They discussed opportunities for technical assistance to build capacity for building proposals, ensuring funding is going to institutions that are working in communities, and promoting applied and actionable research.

Opportunities and Recommendations

The four breakouts from the Capacity Building Session generated a long list of ideas for consideration. Ideas included the following:

- Provide money to community-based organizations through Community Action Supplements.
- Develop bi-directional training for communities in research processes and for researchers in community engagement to improve power sharing and equitable decision making.
- Increase funding for environmental health teacher education experiences so they can build capacity and bring information back to their students.
- Create a PEPH Community of Practice for STEM education.
- Develop joint institute funding mechanisms with NIEHS and other organizations such as the National Heart, Lung, and Blood Institute (NHLBI) to reach a broader group of researchers, including more medical professionals.
- Award designated titles to medical institutes to recognize excellence in environmental health education and have criteria for earning this designation.
- Develop grants to fund relationship development, research planning, and capacity building between universities and community-based organizations separate from research grants.
- Develop outreach and technical assistance to bring new partners and researchers into the environmental health pipeline.
- Changes in study sections to better account for Research to Action grants, community engagement, and research projects that are not strictly focused on health outcomes.

Evaluation

During the evaluation sessions, panelists addressed a range of topics, including best practices and challenges. Panelists focused on the importance of including a variety of factors, such as impacts, process, quantitative, and qualitative measures. They emphasized the importance of building trusting relationships with community partners and that community partners are in a strong position to help ensure that evaluations are culturally appropriate.

Surveys are just one approach to evaluation. Listening sessions promote community dialogue and are an effective way to get feedback. The stories that community partners tell can also provide meaningful evaluation information and the data that is already available, such as meeting minutes, document reviews, meeting attendance records, and interviews with participants, can all be rich sources of information for an evaluation.

According to the panelists, evaluation works best when it is "baked in to" the program from the beginning. Evaluation findings can be used to inform program improvements, educate people, and inspire policy change.

> **Key Points – Evaluation**
>
> 1. Evaluation can and should include a variety of measures – impacts, process, quantitative, and qualitative.
> 2. Evaluation should be a part of the study design, not an afterthought.
> 3. Evaluators need to invest in building trusting relationships with community partners.

Opportunities and Recommendations

The panelists and participants generated a long list of ideas for consideration in response to guided questions. Ideas included the following:

- Encourage researchers to look more closely at frameworks that acknowledge what communities want and qualitative information. Currently there are a variety of frameworks for doing evaluation beyond quantitative techniques that researchers could leverage for environmental health research and engagement.
- Identify opportunities to expand qualitative research in the field to look at how researchers are addressing community capacity related to EHL, impact, and action.
- Identify best practices to continually foster community partnerships.
- Build agency in communities and evaluate what that means for communities and community partners.
- Track skills, knowledge, and experience possessed by communities and researchers, and examine how it is changing over time.

Looking to the Future: PEPH 2030

The final session invited panelists who represent some of the intended audiences that benefit from the research and research translation activities coming out of the PEPH network. The panelists shared their ideas about needs and opportunities for their audiences.

Doug Farquhar, J.D., director of the environmental health program at the National Conference of State Legislatures, discussed opportunities to inform and engage policymakers around environmental health issues. He has worked with environmental health researchers to talk to legislatures about a variety of environmental health issues without a political agenda. This provides an opportunity for researchers to present their findings and other environmental health information to state legislators in a non-advocacy, non-partisan manner. Topics have included PFAS, biomonitoring, air pollution, and disaster response and resiliency.

Maida Galvez, M.D., a pediatrician and associate professor at the Icahn School of Medicine at Mount Sinai, has actively worked with healthcare providers to develop an environmental health e-screener that connects families to healthy homes interventions. The e-screener provides evidence-based messaging so that healthcare providers can provide patients with preventative measures to reduce exposure to environmental contaminants and improve health. She described opportunities to expand this work to incorporate environmental health in all policies and shift the focus to prevention.

Virginia Guidry, Ph.D., head of the occupational and environmental epidemiology branch at the North Carolina Department of Health and Human Services, discussed her role to provide health-based guidance, conduct risk assessments and risk communication, and provide surveillance of environmental contaminants. She described how the PEPH network can help the department navigate scientific findings to respond to information requests from state legislators. She added that the network can help respond to pressing public health issues that the public needs answers to by considering research topics in response to community needs.

> "The more information we have the more we can do to help protect the health of people in North Carolina."
> – Virginia Guidry

Moving Ideas Beyond the Meeting Room

Common Themes Across Sessions and Breakout Groups

- **Equity in partnerships with communities and other stakeholders.** It is important to consider who is at the table and who receives the funding. Demonstrate commitment to community input by providing community partners with funds and resources to compensate them for their time and knowledge.
- **Engaging other disciplines.** There is a lot of expertise in the PEPH network but many other disciplines and creative forces could be brought into the PEPH network to build capacity. Identify partners in new fields, such as communications, urban planning, and other social science fields, that can help with both community-engaged research and outreach.
- **Training needs.** Researchers and community residents benefit from training opportunities. Bringing in different groups and sustaining the knowledge that the network already has helped us from having to reinvent the wheel. Collect, develop, and promote best practices from experiences collected over the last 10 years of the PEPH network.
- **Action and impact.** There is a need to link PEPH-related research and activities to action and identify strategies to create and measure impact.
- **Harnessing new technologies.** The PEPH network can benefit from harnessing new technologies and approaches, such as social media, machine learning, and social sciences, to improve environmental public health work.
- **Identifying resources.** It is important to think about the mission of NIEHS and where we want the PEPH network to be. Then it is essential to identify the appropriate resources, such as funding set aside in grants, to make it happen.

Recommendations: Funding Mechanisms and Grant Review

- Create funding mechanisms that include resources for communities, including paid community liaisons and advisors with local knowledge and expertise.
- For Center grants, include requirements so that researchers are more thoughtful about community-engaged research from the beginning of a project. For example, this could include developing a logic model, detailed work plan, principles of research collaboration for sustainability of partnerships, partnership evaluation plans, and proposed structures of accountability.
- For community-engaged research projects or community engagement cores (CECs) grant applications, require that the primary grant reviewer be a community engagement practitioner, such as a current or former CEC director or co-director.
- Develop a rolling Research to Action Request for Applications (RFAs) that comes out more than once per year.
- Create more funding mechanisms that require interdisciplinary teams within the university and community.
- Develop joint institute funding mechanisms with NIEHS and other organizations such as NHLBI to reach a broader group of researchers.
- Develop grants to fund relationship development, research planning, and capacity building between universities and community-based organizations separate from research grants.

Next Steps

Feedback and ideas shared by meeting participants will be used by NIEHS staff to formulate an updated PEPH concept, which will be presented to the National Advisory Environmental Health Sciences Council later in 2020.

Appendix: Breakout Leaders Contact List

Session 1: Research

Moderators: Beverly Watkins, Ph.D., New York University and Robin Fuchs-Young, Ph.D., Texas A&M University

- Environmental Health Disparities, **Robin Fuchs-Young**, Ph.D., Texas A&M University - fuchs-young@tamu.edu
- Technology, **Erin Haynes**, Dr.P.H., University of Kentucky - erin.haynes@uky.edu
- Exposure Science, **Jane Hoppin**, Sc.D., North Carolina State University - jahoppin@ncsu.edu
- Community Engaged Research, **Beverly Watkins**, Ph.D., New York University - watkib04@nyu.edu

Session 2: Communication

Moderators: Brenda Koester, University of Illinois at Urbana-Champaign and Judith Zelikoff, Ph.D., NYU School of Medicine

- Reporting Back, **Katie Boronow**, Silent Spring Institute - boronow@silentspring.org
- Culturally Appropriate Messaging, **Matthew Dellinger**, Ph.D., Medical College of Wisconsin, mdellinger@mcw.edu
- Environmental Health Literacy, **Kathleen Gray**, Ph.D., University of North Carolina at Chapel Hill - kgray@unc.edu
- Social Media and Emerging Approaches, **Brenda Koester**, University of Illinois at Urbana-Champaign - bkoester@illinois.edu

Session 3: Capacity Building

Moderators: Benjamin Richmond, University of Arizona; Kathleen Vandiver, Ph.D., Massachusetts Institute of Technology; and Aubrey Thompson, University of California, Davis

- STEM Education, **Dana Haine**, University of North Carolina at Chapel Hill, dhaine@email.unc.edu
- Environmental Health in the Health Care Curriculum, **Nicholas Newman**, D.O., University of Cincinnati/Cincinnati Children's Hospital - Nicholas.Newman@cchmc.org
- Organizational Capacity, **Jamie San Andres**, Make the Road New York - jamie.san.andres@maketheroadny.org
- Individual Partner Capacity, **Sacoby Wilson**, Ph.D., University of Maryland - swilson2@umd.edu

Session 4: Evaluation

Moderators: Kristi Pettibone, Ph.D., NIEHS and Yoshira Ornelas Van Horne, Ph.D., University of Southern California

- **Diana Hernandez,** Ph.D., Columbia University - dh2494@columbia.edu
- **Joseph Hoover**, Ph.D., Montana State University Billings - joseph.hoover@msubillings.edu
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