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The Critical Role of Public Health Programs in Responding to Natural Disasters

The ongoing 2018 Atlantic hurricane season and the number of wildfires in California and other Western states have demonstrated that natural disasters can have a tremendous public health impact. From injuries in the immediate aftermath of the storm to long-term mental health effects, recovering communities face a range of challenges. And, public health works tirelessly alongside and on the frontlines of the preparation, response and long-term recovery. In areas recovering from storms, public health departments work long hours for weeks on end — leading to extremely high costs and detracting from ongoing work of the department, such as routine disease prevention.

At the same time, federal funding — through the Public Health Emergency Preparedness (PHEP) agreement — to prepare state and local health program has declined by about one-third since FY 2002, and funds to prepare the healthcare system for disasters through the Hospital Preparedness Program (HPP) have been cut in half.¹ These funding shortfalls make it difficult to retain expert personnel and maintain capabilities to prepare for disasters. For example, a survey of health departments found that the redirection of just \$44 million in public health preparedness grants during the Zika response would lead to impacts in community preparedness, volunteer management, medical countermeasure dispensing and other key activities.²

Now is the time for policymakers to act in support of these affected states and the public health and healthcare systems that support them.

The role of public health in disaster preparations and recovery include:

Risk Communications and Incident Management

- **Risk Communications.** Federal, state and local health departments serve as the trusted voice for keeping communities healthy before, during and after a storm. With adequate and consistent risk communications training, health officials can better inform communities in a culturally competent way of vital life-saving information, such as if water is safe to drink or how to prevent additional injuries or illnesses. In the weeks following storms, public health often conducts mass health education and community engagement campaigns. Additionally, power

¹ Trust for America's Health. *Ready or Not: Protecting the Public's Health from Diseases, Disasters and Bioterrorism*. Washington, D.C.: TFAH, 2016. <https://www.tfah.org/report-details/ready-or-not-1/>

² NACCHO, ASTHO, APHL and CSTE. *Impact of the Redirection of Public Health Emergency Preparedness (PHEP) Funding from State and Local Health Departments to Support National Zika Response*. Washington, D.C.: NACCHO, 2016. <http://www.naccho.org/uploads/downloadable-resources/Impact-of-the-Redirection-of-PHEP-Funding-to-Support-Zika-Response.pdf>

outages, personnel and resident exhaustion, language and cultural barriers and infrastructure breakdown make risk communications extremely challenging.

- **Incident Command.** Public health officials activate their emergency operations systems — within a broader, interagency structure called the Incident Command System — to coordinate the response with other government agencies and the private sector. During emergencies, the U.S. Centers for Disease Control and Prevention (CDC) activates its Emergency Operations Center to lead federal public health efforts, including providing resources and technical support for critical public health functions.
- **Needs Assessments.** Local public health must conduct rapid community needs assessments, including which people are at highest risk for injury, illness and death during the recovery, such as the elderly, those with chronic conditions and children. These assessments help target overall response efforts such as restoring power, targeting medical supplies, and evacuating to special needs shelters.

Infectious Disease Prevention

- **Ensuring access to safe water and food.** Long power outages can lead to contaminated food, and flooding can lead to unsafe water and food supplies, potentially causing deadly illnesses. Environmental health and public health workers test the safety of water systems and wells, assist communities with food spoilage decisions, and inspect restaurants and retail food facilities to ensure they are safe to reopen. However, after a major disaster, these assessments can take many weeks.
- **Ensuring safety and disease prevention in shelters.** CDC works with public health officials on the ground to provide surveillance of health threats and help prevent infectious diseases from occurring or spreading in emergency shelters.
- **Preventing vector-borne diseases.** Public health must conduct surveillance and mitigation of mosquitos and other pests – or vectors – that can spread diseases such as Zika and West Nile virus and are expected to flourish long after floodwaters subside.³ A recent assessment of Zika response agencies in high-risk U.S. areas found that 68 percent of those surveyed lacked competency in mosquito control and surveillance, including many in Texas and Florida (areas where Zika is present).⁴

Injury Prevention

- Many of the storm's health impacts occur in the days and weeks following as families return home and cleanup and rebuilding begin. In addition to immediate injuries, such as drowning, public health officials must educate the public about precautions they can take to prevent injuries during the recovery, including the risk of carbon monoxide from generators and how to

³ Mosquitoes, carbon monoxide and chemicals are big post-Irma health concerns. *Washington Post*. September 11, 2017. https://www.washingtonpost.com/news/powerpost/paloma/the-health-202/2017/09/11/the-health-202-mosquitoes-carbon-monoxide-and-chemicals-are-big-post-irma-health-concerns/59b59f6d30fb045176650be9/?utm_term=.65a34650b069

⁴ Mosquito Surveillance and Control Assessment in Zika Virus Priority Jurisdictions. NACCHO, Dec 2016. <http://www.naccho.org/uploads/downloadable-resources/VectorAssessmentDec2016NACCHO.pdf> (accessed Sept 2017)

safely reenter homes and remove debris. CDC and the National Institutes of Health (NIH) educate employers about steps they can take to train and protect their employees from injury.

Environmental Health and Exposure to Contaminants

- Massive flooding, power outages and breakdown of infrastructure can lead to exposure to a range of dangerous substances such as mold, sewage, chemicals and other hazardous materials. First responders and cleanup workers are especially vulnerable to these contaminants. Environmental health and public health workers must educate the public of these hazards, assess whether emergency shelters and healthcare and other facilities are safe for reentry, and train employers on safety for their employees. The highest priority is the health and safety of vulnerable populations, such as children, the elderly and disabled.

Healthcare Preparedness and Response

- **Continuity of care.** Healthcare coalitions, which are supported by the Hospital Preparedness Program, bring public health and healthcare together to coordinate the response of the private sector healthcare delivery system. Evacuations and road closures can also create blockages in the usual supply chains which can lead to patients and healthcare providers having trouble accessing needed care. Public, private sector and nonprofit organizations need to work together to ensure patients maintain access to lifesaving medicines and supplies.
- **Evacuations, placement and recovery.** Public health, healthcare, and private facilities such as skilled nursing facilities must coordinate to ensure safe, efficient evacuation or sheltering, continuity of operations, and recovery of the healthcare delivery system. Natural disasters can disrupt access to regular care – such as when power outages prevent people from reaching dialysis centers or when pharmacies are closed. They can also strain hospitals seeing a surge of patients impacted by the crisis while facing their own flooding, power, or supply shortage issues. Public health often coordinates the medical operations and conducts disease surveillance at emergency shelters, as well as conducts mobile healthcare service delivery. Most healthcare delivery systems – including hospitals, outpatient services and medical supplies – are held by the private sector and require coordination with the overall response.

Mental and Behavioral Health

- **Access to services and recovery.** The shortage of mental and behavioral health providers⁵ – already inadequate to meet the day-to-day demand – is only exacerbated following a disaster when needs are often greatest. People affected by the crisis are experiencing high levels of stress, and people with ongoing mental health illness may have problems accessing their regular care, including medications. Grants to communities could help training for meeting disaster mental health needs in communities, support additional mental health professionals, and enable research into long-term impacts.

Recommendations for Policymakers:

⁵ National Projections of Supply and Demand for Selected Behavioral Health Practitioners: 2013-2025. HRSA, Nov 2016. <http://www.modernhealthcare.com/assets/pdf/CH10852216.PDF>

- **Emergency supplemental funding for disaster response and recovery must include public health, healthcare and behavioral health:** Supplemental funds should specifically go through the CDC and other relevant Department of Health and Human Services (HHS) agencies which directly support state and local health response and long-term recovery. These grants should be structured in a way to allow coordination across federal agencies – such as CDC, the U.S. Department of Housing and Urban Development (HUD) and the Substance Abuse and Mental Health Services Administration (SAMHSA) – and at the community level.
- **Ongoing funds must support public health and healthcare preparedness:** A robust response and recovery are impossible without core capacities in place before a disaster strikes. Programs like CDC's Public Health and Emergency Preparedness cooperative agreement and ASPR's Hospital Preparedness Program are critical to maintaining core capacity.
- **Support a modernized public health surveillance system:** Every state needs be able to prevent, detect and contain public health threats, including mosquito-borne illnesses, foodborne outbreaks and other health threats that can emerge following a natural disaster. CDC programs such as the epidemiology and laboratory capacity program, vector-borne diseases, and advance molecular detection are moving the nation to a modern, agile public health surveillance system — and they need adequate support and funding.
- **Invest in an additional emergency response fund to support surge capacity:** A standing emergency response fund for public health would speed the response to public health emergencies, but these funds should not come at the expense of underlying public health capacity. Our communities need both preparedness *and* response. Such a fund would serve as a bridge between underlying preparedness funds and additional supplemental money needed for extraordinary emergencies.
- **Build a resilient healthcare system:** Recovery dollars should focus on building flood and disaster-resilient facilities. Public health and the private sector must also continue to seek opportunities for coordination to ensure private sector healthcare delivery and suppliers are integrated into disaster response.