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Scientists Fighting Disease With Climate Forecasts

By THE ASSOCIATED PRESS

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WASHINGTON (AP) -- A [cyclone](#) wrecks coastal Myanmar, spawning outbreaks of malaria, cholera and dengue fever. Flooding inundates Iowa, raising an array of public health concerns.

As these disasters draw attention to weather hazards, which many fear could be exacerbated by [climate change](#), scientists are working to be able to better predict health dangers as they forecast the weather.

"Everything is connected in our [Earth](#) system," Conrad C. Lautenbacher, head of the National Oceanic and Atmospheric Administration, said at a panel on "Changing Climate: Changing Health Patterns."

The key is bringing all types of data together -- health, weather, human behavior, disasters and others -- "it's science without borders," Lautenbacher said.

He said 73 countries and more than 50 international organizations are currently participating in the Global Earth Observation System of Systems and more are expected to join.

"It's a full court press" to observe what's going on on the Earth, he said. When it comes to health and disasters "we can't afford to be wrong a lot of the time. We have got to get ahead of it."

Dr. Georges Benjamin, executive director of the American Public Health Association, noted that "we have these very modern technologies that are very good at sensing atmosphere and earth surfaces, and you can put them in computers and model some of these weather events ... and we're pretty good at it right now.

"But imagine for a moment, that not only that we measure that stuff, that we then actively and aggressively do something about it to mitigate the effects to people, to the environment, to planets, to plants."

Take a disease like cholera, Lautenbacher said, noting that research has shown that outbreaks in India vary with the temperature of the Bay of Bengal. Satellites can measure that temperature.

In addition, climate researchers are now doing forecasts of the Pacific Ocean phenomenon known as El Nino, which affects temperatures in the bay, so that might also be used to forecast cholera.

Barbara Hatcher, secretary-general of the World Federation of Public Health Associations, likened the research to the work of Dr. John Snow, the 19th century English physician who first tracked down a source of cholera in London, using a map of victims' homes and where they got their water.

Lautenbacher noted that changes in vegetation and moisture can help forecast outbreaks of malaria, showing a vegetation map of Africa based on satellite data.

But it isn't just weather data that must be worked into the system, he added, researchers must also use information on population changes, transportation, migration, epidemiology and social and behavioral factors.

Robert W. Corell of the Heinz Center for Science, Economics and the Environment said he had been asked to investigate an outbreak of anaphylactic shock in Alaska.

He traced it to stings from a type of bee that hibernates in wet soil, which had never lived there before but had moved north as the climate became milder and wetter.

In another case, he said, diarrhea-causing giardia has appeared in parts of northern Norway, where moderating climate has allowed beavers -- which can spread the germ -- to move into territory once exclusive to reindeer.

Dr. Bryan McNally of [Emory University](#) School of Medicine, suggested requiring hospitals, as part of being accredited, to set up plans to work with local weather and warning forecasters.

Traditionally hospitals have sought to ride out storms, but that didn't work out well when [hurricane Katrina](#) inundated New Orleans.

Having a relationship with a warning forecaster would allow a hospital to prepare for arrival of floods, [hurricanes](#), tornadoes or whatever the local hazard is, he explained.

They could work out plans in advance if they needed to evacuate, and hospitals nearby would have plans to take in the patients as well as to deal with the newly injured.

Predicting the arrival of flooding should be more than just protecting property, it could include warnings about the spread of disease such as schistosomiasis, also known as snail fever, said Joshua P. Rosenthal of the [National Institutes of Health](#). Such warnings should also include the spread of things like fuel and toxic pollutants, he said.

Factors to be considered should include land use patterns, urbanization, agriculture, poverty, economic infrastructure and wastewater treatment facilities.

"It's important ... that we build climate into these other types of long-term analyses rather than trying to separate it out," he said.

"What we do know is it's probably going to hit the most vulnerable populations the hardest: The poor, children, the elderly, those in low- and middle-income countries with weak infrastructure, degraded ecological environments, poor health-delivery systems," he said.