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Weather Warnings

The extensive destruction attributed to the recent superstorm Sandy is a vivid reminder of how weather disasters are a threat to human health and life. While other risks to health are statistically much more common than weather risks, the average number of weather related deaths in the United States over the past 10 years (2002-11) is 641 per year. While hurricane and tornado fatalities are in the top three, the leading cause of weather-related fatalities is heat.

Weather forecasting technology, combined with the presence of numerous media outlets for disseminating information, means that it has become unusual for dangerous weather to occur without warning. From a social and behavioral standpoint, what is particularly interesting is how people respond to weather warnings. At what point do you alter your behavior in response to a weather advisory or warning? How do you decide? Not only do such decisions have potential consequences to the decision-makers' own health and well-being, but also to others who may also incur risk as a result of such decisions (e.g., public safety employees and volunteers).

Because hurricanes can and do affect large numbers of people, responses to hurricane evacuation warnings have been studied rather extensively in the effort to understand how people respond to weather warnings. The threat from a hurricane storm surge seems to be the primary factor with respect both to evacuation warnings and decisions. However, there are other serious risks from hurricanes, including wind and flood. Additionally, the lack of power, water, and sanitation

services in the aftermath should be factored into evacuation decisions.

Some patterns of behavior have been identified in decisions about hurricane evacuation. Not surprisingly, the severity of the predicted storm and the location of one's home with respect to the predicted path of the storm are the most important factors that people consider in deciding whether or not to evacuate. Somewhat related to this is the nature of the construction of one's home (cement walls vs. mobile home). Having a place to go (relatives, hotel, public shelter) also affects the decision to evacuate.

Families tend to evacuate (or not) as a unit, so that either consensus is reached or one person makes the decision for the entire family. The presence of children increases the likelihood of evacuation. Some studies suggest that women and younger adults are more likely to evacuate than men and older adults, but other studies have not corroborated this. Similarly, studies have been mixed with respect to whether owning or renting a home affects evacuation decisions. There is some evidence that neighbors' decision to evacuate or stay is a stronger factor in evacuation decisions than are public warnings, particularly in areas that specifically aren't under an evacuation order.

Having had a previous near miss (defined as a good outcome when a bad outcome could have happened) seems to lead people to perceive that a current situation is less risky, even if the current risk is similar to the previous risk. In other words, having been "lucky" before seems to fuel confidence that one will be "safe" again, even when statistical probabilities do not warrant such a change in perspective.

Most of the readers of **e-quilibrium** live in southwest Ohio, so that we do not have to make decisions about hurricane evacuations. Hurricane Ike, which caused extensive damage and power outages in this area in September 2008, did not come with evacuation warnings. Yet we do have decisions to make about other weather warnings: tornado, severe thunderstorm, flood, heat, snow, and cold. How accurate are our perceptions about actual risk? How does the experience of any "near misses" affect subsequent perception of risk? How do my decisions potentially affect others? These are health-related decisions that we face from time to time.

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