
CLEVELAND COUNTY HEALTH DEPARTMENT

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**NC Division of Public Health Releases Final Report for Salmonella Outbreak
Investigation Associated with Church BBQ Fundraising Event**

(Shelby, NC)—The North Carolina Department of Health and Human Services Division of Public Health (NCDPH) has released the final report regarding the investigation of a salmonella outbreak associated with a Barbecue fundraising event held at Sandy Plains Baptist Church on September 7, 2013.

A total of 104 cases met case definition of having experienced diarrhea (three or more loose stools within a 24 hour period) within seven days of having consumed food or beverage at the church barbeque. Ages of these cases ranged from 3 years to 85 years with a median of 54.5 years. 54% of the cases were female. Most cases (50%) were residents of Rutherford county (52 / 104), followed by Cleveland county (45/104), McDowell, Mecklenburg, Gaston County (2/104 respectively), and Spartanburg County South Carolina (1/104).

NCDPH, in conjunction with local health departments, initiated a case-control study on September 21, 2013 to identify exposures associated with illness. To find controls, cases were asked when they were interviewed, to provide names of other individuals who attended the church barbeque and remained well. All cases and controls were interviewed by phone by DPH personnel, using a scripted questionnaire. Cases and controls less than 18 years of age were interviewed with a parent or guardian present. For children too young to answer questions themselves, the parent or guardian was interviewed about the child's activities. NCDPH partnered with Cleveland County to obtain a list of food items provided during the barbeque. There were no reports of other activities and/or animal presence during the church barbeque. The questionnaire asked detailed questions about symptoms, clinical care, laboratory testing, foods and beverages consumed, and hand hygiene practices.

A total of 165 persons were enrolled in the case-control study. Seventy-seven persons were classified as cases (i.e. ill individuals meeting case definition) and 88 were classified as controls (i.e. non-ill individuals who also attended the church barbeque). Analysis in a case-control study identifies the odds of an exposure among cases (ill) compared to controls (non-ill). When comparing all laboratory confirmed cases who completed a case-control study questionnaire to all controls, none of the odds ratios explained the majority of illness and were not statistically significant for food exposures, hand hygiene practices, food source (i.e., self-serve vs. drive thru), and time of consumption.

Stool specimens were requested of all case-patients. Stool culture, salmonella serotyping and Pulsed Field Gel Electrophoresis (PFGE) analysis were conducted on each specimen. The PFGE pattern of these outbreak strains had only been seen on two other occasions outside of North Carolina, indicating that the source of the outbreak was something at the Sandy Plains Barbeque and not a contaminated product from a different source.

While it is clear that consuming food or beverages during the Sandy Plains Baptist Church Barbeque on September 7, 2013 caused illness among 104 reported cases, this investigation did not identify one particular food or beverage exposure that would explain the outbreak. Given the limited nature of the menu at this event, these findings are not surprising. Most barbecue patrons who were interviewed ate a majority, if not all, of the available food items except desserts.

Recommendations:

Per NC General Statute 130A-250(7), establishments that are incorporated as nonprofit operations and that prepare or serve food or drink for pay no more frequently than once a month for a period not to exceed two consecutive days are exempt from inspection. Therefore, per statute, Sandy Plains Baptist Church and the barbecue event were exempt from Environmental Health inspection prior to the event.

Given the fact that events such as church barbecues may serve large numbers of persons and utilize relatively untrained persons, consideration should be given to requiring some formal oversight to ensure food safety. The following is a list of recommendations that fundraising organizations may implement immediately to help ensure a safe food service event:

- Organizations that are exempt from environmental health inspections according to NCGS 130A-250 should partner with local environmental health specialists to receive recommendations and guidance regarding safe food handling practices for their specific events.
- Children should not participate in food handling, especially without gloves. If children are involved in food handling, they should be under adult supervision at all times to ensure safe food handling practices are being implemented.
- Plan a safe food menu bearing in mind special handling and cooking requirements for meats, eggs, and raw fruits and vegetables.
- Acquire food from approved sources and do not serve food prepared in home kitchens.

- Volunteers may not be familiar with safe food handling practices and should be made aware of the five fundamentals of safe food handling:
 1. No bare hand contact with ready to eat items
 2. Keep meats and produce separate
 - a. Raw meats should be kept separate from cooked meats
 - b. Meats should be kept separate from produce
 3. Proper food temperature should be maintained
 - a. Hot foods should be maintained at 140 F or above
 - b. Cold foods should be maintained 40 F or below
 4. Foods should not be left at temperatures between 40 F and 140 F more than 4 hours
 5. Food handlers should not handle food while ill

Organizations should consult with regulatory officials in their community to develop and enhance their safe food service practices. Local Environmental Health agencies can provide education and professional guidance to fundraising organizers that, while not guaranteeing the absence of an outbreak, can make such events much safer. Through partnerships with local Environmental Health agencies fundraisers can learn the basic principles of hazard identification and mitigation and deliver a safer food product.

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