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Building Capacity for Community Engagement in Environmental Health: Strategies and Insights From ATSDR

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Editor's Note: **As part of our continued effort to highlight innovative approaches to improve the health and environment of communities, the *Journal* is pleased to publish regular columns from the Agency for Toxic Substances and Disease Registry (ATSDR) at the Centers for Disease Control and Prevention (CDC). ATSDR serves the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and diseases related to toxic substances. The purpose of this column is to inform readers of ATSDR's activities and initiatives to better understand the relationship between exposure to hazardous substances in the environment, its impact on human health, and how to protect public health.**

The findings and conclusions in this column are those of the author(s) and do not necessarily reflect the views or official position of ATSDR or CDC. The authors declare no conflicts of interest, financial or otherwise.

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Introduction

Working with communities is the core of public and environmental health. Without community engagement, public and environmental health interventions and initiatives are less likely to be successful (Wallerstein et al., 2015). Community engagement is the "process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people" (Centers for Disease Control and Prevention, 1997).

Community engagement is imperative to achieving the mission of the Agency for Toxic Substances and Disease Registry (ATSDR, 2024a), which is to protect communities from harmful health effects related to exposure to natural and human-made hazardous substances. For more than four decades, ATSDR has worked to guide and build capacity for community engagement to support environmental health endeavors for communities, partners, and health professionals (ATSDR, 2024a; Li et al., 2025). The purpose of this column is to describe how ATSDR builds capacity for community engagement through its partnerships, technical assistance, trainings and education, and tools and resources (Figure 1).

Partnerships

Leveraging existing partnerships and fostering new partnerships are crucial in building capacity for community engagement. Effective partnerships are grounded in trust, shared power and governance, and freely exchanged information and knowledge. From this foundation, important community engagement activities—education and outreach, resource mobilization, research participation and support, community-relevant policy development and implementation—are more likely to be successful. ATSDR partners with various federal, state, and local governments and community organizations to gain first-hand knowledge of the needs and concerns of affected communities, and to work together to address public health concerns within communities.

For example, ATSDR's Partnership to Promote Local Efforts to Reduce Environmental Exposure (APPLETREE) is a cooperative agreement that builds capacity within state health departments to evaluate human exposure to hazardous substances in the environment. APPLETREE-funded partners conduct public health assessments to identify exposure pathways, evaluate chemical exposure, review

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FIGURE **1**

Capacity Building Efforts on Community Engagement From the Agency for Toxic Substances and Disease Registry

health data, educate communities, and make recommendations to reduce or prevent harmful exposures (ATSDR, 2024b). Community engagement is an integral part throughout the public health assessment process. Leveraging this existing partner network, ATSDR developed a community of practice to share community engagement resources and lessons learned. ATSDR's partnerships such as these ultimately help build capacity to engage communities by empowering state partners, individuals, organizations, and communities to collectively participate in shaping decisions for positive environmental health outcomes.

Another example of ATSDR's successful partnership is the collaboration with the National Environmental Health Association (NEHA) to advance environmental health practice and build capacity through training and resource development of the Environmental Health and Land Reuse (EHLR) Training Modules (ATSDR, 2024c; NEHA, 2025). Community engagement is featured as a standalone EHLR module and is essential to all five training modules. To date, ATSDR and NEHA have trained 4,000 participants using in-person and online trainings. ATSDR and NEHA have also coauthored publications on priority environmental health topics such as brownfields (Berman, Morar, DeGrane, et al., 2022; Berman, Morar, Unkart, & Erdal, 2022) and assessing capacity of the environmental health workforce (Berman et al., 2024).

Photo 1: The Agency for Toxic Substances and Disease Registry and its partners collaborate with local college students and a Navajo Chapter president about a land reuse project. Photo courtesy of and used with permission from Lloyd DeGrane (2019).

Trainings and Education

ATSDR engages environmental health students and professionals, community members, and partner organizations through various trainings developed by the agency (Photo 1). For example, its National Land Reuse Health Program incorporates a 5-step model that supports health-focused redevelopment projects through community engagement best practices, environmental and health risks evaluation and communication, community-focused redevelopment planning, and measurable indicators of success. In 2018 and 2019, ATSDR partnered with NEHA to create an accredited EHLR Certificate Program with online training courses and classroom teachings (ATSDR, 2024c). EHLR trainings are designed for community members, environmental health students and professionals, and municipal agencies and planners. Through these courses, students learn from real-world environmental health issues and cases, and professionals can receive continuing education contact hours.

In addition, ATSDR's Public Health Assessment Training Curriculum helps environmental health professionals understand the public health assessment process for evaluating community exposure to contaminants at hazardous sites (ATSDR, 2025). The curriculum outlines 10 competencies for conducting the public health assessment process on how to effectively work with communities and clearly communicate findings and recommendations to communities and partners, including Competency 2 that focuses on engaging communities throughout the process. This curriculum builds community engagement capacity by explaining how to establish clear expectations with communities, communicate effectively, and prioritize community needs (ATSDR, 2025).

Technical Assistance

ATSDR is committed to providing technical assistance to inform, educate, and guide partners on community engagement. For example, ATSDR provides technical assistance through its site work to understand and address the effects of potential exposure and health impacts for communities. ATSDR develops a community profile to outline specific sociodemographic and geographical characteristics of the community to inform engagement activities. The profile highlights community and partner concerns about potential exposures and key data gaps. Engaging communities via technical assistance activities involves using community-relevant information to tailor communication and intervention efforts. This component is crucial to ATSDR's technical assistance approach for its site team work in communities.

ATSDR also provides technical assistance to build capacity among partners through its health education and outreach programs. The Soil Screening, Health, Outreach, and Partnership (soilSHOP) program is an interactive, in-person health education and outreach event focused on reducing exposure to lead-contaminated soil (Berman et al., 2025). Community members can collect soil samples from their garden and play areas and bring dried samples to the soilSHOP event to be screened for lead by environmental health professionals at no charge. Community members receive same-day results and one-on-one education about lead and how to prevent or reduce exposure. ATSDR developed a comprehensive tool kit and provides assistance to help guide partners on holding soilSHOP events and engaging with communities (ATSDR, 2024d).

Further, ATSDR's APPLETREE Cooperative Agreement also provides support and technical assistance to state health department partners for engaging communities and protecting them from harmful exposures (ATSDR, 2024b). Under APPLETREE, state partners participate in the Choose Safe Places for Early Care and Education program (ATSDR, 2024e). The program builds capacity of state partners through planning and guidance resources to help states protect children from environmental hazards in early childcare and education facilities. ATSDR's assistance and support of partners strengthened their capability to better engage communities and protect children's health and safety in their jurisdictions.

Tools and Resources

ATSDR has developed a wide range of tools and resources with evidence-based information and best practices to support health professionals in their community engagement efforts for public and environmental health. Selected ATSDR community engagement products include:

- ATSDR's Community Engagement Playbook is a blueprint for practical guidance on the phases and activities of community engagement and organizes community engagement activities that would be implemented for a typical site-based environmental public health effort (ATSDR, 2021). As part of the playbook, ATSDR developed the Community Engagement Planning Tool, a flexible document that guides thoughtful planning and implementation of community engagement across the phases of public health work. Following the playbook can increase trust and positive rapport as the foundation for successfully engaged communities who buy-in and participate in environmental health prevention and intervention action.
- ATSDR's Community Stress Resource Center provides a framework and resources for reducing community stress and building resilience as part of public health responses to environmental contamination (ATSDR, n.d.). The resource center helps communities address the challenges of environmental contamination by providing them with the tools and knowledge to manage stress and build resilience, ultimately promoting better health outcomes.

Challenges to Capacity Building for Community Engagement

It is important to identify the challenges and barriers that can impede capacity building for community engagement. Funding resources are needed for the sustained development of crucial activities such as training, guidance, and resource development. Lack of funding also affects the ability of partners to hire and retain staff, engage in outreach, and provide targeted health education.

Another challenge involves trust building. Distrust by communities and partners leads to reduced communication, cooperation, and participation, and difficulty in building relationships—all of which impede community engagement capacity. Connecting with partners and communities before engagement begins facilitates trust building, transparency, multidirectional communication, and ultimately, capacity.

Conclusion

Building capacity for community engagement at local, state, and federal levels is crucial for the success of ATSDR's mission to protect people from environmental harm. Engaged communities and partners are more resilient, have more sustainable development, and have greater capacity for addressing environmental health issues. Community engagement capacity building also requires proactive efforts, and protocols and procedures must be developed before the engagement begins. Through strong partnerships, proactive trainings and education, effective technical assistance, and practical tools and resources, building capacity for community engagement can result in established trust, meaningful communication, increased resources, and positive health outcomes for communities.

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