

Dealing with Disasters Part 1

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[music] Anne Johnson: Welcome to Environmental Health Chat, a podcast about how the environment affects our health, from the National Institute of Environmental Health Sciences Division of Extramural Research and Training. I'm your host Anne Johnson, and today, we're talking about disasters.

Disasters affect thousands of people every year. In many places, it's not a matter of if you'll encounter a disaster, but when, and how bad it will be. Fortunately, there's a lot you can do to protect yourself and your community.

Our first guest is Dr. Mark Keim. He's President and CEO of DisasterDoc LLC, an international consulting group specializing in disaster related education and training.

Now, if I asked you to list some of the health risks associated with disasters, you'd probably ask me what kind of disaster I'm talking about. According to Mark, you may be surprised to learn that that doesn't really matter.

Mark Keim: Regardless of the disasters itself, many times these disasters cause the same public health consequences. So for example, in a hurricane, people lose water, shelter, food, sanitation and they may become injured. In an earthquake, same things, injuries, loss of shelter, water, food, sanitation, and so on. Psychological illnesses in both those as well. Even in manmade disasters, like chemical releases or industrial accidents. So actually, when we look at this, as an aggregate, regardless of the disaster cause, you're still back to the same public health needs.

Anne Johnson: There are of course the immediate risks like drowning in floodwaters, being injured by flying or falling debris, or being exposed to contamination or disease. Other health effects emerge over weeks or even years following a disaster. Losing your home, dealing with unsafe water, and bearing the financial, psychological and social aspects of trauma or being separated from your family.

Disaster research helps us find ways to reduce these risks. Dr. Aubrey Miller is a Senior Medical Advisor for NIEHS, where he spearheads some of the institute's disaster research efforts.

Aubrey Miller: Disaster research is really the gathering of timely information; to help us not only in the acute phase of the disaster, but also in the recovery and preparedness for future situations. Also, we want to understand the value of our interventions. So when we go clean something up, or to help people or to respond, we really need to understand and to evaluate and to measure what we are doing and if it's effective.

Anne Johnson: Disaster research has revealed things that may seem counterintuitive. For example, the main danger with hurricanes turns out to be drowning, not wind. Also more injuries occur during

disaster cleanup and recovery than in the event itself. Findings like these improve our ability to prepare and respond more effectively.

Aubrey Miller: U.S. Geologic Survey studied earthquakes and responses and buildings and infrastructure over many years in trying to understand what were the risks, the type of structures that did better, and all that kind of information over a number of years of research finally went into our building codes. When something happens in the United States, an earthquake, we suffer very little casualties and very little damage compared to other nations. So these types of things keep coming back into the system, people don't realize that all this is part of lessons learned from previous situation.

Anne Johnson: As another example, research following the World Trade Center attacks revealed serious long-term respiratory problems and psychological effects in responders and people involved in the cleanup. Those insights have in turn fed back into training and protective equipment for the country's first responders.

Aubrey says it's important to look past the obvious effects of a disaster and try to understand what's going on beneath the surface, such as mental health ramifications and impacts on the social dynamics in families and communities.

Although a lot of this can be hard to pin down, researchers don't have to reinvent the wheel every time a disaster happens.

Aubrey Miller: While the situations change, a lot of the approaches and the processes are consistent and so whether we are dealing with an infectious disease, or chemical, or structural damage, a lot of our processes in the way that we can be effective and apply research are very consistent and we can still gather data and be able to move ahead in preventing harm to populations.

Anne Johnson: So from the research we have so far, what do we know about how to prevent harm during disasters? I asked Mark to sum it up.

Mark Keim: There are three components, and this goes back to a paper that was published in the eighties: healthy people, healthy homes, and healthy communities. Healthy people are more mobile, mobile people are able to evacuate and that is probably one of the key elements to saving people's lives in a disaster. Healthy people are able to receive the warning better, understand it better, and act upon it better as well. The second is healthy homes. Many times the home we choose makes us more vulnerable or less vulnerable to the disaster itself. A healthy home in a tornado is one that has a shelter. The way that we build buildings in seismic or earthquake areas is also healthy building and healthy homes. Third, healthy communities. Community is a huge issue not only for the technical things, like the warnings, the radios, the ambulances, and the things like that; but the social community is also important, to be able to help and check on each other. The other aspect of healthy communities is also having a safe hospital. Having a safe healthcare system that will survive the actual impact of the disaster is very important for those people that need help right now. So if we look to healthy people, healthy homes, and healthy communities, that is a big step towards lowering your risks in a sustainable way.

Anne Johnson: Building healthy people, homes, and communities is sometimes easier said than done, especially in low-income or historically disadvantaged communities. These vulnerable groups are often the hardest hit during a disaster. So preparing for disaster means not only taking care of yourself, but also working to make your whole community more resilient.

In part two of this podcast series, we'll look at ways communities, researchers, and governments can work together to conduct disaster research and build resilient communities. Look for that and all of our podcast episodes at niehs.nih.gov/podcasts.

Thanks again to today's guests, Dr. Mark Keim of DisasterDoc LLC and Dr. Aubrey Miller of NIEHS.

You've been listening to Environmental Health Chat. I'm your host Anne Johnson, and our podcast is brought to you by the Division of Extramural Research and Training at NIEHS, part of the National Institutes of Health, an agency of the U.S. Department of Health and Human Services. [music]