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Promoting Environmental Health and Environmental Medicine Resources From ATSDR: Educator Insights

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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.

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Introduction

When communities have concerns about possible exposures to harmful substances, environmental health and medical professionals are often called on to explain exposure and health risks and provide recommendations to promote health. Academic curriculums for medical professionals have, however, limited coverage on how to prevent, diagnose, refer, or treat patients exposed to hazardous substances in the environment. Public health schools generally have robust teaching on environmental health areas, although the curriculum might not sufficiently include real-world aspects, such as developing recommendations and public health actions.

The Agency for Toxic Substances and Disease Registry (ATSDR) builds capacity among partners to detect, respond to, and prevent harmful exposures in communities (Li et al., 2025). ATSDR has developed a wide range of environmental health and environmental medicine resources to train and educate professionals using real-world topics, examples, and case studies. These materials are publicly available for educators, students, and health professionals, and bridge classroom teachings with practical applications.

This column describes a pilot initiative that ATSDR conducted to market environmental health and environmental medicine educational resources to U.S. academic institutions. The objectives are to obtain feedback from

academic institutions and to inform how to best engage academic audiences and encourage the use of the resources. The ultimate goals are to enhance public health education, build capacity among future environmental health and medical professionals, and help these professionals be better equipped to address real-world environmental health issues.

Methods

ATSDR used a 5-step process to develop the marketing initiative (Figure 1). These steps were implemented by a contractor with ATSDR oversight.

Step 1: Create a Marketing Plan

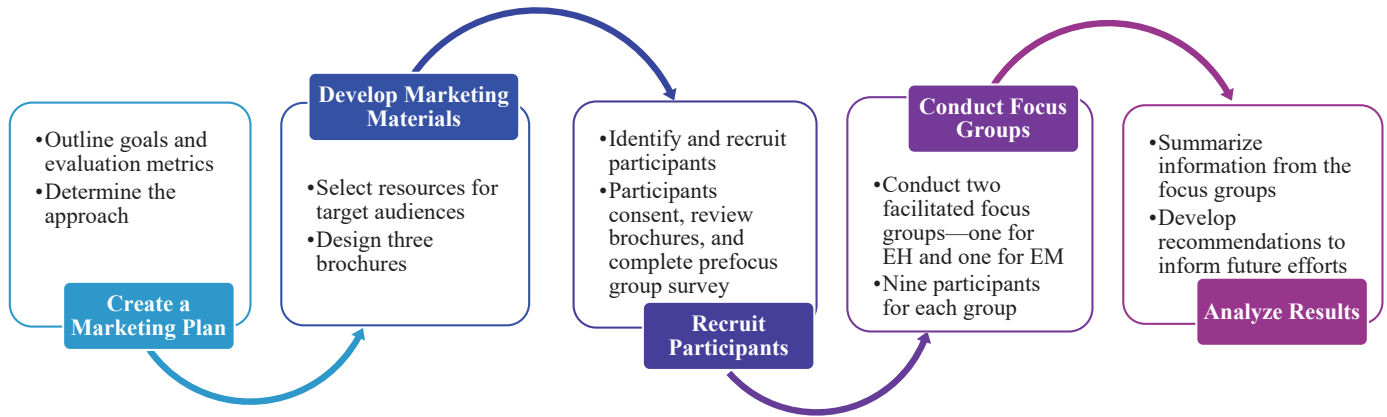
We developed a marketing plan that outlined the goals, design, evaluation metrics, and market research information. The metrics assessed the effectiveness of the marketing materials, participant feedback on the resources, and insights for future marketing efforts.

The marketing plan included several components:

- Identifying environmental health and environmental medicine resources for this pilot project.
- Developing three brochures: one promoting environmental health resources, another focusing on environmental medicine resources, and a third combining both environmental health and environmental medicine materials.
- Determining the approach, including sharing the brochures, conducting a prefocus group survey, and holding two focus groups (one for environmental health and one for environmental medicine).
- Developing participant inclusion criteria, with each focus group consisting of nine professors from either academic institu-

FIGURE 1

5-Step Pilot Marketing Initiative Approach for Promoting Environmental Health and Environmental Medicine Resources From the Agency for Toxic Substances and Disease Registry



Note. EH = environmental health; EM = environmental medicine.

FIGURE 2

Finalized Brochures for Environmental Health (Left) and Environmental Medicine (Right) Resources From the Agency for Toxic Substances and Disease Registry

Environmental health professionals, students, and educators

Do you want to expand your knowledge and skills in...

Use these educational resources

- Public health assessment**
 - Training Modules
 - Webinars
- Environmental toxicology**
 - Toxicological Profiles
 - ToxFAQs
- Community engagement**
 - Community Engagement Playbook
 - Community Stress Resource Center
 - Health Communication Playbook
- Environmental health land reuse**
 - ATSDR Land Reuse Health Program

Earn CEUs*

* For some educational resources, certificates of completion and Continuing Education Units (CEUs) are available. These include Continuing Medical Education (CME), Continuing Nursing Education (CNE), and others!

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Health professionals, students, and educators

Are you prepared to answer questions about...

Use these educational resources

Improve patient health

- Environmental contaminants**
 - Clinician Briefs and Overviews
 - Per- and Polyfluoroalkyl Substances (PFAS)
- Environmental toxicology**
 - Toxicological Profiles
 - ToxFAQs
- Pediatric concerns**
 - Pediatric Environmental Health Specialty Units Resources
- Environmental health and medicine**
 - Resources for Health Professionals
- Understanding exposures**
 - Taking an Exposure History

Earn CEUs*

* For some educational resources, certificates of completion and Continuing Education Units (CEUs) are available. These include Continuing Medical Education (CME), Continuing Nursing Education (CNE), and others!

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tions with environmental health programs or from medical schools.

Step 2: Develop Marketing Materials

To develop the brochures, ATSDR determined appropriate messages for its target audience and selected the following resources for highlighting:

- Environmental health: Public Health Assessment Training modules (Agency for Toxic Substances and Disease Registry [ATSDR], 2024a), Public Health Assessment webinars (ATSDR, 2024b), and Toxicological Profiles (ATSDR, 2024c).
- Environmental medicine: Clinician briefs and overviews (ATSDR, 2024d), per- and polyfluoroalkyl substances (PFAS) information for clinicians (ATSDR, 2024e), taking an exposure history (ATSDR, 2024f), and resources from Pediatric Environmental Health Specialty Units (PEHSU, 2025).

Three brochures (one for environmental health, one for environmental medicine, and one for both combined) were drafted and refined with input from ATSDR subject matter experts.

Step 3: Recruit Participants

To help ensure confidentiality of the participants and promote candid responses, the academic institutions that met the recruitment criteria were identified and recruited. Participants signed consent forms, received the brochures, and shared the brochures with colleagues, staff, and students who might be interested.

The participants completed a presurvey before the focus group discussions. The survey included questions about participant awareness of ATSDR's educational resources; perception of ATSDR's credibility as a provider of educational materials; and opinions concerning the quality, effectiveness, and relevance of each brochure.

Step 4: Conduct Focus Groups

Two focus groups—one for environmental health and one for environmental medicine—were conducted. An experienced facilitator conducted the focus groups using a guide that included a script, questions, and prompts. The focus groups were conducted independently, ensuring that no member participated in both groups. To facilitate

FIGURE 3

Finalized Brochure Combining Environmental Health and Environmental Medicine Resources From the Agency for Toxic Substances and Disease Registry

Professionals, students, and educators

Expand your knowledge and skills

Earn CEUs*

Use these educational resources

Health care

Environmental contaminants

- [Clinician Briefs and Overviews](#)
- [Per- and Polyfluoroalkyl Substances \(PFAS\)](#)

Understanding exposures

- [Taking an Exposure History](#)

Pediatric concerns

- [Pediatric Environmental Health Specialty Units Resources](#)

Environmental health and medicine

- [Resources for Health Professionals](#)

Environmental health

Public health assessment

- [Training Modules](#)
- [Webinars](#)

Environmental toxicology

- [Toxicological Profiles](#)
- [ToxFAQs](#)

Community engagement

- [Community Engagement Playbook](#)
- [Community Stress Resource Center](#)
- [Health Communication Playbook](#)

Environmental health land reuse

- [ATSDR Land Reuse Health Program](#)

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open feedback, all participants had various methods for sharing their opinions, including emailing before and after the focus group, sharing reactions, speaking, and using a virtual whiteboard during the discussion.

Step 5: Analyze Results

We analyzed and summarized information obtained through the focus groups, updated the three brochures based on feedback (Fig-

ures 2 and 3), and developed recommendations to inform future efforts.

Results

The participants were professors from U.S. academic institutions that either offered environmental health programs or had medical schools with an interest in environmental medicine. Both focus groups included nine participants with a range of

race and ethnicity, national origin, primary language, sex, university affiliation, and geographic regions.

For each focus group, eight professors attended the discussion in April 2024 while one contributed feedback via email. The participants provided a range of feedback about the content, design, and distribution of ATSDR's materials.

The following summarizes participant recommendations to improve the marketing materials and plan:

- Highlight additional resources:
 - » Environmental health: ToxFAQs (ATSDR, 2021), the Community Engagement Playbook (ATSDR, 2024g), and the Health Communication Playbook (Centers for Disease Control and Prevention & ATSDR, 2018)
 - » Environmental medicine: Toxicological Profiles (ATSDR, 2024c) and ToxFAQs (ATSDR, 2021)
- Conduct outreach to other audiences, such as science journalists and news reporters, communities near hazardous sites, and students at various educational levels (e.g., community college, high school, potentially middle school).
 - » Develop separate brochures and tailor them for each audience, including educators; students; and medical, nursing, and other healthcare professionals.
 - » Include audience-specific questions and action-based messages to attract the attention of the audience.
 - » Create brochures and educational resources for high school students and beyond to promote environmental health and environmental medicine education and career opportunities. For example, a Meet the Professional brochure could help students become interested in other environmental health or environmental medicine fields of study and careers.
- Emphasize the availability of free continuing education credits or certificates of completion.
- Enhance the materials with vivid colors, relevant images, and audience-specific messages. Consider an infographic format. The photos in the environmental health brochures should include images of sites, exposure scenarios, and visuals of environmental health professionals at work.

- Use direct email communication as the preferred method for disseminating information to educators.

Finally, participating educators confirmed that many public health programs have gaps in education on public health assessment and health risk assessment. Likewise, many medical schools have gaps in environmental health and environmental medicine education. They commented that ATSDR educational resources can help fill those gaps. Many desirable attributes are noted, including high credibility, relevant content, up-to-date advances from experts who do the work, online accessibility, opportunities for interactivity, and modular-based content. There was a strong interest in integrating ATSDR educational resources into their school's educational programs and curricula, with numerous benefits for educators and students.

Discussion

The feedback received by participants reinforced the value and utility of ATSDR's extensive technical resources to fill gaps in current curricula. Meanwhile, the project also highlighted the need for better dissemination and effective promotion of these readily available resources to various target audiences in the education arena.

As a result, ATSDR will continue its efforts to effectively promote educational materials developed by scientists and experts who work on real-world environmental issues. Currently, we are developing a centralized website that includes professional competencies, training, risk assessment, and resources for professionals interested in environmental exposure. Future initiatives could include creating tailored brochures for specific audiences, enhancing promotion through social media, active outreach to academic institutions, and effective partnership with professional associations. These initiatives will provide future health professionals with more awareness and access to environmental health and environmental medicine resources from ATSDR, as they address harmful environmental exposures in communities. 🌸

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