EMERGENCY PREPAREDNESS

Environmental health practitioners perform many critical functions during and after an emergency caused by natural calamity, terrorism, industrial accidents, or infectious disease. Their role is to:

- **Ensure adequate safe drinking water.**
- **Conduct food inspections.**
- **Ensure basic sanitation services.**
- **Promote personal hygiene.**
- **Assist first responders by providing health risk consultations or advising on exposure pathways.**
- **Provide information to emergency managers to help assess the scale of the emergency to ensure an effective response.**
- **Ensure safe and healthy building environments.**[1,2]

After an event, environmental health practitioners remain on the scene conducting longitudinal assessment of hazardous exposures. With a strong environmental health system, experts can also help prevent or lessen damage from routine incidents, such as mercury spills in schools. Investing in infrastructure, like secure water systems, before an event makes communities less likely to live without clean water and sanitation services post-disaster.[3]

The Problem

Built Environment

After severe storms, buildings can fill with floodwater and can sustain structural or electrical damage that makes them unsafe to enter. Floodwaters alone can cause mold, leading to adverse respiratory health outcome, such as asthma. Environmental health inspectors ensure building safety and help to mitigate hazardous exposures, like carbon monoxide.

Radiation

After a radiological disaster, intentional or accidental, environmental health practitioners measure ambient radiation levels. The federally funded radiological arm of the Laboratory Response Network —a group of laboratories funded by CDC to prepare for a coordinated response to radiological releases—should be the first line of defense at the local level.

To determine human exposure levels, CDC LRN laboratorians can perform a rapid urine analysis that detects radionuclides in the body. Based on screening results, public health workers and first responders can take appropriate response measures. CDC can currently test about 300 specimens a day. But national planning scenarios indicate the need to test 2,000 to 3,000 specimens per day to enable prompt administration of medical countermeasure to those who need them. Ideally, LRN laboratories will be funded to expand their radiological testing capabilities to build national testing capacity.

Chemical Incidents

The chemical arm of the Laboratory Response Network (known as the LRN-C) is tasked with mounting the laboratory response to chemical emergencies, such as toxic industrial releases or spilled mercury in a school classroom. A national biomonitoring network—with capability to detect a range of environmental toxicants in human blood, tissues, and other specimens—would increase the nation's ability to detect and measure toxic environmental exposures. This information is needed to inform medical treatment for the exposed, recall notices (if exposures are related to consumer products), and policymaking. While the LRN-C receives federal funding through CDC, to date the "National Biomonitoring Network" exists only on paper.

Shelters

Shelters provide a safe place for affected communities to rest and recover after an emergency event. Services provided in shelters include food, sleeping quarters, sanitation facilities, and medical care for those displaced in the wake of an emergency. Environmental health practitioners conduct shelter assessments, testing the safety of drinking water, conducting food safety inspections, and more.[3]

Opportunities for Action

CDC's 2011 National Strategic Plan for Public Health Preparedness and Response lists eight national public health preparedness goals.

1. Prevent and/or mitigate existing and emerging threats to the public's health, recognizing that the scale, timing, or unpredictability of these threats can overwhelm routine public health system capabilities and have substantial impacts on domestic and global economies, as well as national security.

2. Integrate public health, the health care system, and emergency management response to better address public health threats.
3. Promote resilient individuals and communities in the face of crises.
4. Advance public health surveillance, epidemiology, and laboratory science and service practice.
5. Increase the application of science to preparedness and response practice. The current evidence/science base for public health preparedness is limited and insufficient.
6. Strengthen the public health preparedness and response infrastructure, including communications and information technology infrastructure, emergency operation centers, and the emergency response workforce to address both the physical and logistical capacity to prepare for and respond to events.
7. Enhance stewardship of public health preparedness funds, including leveraging resources, reducing duplicative expenditures, improving the economic justification for investments in preparedness, and promoting the use of resources.
8. Improve the ability of the public health workforce to respond to health threats. Gaps in worker competency and organization/system capabilities must be addressed.

For more information, visit:

Centers for Disease Control and Prevention
- Emergency and terrorism preparedness for environmental health practitioners: https://www.cdc.gov/nceh/ehs/ETP/default.htm
- Laboratory Response Networks: https://emergency.cdc.gov/lrn/
- National Biomonitoring Network: https://www.aphl.org/aboutAPHL/publications/Documents/EH_National_Biomonitoring_Plan_112015.pdf

World Health Organization
- Environmental health in emergencies: http://www.who.int/environmental_health_emergencies/en/

References

1.   Minnesota Department of Health. Disaster and Emergencies: Preparing and Responding. 2013. *Retrieved from:* http://www.health.state.mn.us/divs/eh/emergency/ on April 18, 2017.
2.   U.S. Centers for Disease Control and Prevention. Emergency and Terrorism Preparedness for Environmental Health Practitioners (ETP). 2016. *Retrieved from:* https://www.cdc.gov/nceh/ehs/etp/default.htm on 2017.
3.   World Health Organization. Environmental Health in Emergencies: Prevention. 2016. *Retrieved from:* http://www.who.int/environmental_health_emergencies/prevention/en/ on April 18, 2017.