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## FSU researchers receive NIH grant to examine Hurricane Michael impact on birth outcomes

BY: **ROB NIXON (MAILTO:RNIXON@FSU.EDU)** | PUBLISHED: **JULY 10, 2019**  
([HTTPS://NEWS.FSU.EDU/NEWS/2019/07/10/FSU-RESEARCHERS-RECEIVE-NIH-GRANT-TO-EXAMINE-HURRICANE-MICHAEL-IMPACT-ON-BIRTH-OUTCOMES/](https://news.fsu.edu/news/2019/07/10/fsu-researchers-receive-nih-grant-to-examine-hurricane-michael-impact-on-birth-outcomes/))

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Two Florida State University professors are part of a research team that has been awarded more than \$400,000 by the National Institutes of Health to study how Hurricane Michael affected birth outcomes in the Florida Panhandle.



► Associate Professor of Geography  
Christopher Uejio.

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FSU College of Medicine Chair of Behavioral Sciences and Social Medicine Les Beitsch and Associate Professor of Geography Christopher Uejio will partner with researchers from Tulane University to examine how infrastructure damage and exposure to carbon monoxide may have increased stress and trauma and decreased access to health care.

“Disasters like Hurricane Michael have severe and long-lasting impacts on our communities,” Uejio

said. “The resulting stress, trauma and decreased access to maternal health care may increase the risk of having a low birth weight baby. In turn, the infant’s risk of developing multiple chronic diseases increases health care costs.”

Hurricane Michael came ashore on the Florida Panhandle on Oct. 10, 2018, causing widespread property damage, storm surge, power outages and coastal erosion. The storm rapidly intensified, increasing from a category 2 to a category 5 storm in 24 hours, which limited evacuation and increased the size of the population at risk, according to the National Ocean Service.

In addition to decreasing access to health care due to extensive destruction and long periods without electricity, the disaster likely increased opportunities for exposures to respiratory toxicants, especially carbon monoxide, as people operated generators during prolonged power outages.

Carbon monoxide is a poisonous gas, common in poorly ventilated areas with a combustion source. Carbon monoxide poisoning during pregnancy has been associated with fetal demise, severe neurological complications, intrauterine growth retardation, preterm delivery and birth defects.



► FSU College of Medicine  
Chair of Behavioral  
Sciences and Social  
Medicine Les Beitsch.

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Tulane University researchers Emily Harville, the principal investigator, and Maureen Lichtveld will partner in this study.

“If our research finds that not having access to health care following a disaster has the greatest impact on birth outcomes, then the key focus will be getting health care facilities back up and running after disasters,” Harville said. “If we find a big effect with carbon monoxide, then we’ll need to think more about generator safety and people knowing about the symptoms of poisoning.”

The disaster also may have increased opportunities for exposure to harmful algae blooms that release neurotoxins and respiratory and digestive irritants. In long power outages, people tend to open windows to stay cool, allowing airborne pollutants to enter their homes.

“We are unaware of previous studies addressing harmful algae blooms or carbon monoxide poisoning in pregnant women after a disaster,” Uejio said. “The disaster literature has limited integration of environmental exposures with general disaster measures such as structure damage, stress and trauma.”

The study will compare birth outcomes in areas exposed to these environmental predictors to areas not affected by the storm. The findings will be disseminated through a partnership between the research team, the Florida Association of Community Health Centers and the Florida State Association for County Health Officers.