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INTEGRATING PUBLIC HEALTH IN LAND REUSE AND REDEVELOPMENT:

Part 2: Assessing Local Health Agency Capacity to Integrate Environmental Health and Land Reuse Work

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Abstract

Many local health departments (LHDs) across the country coordinate with their service areas on environmental health or land reuse. The Brownfields & Reuse Opportunity Working Group (BROWN) is a multipartner land reuse stakeholder network that includes member representatives from state and local health agencies, federal agencies, environmental consultants, environmental health professionals, and academia. In 2015, BROWN provided input on five Environmental Health Resources Self Learning Modules (Epidemiology, Risk Assessment, Risk Communications, Land Reuse Sites, and Toxicology) that the Agency for Toxic Substances and Disease Registry (ATSDR) was developing. ATSDR created the educational modules as resources and self-study guides to increase LHD capacity to respond to environmental issues. Following input from BROWN members on the modules, the National Environmental Health Association independently developed a short survey to identify baseline capacity of environmental professionals, primarily LHD professionals, to address environmental health and land reuse issues. The survey results of 93 LHD personnel indicated variation in the level of education among LHD employees and how often specific environmental health and land reuse services were requested. A subset of three LHD respondents also provided input into the learning modules.

Editor's Note:

The National Environmental Health Association is publishing a three-part series that highlights collaboration and partnerships with the Agency for Toxic Substances and Disease Registry (ATSDR) and redevelopment stakeholders to promote environmental health and land reuse as environmental and public health practices. This series will serve as a guide for identifying new and existing resources that can be adopted at the local environmental health level to safely reuse environmentally impacted land to improve community health outcomes. The conclusions in this

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series are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention and ATSDR.

Introduction

Through the Brownfields & Reuse Opportunity Working Network (BROWN) (www.atsdr.cdc.gov/sites/brownfields/stakeholders.html), a brownfields and land reuse collaboration, the U.S. Environmental Protection Agency (U.S. EPA), Agency for Toxic Substances and Disease Registry (ATSDR), and National Environmental Health Association (NEHA) engage in public health-focused land reuse and brownfields redevelopment. We broadly use the terms brownfields and land reuse sites to represent properties that are potentially contaminated and might be reused (www.atsdr.cdc.gov/sites/brownfields). One key goal of our collaboration and the objective in publishing this column is to ensure that health agencies, particularly local health departments (LHDs), are prepared for engagement in brownfields and land reuse sites. Health agency engagement in land reuse can lead to healthy redevelopment that can revive not only the economy and environment but also reduce health disparities through built environment improvements.

While federal and state environmental agencies are primarily responsible for brown-fields and land reuse, state or local health agencies are often engaged, particularly if there are community concerns about potential contamination and exposures. In the *2013 National Profile of Local Health Departments*, the National Association of County and City Health Officials surveyed 2,000 LHDs in the U.S. to describe their infrastructure and practice (National Association of County and City Health Officials, 2014). About 83% of the LHDs reported environmental health partnerships with community organizations, of which 31% reported land use involvement. In addition, LHDs engaged in pollution prevention (22%), hazardous materials response (17%), air pollution (16%), hazardous waste disposal (15%), and policy or advocacy activities in community-level urban design and land use policies to encourage physical activity (26%). All of these activities can be necessary in brownfield and land reuse site assessment and redevelopment.

BROWN is a multisector land reuse collaboration that provides free consultation to communities with concerns about contaminated properties. BROWN includes representatives from ATSDR, U.S. EPA, other federal agencies, NEHA, state and local health agencies, environmental consultants, and academia. One key goal of BROWN is to support environmental health education that is geared towards health agencies. For example, BROWN provided input into ATSDR's Environmental Health Resource Self Learning Modules—Epidemiology, Land Reuse Sites, Risk Assessment, Risk Communications, and Toxicology—that are available at www.atsdr.cdc.gov/sites/brownfields/for_health_agencies.html#LearningModules. This collaboration ultimately resulted in a survey developed by NEHA to assess LHD staff skills in environmental health and to gauge the effectiveness and potential impact of the modules. In another collaboration, we created a 3-part short video series, Engaging Health Departments in Brownfields/Land Reuse Redevelopment, that highlights ways that health agencies can promote and build capacity to

become involved in land reuse/brownfields work (www.atsdr.cdc.gov/sites/brownfields/videos.html).

Methods

In June 2015, ATSDR held an in-person focused discussion with BROWN members to collect input on the Environmental Health Resources Self Learning Modules so that they would be specifically useful to increase LHD capacity in land reuse work. Subsequently, from May to June 2016, NEHA independently conducted an online survey among its members, who are primarily from LHDs, as a first step to identify a baseline capacity of local environmental health professionals to address environmental health and land reuse issues. NEHA surveyed its members through its membership database. As a support organization, NEHA is nonfederal and is not subject to federal human subjects and Office of Management and Budget regulations. All NEHA members who participate in the survey did so voluntarily. The 14-question survey took less than 5 minutes to complete (Table 1). Through its collaboration in BROWN, NEHA included a survey question to establish a subset of LHD respondents who would be willing to participate in a brief second survey conducted by NEHA (data not included here) to test the draft learning modules.

LHDs can have jurisdiction over several types of service areas and as such, NEHA evaluated service areas as rural, urban, suburban, or mixed to see if differences existed in terms of the types of services requested, education level, or interest in online training by service area. NEHA also examined the proportion of respondents typically asked to perform risk communication, risk assessment, toxicology, epidemiology, and land reuse/brownfields work according to the level of education. NEHA shared the summary results of the survey with U.S. EPA and ATSDR. No individuals were identified in the summarized survey results. To obtain a more refined statistical analysis, U.S. EPA further assessed the summary survey results using Stata version 13.

Results

Brownfields & Reuse Opportunity Working Network Input Into Environmental Health Resources Self Learning Modules

BROWN members made several suggestions to improve the learning modules, including providing case examples in some of the modules, emphasizing that the modules were not intended to replace formal training, and ensuring that all five modules were consistent in format and utilized plain language.

Results of the National Environmental Health Association's Local Health Department Survey

The NEHA survey had 109 respondents, of which 93 (85%) indicated that they currently worked in a health department and 85 (91%) responded to survey questions pertaining to their health department (Table 2). The majority of respondents (68%) indicated that they worked in relatively small LHDs (1–24 employees). Approximately 53% of the survey participants indicated servicing a rural area, 20% a suburban area, and 19% a mixture of rural, urban, suburban, or territorial areas.

The level of education or the type of activities requested did not differ among different service areas (see supplemental tables at www.neha.org/jeh/supplemental). The level of education, however, varied with how often services were requested of LHDs in risk communication, risk assessment, toxicology, epidemiology, and land reuse/brownfields (Figure 1). Of the respondents who performed tasks within the five areas, a range of 5–75% of LHD employees had no formal training. Only 4 of 85 respondents performed toxicology tasks, of which 75% had no formal training. Among LHD respondents who indicated working on land reuse/brownfields issues, almost 75% indicated having either no formal education (e.g., college-level classes) or only continuing education courses related to land reuse/brownfields.

On the last question of the survey, 29 respondents indicated interest in testing the draft ATSDR Environmental Health Resource Self Learning Modules. NEHA randomly contacted a subset of nine individuals and three provided feedback. Their feedback indicated that the learning modules ranged from somewhat to very useful and would be useful for increasing their capacity in environmental health and land reuse.

Discussion

ATSDR updated the Environmental Health Resource Self Learning Modules to reflect the changes suggested by BROWN members. The survey conducted by NEHA provided valuable insight as to the capacity and education attained among those working on important community environmental health issues. The survey results indicated mixed levels of training completed by LHD staff in five different areas of environmental health (Figure 1). Feedback on the use of the learning modules, while limited to only three LHD survey respondents, was positive and indicated that the modules were useful for providing knowledge about an unfamiliar topic and giving LHD personnel confidence to increase their skills in specific environmental health topics pertaining to land reuse.

As awareness of brownfields and land reuse sites increases, opportunities to engage LHDs increases. LHD staff, with their proximity to communities, can ensure the safe reuse of land and assessment of potential exposures to contaminants associated with brownfields and land reuse sites. Through BROWN, ATSDR, U.S. EPA, NEHA, and other partners intend to collaborate with other stakeholders to continue to help build capacity of LHDs to engage in environmental health and land reuse work.

One outcome is a newly developed ATSDR–NEHA Environmental Health and Land Reuse (EHLR) Certificate Program that will be completed in late spring 2019 and will subsequently be available as free training for environmental professionals, such as those in LHDs, to further increase their understanding of and skills in environmental health and land reuse. Participants who successfully complete the training will be eligible for continuing education credits from ATSDR and a Certificate of Completion in EHLR issued by NEHA. Ultimately, we hope all the tools and resources geared towards educating LHDs in environmental health and land reuse lead to increased abilities to perform a range of environmental health services and improved overall public health in local communities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Reference

National Association of County and City Health Officials. (2014). 2013 national profile of local health departments. Washington, DC: Author.

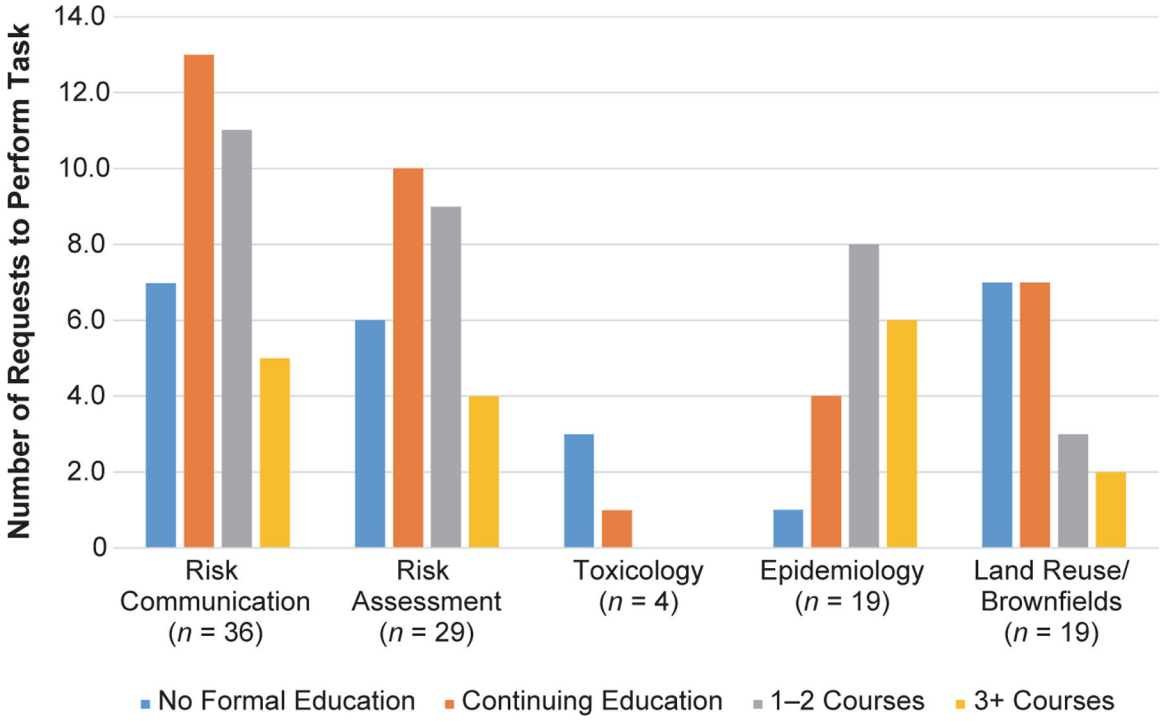

FIGURE 1.

Summary of Education Level and Request Frequency of Health Department Employees to Perform Tasks in Five Specific Environmental Health Areas

TABLE 1

National Environmental Health Association Local Health Department Survey Questions

#	Question
1	Do you work at a local health department (LHD)?
2	What is the size of your service area in terms of population?
3	How would you describe your service area (urban, rural, suburban, territorial, other)?
4	How many employees work at your health department?
5	Do you work on environmental health and land reuse issues?
6	What is your title?
7	Do people ask for your help regarding environmental health AND land reuse/brownfields issues?
8	If yes to question 7: Who requests your services? How often are you consulted? What services do you perform?
9	If no to question 7: Is there someone else in your agency to whom these questions are referred?
10	Do you perform any of the following services: risk communication, risk assessment, toxicology assessments, epidemiology assessments, and consultations on land reuse/brownfields or hazardous waste sites?
11	Have you had any training in the following: risk communication, risk assessment, toxicology, epidemiology, and land reuse/brownfields or hazardous waste sites? [A range of training levels from no formal training through advanced graduate degrees was included.]
12	If free, self-study, online training was available in the following topics, do you think it could increase your skills: all topics, risk communication, risk assessment, toxicology, epidemiology, and land reuse/brownfields or hazardous waste sites?
13	If you had an opportunity to test proposed online training in risk communication, risk assessment, epidemiology, toxicology, and land reuse/brownfields or hazardous waste sites, would you participate?
14	If you are willing to participate in a focus group to test proposed online training in risk communication, risk assessment, epidemiology, toxicology, and/or land reuse/brownfields or hazardous waste sites, please provide your contact information [name, company, city, state, e-mail address, and phone number].

TABLE 2

National Environmental Health Association Local Health Department Survey Participant Characteristics (n = 85)

Characteristic	# (%)
Number of health department employees	
1–24	58 (68.2)
25–99	13 (15.3)
100–249	6 (7.1)
250–499	6 (7.1)
500–999	1 (1.2)
≥1,000	1 (1.2)
Type of service area	
Rural	45 (52.9)
Suburban	17 (20.0)
Rural/urban	7 (8.2)
Urban	6 (7.1)
Rural/urban/suburban	5 (5.9)
Rural/suburban	3 (3.5)
Rural/urban/suburban/territorial	1 (1.2)
Population of health department service area	
0–4,999	3 (3.5)
5,000–24,999	33 (38.8)
25,000–99,999	27 (31.2)
100,000–499,999	15 (17.7)
500,000–999,999	2 (2.35)
≥1,000,000	5 (5.9)
Job title	
Director of public health	26 (30.6)
Sanitarian	11 (12.9)
Health officer	9 (10.6)
Director of environmental health	6 (7.1)

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Characteristic	# (%)
Environmental supervisor	6 (7.1)
Health educator	4 (4.7)
Health equity/planning/policy manager	4 (4.7)
Public health nurse	4 (4.7)
Engineer	3 (3.5)
Environmental health scientist	3 (3.5)
Dietician/nutritionist	2 (2.4)
Health programs coordinator	2 (2.4)
Program/section manager	2 (2.4)
Administrative	1 (1.2)
Food inspector	1 (1.2)
No title	1 (1.2)