



## Katrina Five Years After: Hurricane Left a Legacy of Health Concerns

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By Brian Donnelly

**FOX NEWS**

Five years ago, Hurricane Katrina devastated the Gulf region, killing nearly 2,000 and displacing more than 250,000 others from Louisiana to Florida. This week, in a series titled "Hurricane Katrina: Five Years After," FoxNews.com looks back on the costliest natural disaster ever to strike the United States. ADVERTISEMENT

When Hurricane Katrina ripped through New Orleans, leaving a legacy of death and destruction in its wake, the storm's immediate effects were evident. But now, five years later, the long-term effects on the devastated population's mental and physical health still linger.

A study released this week linked the costliest natural disaster in U.S. history with a high incidence of anxiety in Gulf Coast-area children displaced by the hurricane, while another found increased sensitivity to mold in children with asthma whose homes were flooded.

"Being exposed to transient home situations, not being able to get access to care and the adversity of just the recovery process fraught with so many difficulties added and compounded the stress and trauma of being exposed to the devastation and personal loss of life and property during the event of the hurricane and the flooding itself," said Anthony Speier, psychologist and deputy assistant secretary for the Office of Behavioral Health for the Louisiana Department of Health and Hospitals. "So that kind of set the stage for increased vulnerability of the population."

Many of the 500,000 people, including 160,000 children, who couldn't return to their homes for at least three months after the storm have been left with a combination of anger, grief and loss, Speier said.

"Sometimes people can't drive down the same street that they used to be able to drive down because it engenders such strong feelings," Speier said, referring to those who may have lost a loved one during the hurricane.

Immediately after the hurricane, experts predicted that 30 percent of people exposed to profound trauma from Katrina – such as having a near-death experience, watching a loved one die or seeing dead bodies – would develop an anxiety disorder like post-traumatic stress disorder (PTSD).

At least 20,000 children displaced by the hurricane, and one-third of the children in a Columbia University study of 1,079 families in Louisiana and Mississippi, have developed serious emotional or behavioral problems, and nearly half of families studied still lack permanent housing.

Although the study authors were astonished, Vic Sims, a social worker at West Jefferson Medical Center in Louisiana, said these types of issues aren't unusual — particularly in children, because they don't have the coping mechanisms adults do – especially after experiencing a life-altering event like Katrina.

"Those types of changes in their environment and comfort level affected them deeply, to the point where they will exhibit some serious anxiety issues," Sims said.

PTSD is a type of anxiety disorder that's triggered by experiencing or witnessing a traumatic event that causes intense fear, helplessness or horror, the Mayo Clinic says on its website.

A 2007 study led by Dr. Lisa D. Mills, director of emergency medicine ultrasound at Louisiana State University at New Orleans, showed that PTSD was diagnosed in more than 38 percent of the people who came into an interim emergency department facility in New Orleans – more than 10 times the prevalence in the general U.S.

population. Mills added that loss of a loved one and staying in New Orleans during the hurricane were associated with PTSD symptoms.

The Columbia study began six months after the storm, and the percentage of children diagnosed with anxiety, depression or a behavior disorder has dropped in each round of interviews since. But it still is almost double the national average.

This has put a strain on hospitals across Louisiana, not only because of the higher incidence of mental illness since the hurricane, but also because of the loss of large numbers of mental health facilities and clinics.

"A number of our clinics around the city were destroyed and simply not rebuilt, for whatever reason," said Robert Chugden, medical director for emergency services at [West Jefferson Medical Center](#). "So there are much fewer mental health resources, both clinics and in-patient beds, than there were before the storm."

The same issues also are stretching the resources of Ochsner Health System's eight Louisiana emergency rooms.

"The services here are strained beyond the breaking point in many ways," said Joseph Bisordi, chief medical officer at Ochsner Health System. "It's not unusual for patients who need in-patient psychiatric help to stay in the emergency room for a day or two looking for in-patient psychiatric beds."

Bisordi said Ochsner Medical Center was one of the only hospitals to remain open during Hurricane Katrina, has increased their psychiatric and medical health workers by about 30 percent since the storm, but continue to be overwhelmed. After Katrina, they lost more than 400 in-patient mental health beds.

Although Speier agrees that Louisiana has experienced a great loss of both human resources and structural resources since Katrina, he said there is also good news.

"At this point in time, we probably have a better health care system now than we had in terms of community-based services prior to Katrina," he said.

Speier is the former executive director of the Louisiana Spirit Recovery Program, which is the state Department of Health program for crisis intervention and stress management counseling set up after Katrina. The program provided counseling to millions of families, and helped many of those displaced by the hurricane get out of trailers and back into their communities.

Although the Louisiana Spirit program ended in 2008, community-based services continue to provide mental health care through local clinics.

## PHYSICAL CONSEQUENCES

The lasting effects of Katrina also have been seen in physical health problems. Beyond the short-term concerns over contaminated water, some of the problems that continue to show up in Gulf Coast hospitals include certain skin infections and respiratory problems, which Chugden said he has seen more of since the storm.

"Before the hurricane we saw the occasional person with a staph infection, and since the hurricane we see five or 10 a day every single day, still to this day," said Chugden, cautioning that he couldn't directly link this with the hurricane. "Infections were primarily the issue in the stagnant water right after the hurricane and, frankly, that has persisted particularly with the staph infections."

Chugden added that he also saw an initial increase in respiratory illnesses, which he attributed to significantly higher mold and mold spore counts in the flooded areas. An ongoing study of children with asthma in post-Katrina New Orleans has found that nearly 80 percent — three times the national rate — were sensitive to mold. The next highest rate was 50 percent, found in seven other cities where similar studies have been conducted.

"The mold spore count went up quite high in New Orleans and was able to sensitize kids who would not have been sensitized under normal conditions," said Dr. Floyd Malveaux, executive director of Merck Childhood Asthma Network (MCAN) and former dean of the College of Medicine at Howard University.

MCAN partnered with the National Institutes of Health to launch a program addressing childhood asthma in post-Katrina New Orleans, which began in 2007 and concluded last September. The program involved 184 children recruited from schools in New Orleans, pairing them with case managers to help them manage their asthma, who would also make home visits to identify risk factors and environmental triggers — such as mold —

which can exacerbate a child's asthma.

Children who participated reported fewer days of symptoms and emergency room visits to manage their chronic condition.

On Thursday, MCAN pledged \$2 million to Xavier University in New Orleans to resume a second phase of the case management and environmental mitigation program over four years.

"We have heard a lot about how Katrina changed the city of New Orleans, but very little about how the city's post-Katrina environment changed health outcomes," Malveaux said. "There is an undeniable connection between the environment and the health of children with asthma."

A recent study published in a special issue of Environmental Toxicology and Chemistry found elevated concentrations of lead, arsenic and other toxic chemicals were present throughout New Orleans, particularly in the poorer areas of the city. It suggested that widespread cleanup efforts and demolition had stirred up airborne toxins known to cause adverse health effects.

A team of researchers led by Dr. George Cobb from Texas Tech University sampled 128 sites throughout New Orleans and combined their findings with data gathered by the U.S. Army Corps of Engineers.

"Our evaluation of contaminants in New Orleans was critical in determining whether storm surges and resultant flooding altered chemical concentrations or distribution," concluded Cobb. "Our results show how long-term human health consequences in New Orleans are difficult to attribute to chemical deposition or redistribution by Hurricanes Katrina and Rita, yet reveal how chemical contamination is a historical problem for old cities in the U.S. Our results and the data from coastal ecosystems reveal the value of long-term monitoring programs to establish baseline concentrations and distributions of contaminants in the environment."

The levels of lead found in the samples taken by Cobb and his team exceeded the threshold for safety in the United States. Lead exposure has been linked to brain and nervous system damage, developmental delays and hearing impairment in children. In adults, it has been linked to reproductive issues, miscarriage and birth defects, nerve damage, cognitive impairment, high blood pressure, joint pain and digestive issues.

The results of the study also suggested that floodwaters carried toxic sediment containing arsenic to other areas of the city where they were deposited in the soil.

More research is needed as to the long-term effects of the hurricane on the people of New Orleans.

In times of disaster, researchers and health agencies try to assess the environmental health risks by drawing from previous experience. But in the case of Hurricane Katrina, the magnitude of devastation was unprecedented, and experts say assessing the health risk for exposure will be an ongoing process for years to come.

*FoxNews.com's Jessica Mulvihill contributed to this report*

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