

Local health investigation sheds light on gastroschisis birth defect

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Results of an investigation conducted by University of Nevada, Reno researchers, public health officials and area physicians published this week in the *Archives of Pediatrics & Adolescent Medicine*, indicate that Washoe County experienced a cluster of a particular birth defect, gastroschisis, during the period April 2007 - April 2008. Subsequent review of medical records since the study's conclusion indicates that while the rate is still elevated, the cluster appears to have subsided.

Gastroschisis is a birth defect that occurs early in pregnancy, characterized by incomplete closure of the baby's abdominal wall. It is most common in births by young women, age 21 or younger. Babies with this birth defect are born with part of their intestines outside their bodies, which necessitates repair of the abdominal wall in the first week of life.

The investigation concluded that a baby born in Washoe County during the one-year period of April 2007 to April 2008 was 10 times more likely to have gastroschisis than a baby born in any of the years from 1991 to 2005. There were 14 gastroschisis births in Washoe County during the one-year study period, and only 16 gastroschisis births in the County during the 15-year period of 1991 to 2005. Since April 2008, there have been five gastroschisis births in the County.

"While this is one of the largest documented gastroschisis clusters that I have found, and it is still a concern that requires further investigation, we are pleased the cluster seems to have subsided," said Leslie Elliott,

assistant professor of epidemiology at the University of Nevada, Reno School of Community Health Sciences and principal investigator of the study. "And, most importantly, because mothers sought [prenatal care](#), our excellent physicians in the community were able to diagnose the condition during pregnancy, and then plan for and provide the immediate care required at birth to correct it."

This study added significant support to the findings of other studies that certain infections, such as colds and sore throats; use of cold medications, such as pseudoephedrine; and some recreational drugs, may be contributing factors in the development of gastroschisis.

In this study, "case mothers," mothers who had babies with gastroschisis during the study period, were 13 times more likely to report having a sore throat during early pregnancy, and 17 times more likely to report having a chest cold in early pregnancy than "control-group mothers," those who did not have babies with gastroschisis during the study period. In addition, case mothers were nine times more likely than control-group mothers to report having taken over-the-counter medications for these infections during pregnancy.

Case mothers were more than four times as likely as control-group mothers to report use of at least one vasoconstrictive recreational drug before pregnancy. Vasoconstrictive recreational drugs constrict blood vessels and include methamphetamine, amphetamine, cocaine and Ecstasy.

This study is the first to find an association between gastroschisis and methamphetamine use, specifically. Case mothers were seven times more likely than control-group mothers to report methamphetamine use before pregnancy.

It is also important to note that some case mothers in the cluster did

NOT report any of the identified risk factors.

Elliott was senior epidemiologist of chronic diseases with the Washoe County Health District and an adjunct faculty member of the University at the time the cluster surfaced.

"Local [public health](#) nurses and perinatologists noticed an increase in the number of babies being diagnosed with the defect in Washoe County, and reported this to us at the Epidemiology Division of the Washoe County Health District," Elliott explained.

Elliott analyzed available Washoe County birth data to determine whether the recent rate of gastroschisis was significantly different from rates during previous years, 1991 to 2005, and concluded that there had indeed been a recent dramatic increase. In collaboration with the Washoe County Health District's public health nurses, the University of Nevada Reno's School of Community Health Sciences, Renown Health, and Perinatal Associates of Northern Nevada, Elliott and Lisa Lottritz, a public health nurse, began gathering data to track cases and identify possible risk factors that may have contributed to the increase.

Key to success of the investigation was the cooperation of mothers in the community, both those who had given birth to babies with gastroschisis and those who had given birth to babies without the defect.

"This was an exemplary case of public health practitioners and nurses, local physicians, patients and University researchers working together to address an important health issue in our community," Elliott said.

"Washoe County is particularly fortunate to have perinatologists Robert Nathan Slotnick and Earle Oki, who are experts in diagnosing the defect prior to birth and providing medical guidance and care to expectant mothers," Elliott said. "In addition, we are thankful to have local

pediatric surgeon Frieda Hulka, who is an expert in gastroschisis repair and is able to perform the necessary surgery on affected newborns."

Elliott said that even though the cluster seems to be subsiding, further investigation is needed.

"Why did this cluster occur in Washoe County when we know that these same risk factors exist in many communities across the country?" she said. "The study calls for further research regarding possible associations between gastroschisis and infections during pregnancy, use of medications during pregnancy, methamphetamine and recreational drug use prior to or during pregnancy, lifestyle factors, and community-specific characteristics."

Elliott is working with colleagues at the University to develop a larger case-control study of gastroschisis and other birth defects in Washoe County that could be instrumental in confirming the findings of the cluster investigation, as well as identifying additional risk factors.

Finally, Elliott said that this study reinforces the need for expectant mothers or those planning a pregnancy to seek proper prenatal care.

"We really can't overemphasize how important it is for expectant mothers to seek proper prenatal care," she said. "We have resources for diagnosing and treating this and other conditions here in our community. All expectant [mothers](#) need to get proper prenatal care."

Source: University of Nevada, Reno

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