

Cyclosporiasis Outbreak Associated with Restaurants, Wake County, 2024



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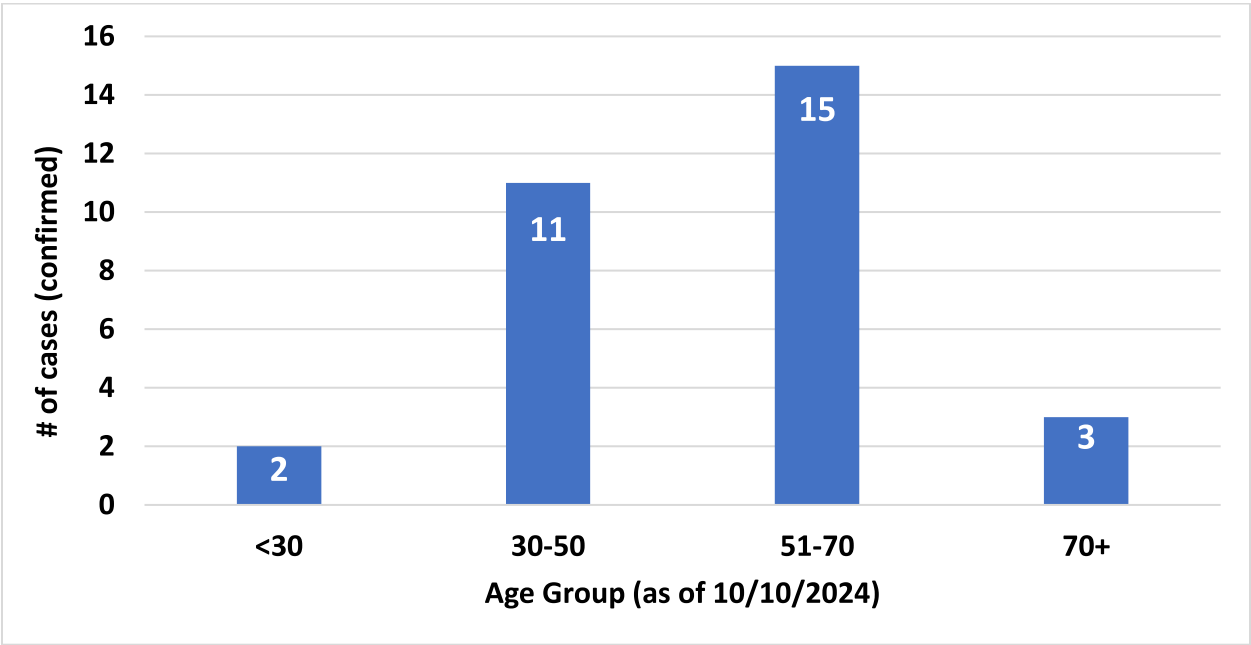
Between May 1-August 31, 2024, there was a total of 142 Cyclosporiasis cases reported in Wake County. Of those 142 cases, 35 probable and confirmed cases were investigated as a part of a foodborne illness outbreak associated with local restaurants in Wake County. Below are the key findings of the outbreak.

Key Findings:

- A **confirmed case** for this outbreak was an individual who ate at one of the impacted local restaurants between 06/01/2024 and 07/11/2024, reported having symptoms of Cyclosporiasis (nausea, vomiting, diarrhea, abdominal pain, fever, headaches or body aches) within 14 days of eating there, and had a laboratory test result that was positive for Cyclosporiasis.
- A **probable case** for this outbreak was an individual who meets the description of a confirmed case and is epidemiologically linked to a confirmed case but did not have a laboratory test conducted for Cyclosporiasis.
- Most commonly occurring symptoms among cases were nausea, diarrhea, abdominal pain, fatigue, and loss of appetite.

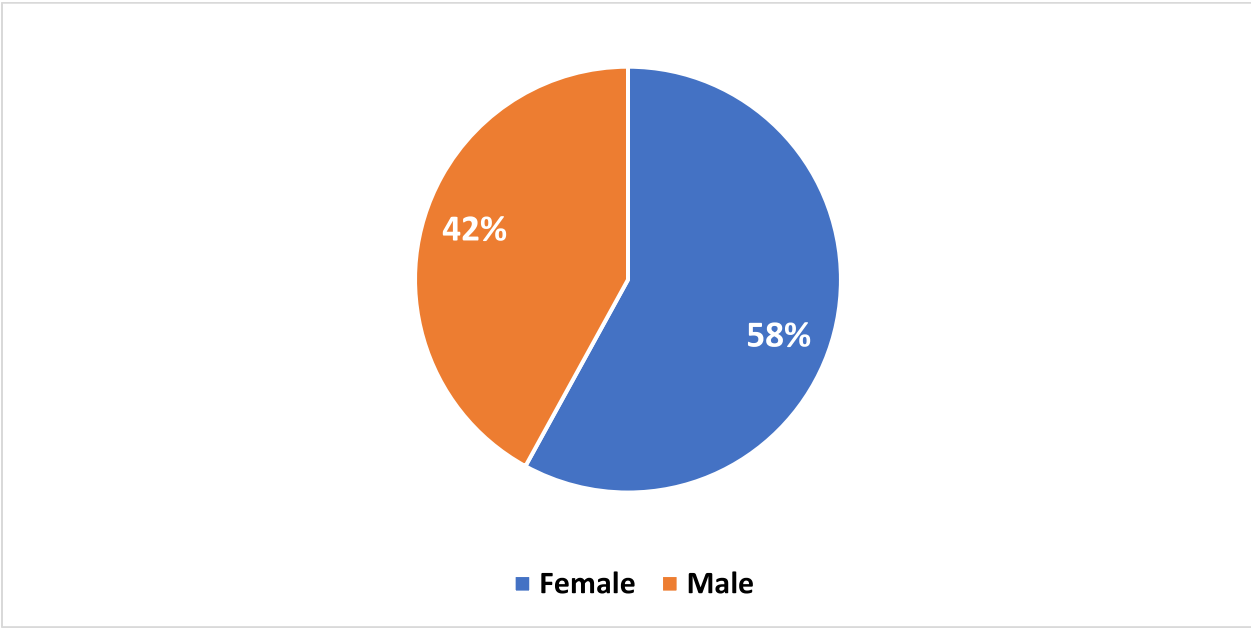
	Confirmed cases (N=31)	Probable cases (N=4)	Total N=35
Case Counts	31	4	
Age Mean	50.8	Ages for probable	
Age Median	55	cases unknown	
Age Range	4-82		
Sex: Male and Female (%)	Male (42%), Female (58%)	Sex for probable	
		cases unknown	
No of Hospitalizations	3	0	
No. of Deaths	0	0	
Date of illness onset range (best range)	6/10/2024-7/25/2024	6/15/2024-6/18/2024	

Figure 1: Cyclosporiasis Confirmed Cases by Age Group (n=31)



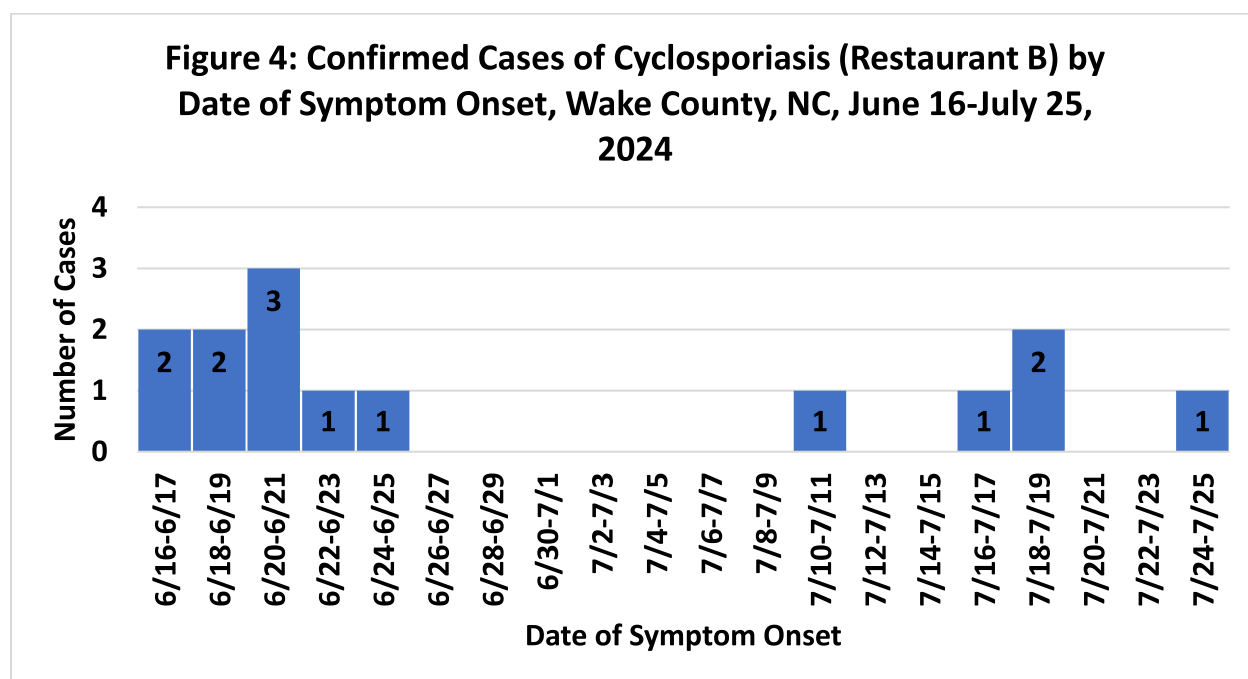
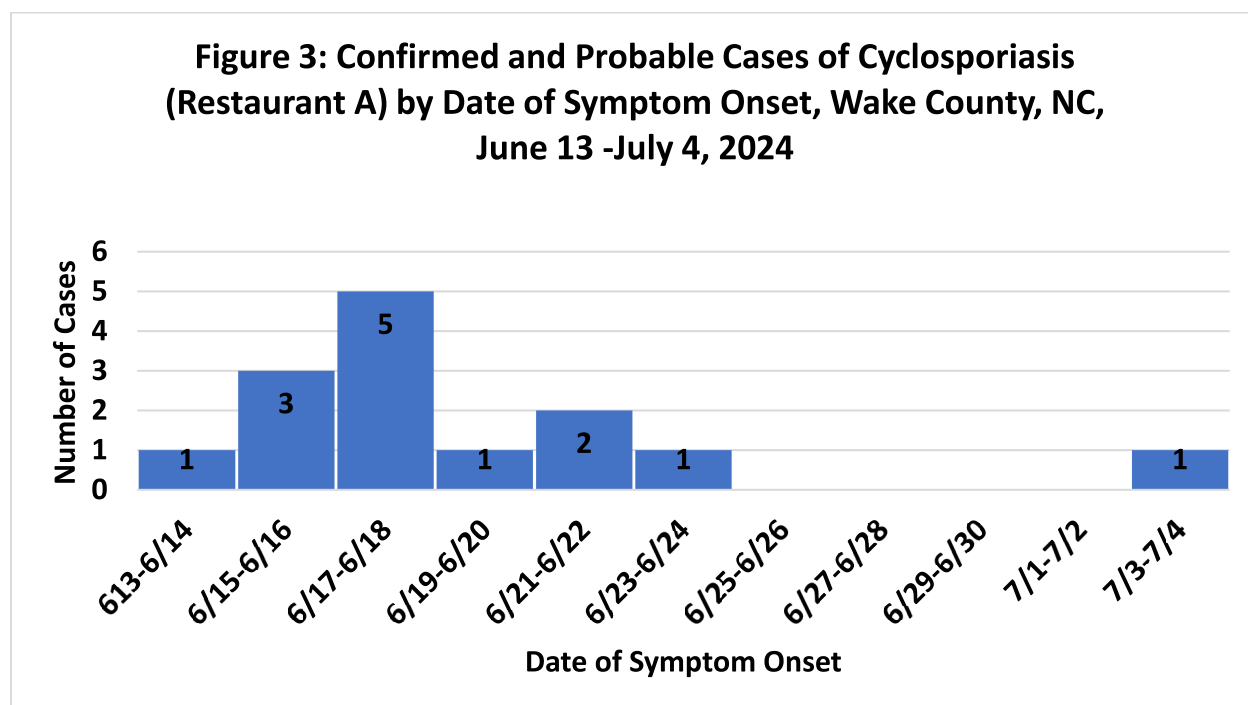
Note: Age unknown for probable cases. Age group was calculated using date of birth and what the individual’s age was as of 10/10/2024.

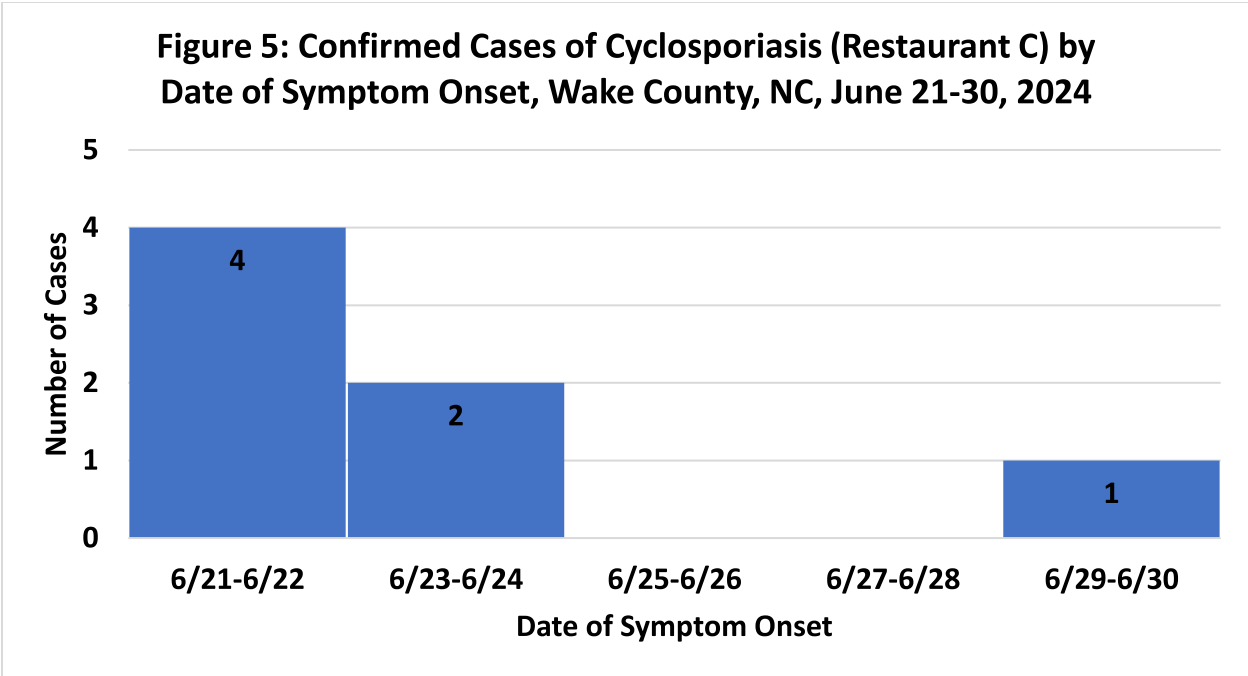
Figure 2: Cyclosporiasis Confirmed Cases by Sex (n=31)



Note: Sex unknown for probable cases.

By Impacted Restaurant: Epi Curves by Date of Symptom Onset:





Initial Stages of the Investigation:

- On July 3, 2024, Wake County Environmental Health and Safety (EH&S) was informed that two confirmed Cyclosporiasis cases and five probable Cyclosporiasis cases dined at Restaurant A; one confirmed Cyclosporiasis case dined at Restaurant B.
- On July 5, 2024, an outbreak was declared with four confirmed Cyclosporiasis cases and four probable Cyclosporiasis cases associated with Restaurant A. EH spoke to the person in charge at Restaurant A.
- On July 10, 2024, an outbreak was declared with three confirmed Cyclosporiasis cases associated with Restaurant B.
- On July 12, 2024, the Centers for Disease Control and Prevention (CDC) requested positive lab specimens of the outbreaks associated with Restaurants A and B be sent to them for further testing to help identify a common agent.
- Between August 1 and 2, 2024, EH&S provided updates on their involvement (including their investigation reports) with recent events regarding Restaurants A and B.
- On August 6, 2024, the Communicable Disease Surveillance team (CDST) shared an email with members of the Epidemiology program, EH&S, and others that stated seven confirmed Cyclosporiasis cases dined at Restaurant C. EH&S completed an investigation with Restaurant C and the investigation report was sent to the CDST.
- On August 9, 2024, an outbreak was declared with seven confirmed Cyclosporiasis cases associated with Restaurant C.

Laboratory:

Cyclospora cayetanensis was detected in stool samples through PCR testing. These samples were collected from individuals seeking healthcare (via emergency department, primary care provider) and the labs were processed by those healthcare systems.

Investigation Findings:

Following the identification or notification of potential cases, Wake County Communicable Disease nurses conducted interviews with those individuals regarding when they visited Restaurant A, Restaurant B, and Restaurant C, when they developed symptoms, what they ate during their visit, any other foods they consumed in the last 14 days prior to the onset of their symptoms, their symptoms, and if they sought healthcare. Each confirmed case of the outbreak had a North Carolina Electronic Disease Surveillance System (NCEDSS) event ID created for them and the questions and responses from interviews were documented in their event ID package. All confirmed cases of the outbreak were linked to the outbreak event ID in NCEDSS also.

The CDST along with the epidemiology program examined the cases linked to the outbreak and took the menu items reported to have been consumed at the associated restaurants by the individuals affected, to find a common agent. On July 9th, the CDST shared with NCDHHS that Parsley seemed to be the ingredient consumed most by affected individuals. On July 12, the Epidemiology program received the initial line list of data, reviewed it, and conducted a detailed analysis of the menu items consumed by the affected individuals. They found that parsley and onions were the two most consumed ingredients, with no specific menu item standing out. As updated line lists continued to arrive, they began performing a descriptive analysis to outline the key characteristics of the outbreak and share recommendations. Additionally, most cases had no travel history, and for those who did travel domestically or internationally, nothing unusual was noted that could have caused their illness. Between the CDST, the Epidemiology program and others, all potential sources of exposure were assessed, however, a definitive source was not determined in this outbreak. With Cyclospora, no one fully knows how it gets into food and water.

Food Safety Investigation:

Wake County Environmental Health & Safety (EH&S) received the first complaint related to this outbreak on July 5th. The following is a summary of EH' investigation:

-Wednesday, July 3rd, 2024

- EH&S was included on email notifications and information shared by the CDST to be kept up to date on recent Cyclosporiasis events that mentioned they ate at a restaurant in Wake County.

-Friday, July 5th, 2024

- A complaint was received regarding Restaurants A and B. Sickened individuals had eaten at Restaurants A and B with dining dates between June 6-June 22, 2024.
- EH&S had a phone conversation with the Person-In-Charge at Restaurants A and B. The person-in-charge was not aware of customer complaints or reported employee illness in the timeline of the event. They shared with EH&S that they would interview staff for signs/symptoms of illness that may have contaminated food during handling/preparation.
- EH&S confirmed with the Person-In-Charge at Restaurants A and B that the restaurants were getting their produce and herbs (except mint) from the same produce supplier from the previous year.

-Tuesday, July 9th, 2024

- Due to Cyclosporiasis events mentioning they ate at Restaurants A and B last year and this year, the North Carolina Department of Health and Human Services (NCDHHS) sent a complaint to the North Carolina Department of Agriculture (NCDA) regarding the supplier for Restaurants A and B, for further investigations.

-Between Thursday, August 1 and Friday, August 2, 2024

- EH&S provided an update to the CDST on recent complaints regarding Restaurants A and B. All complaints stated themselves or someone in their party had eaten at one of the establishments and had tested positive for Cyclosporiasis. EH&S followed up with the establishments and the CDST followed up with the residents.

-Tuesday, August 6, 2024

- A complaint was received regarding Restaurant C. Sickened individuals had eaten at Restaurant C with dining dates between June 18-20, 2024. Foods eaten included salads with mention of kale, eggplant, and hummus.
- EH&S discussed the complaint with the operator of Restaurant C and obtained information on processes and sources of food products based on items consumed by sickened individuals. All information obtained was forwarded to EH&S' management team. EH&S gathered information on employee health, produce sources, produce preparation procedures, and additional locations from Restaurant C and attached the summary to the original complaint. Additionally, EH&S found that no other complaints were reported to the facility and no staff were out for illness during the time frame of interest.
- EH&S completed the investigation with Restaurant C and sent a copy to the CDST.

-Wednesday, August 7th, 2024

- The owner of Restaurant B contacted EH&S regarding the news station, WRAL inquiring information about the cyclosporiasis outbreak in Wake County.

Conclusion:

The last reported case in this outbreak had a symptom onset date of 7/25/2024. The outbreak was declared over on 08/22/2024, 28 days from the last symptom onset date. There have been no additional cases associated with this outbreak since that time.

While we suspect contaminated parsley and onion may have played a role in this outbreak, it is also possible that the outbreak could have been caused by other potential sources. In the end, no definitive source was determined.

What worked well:

- Collaboration between Wake County's CD, Epidemiology, and EH&S programs, as well as NCDHHS.

Challenges:

- Difficulty identifying a definitive source of exposure.

Cyclosporiasis Preventive Measures:

People/individual consumers can take the following steps to prevent Cyclospora infection or transmission:

- Avoid consuming food or water that may be contaminated with feces.
- Follow food safety handling recommendations for safe preparation and storage.
- Wash your hands often with soap and water, especially before eating or preparing food and after you use the bathroom, cough, or sneeze. If soap and water are not available, use an alcohol-based hand gel with at least 60% alcohol.
- In some countries, you should only drink bottled or boiled water or carbonated (bubbly) drinks in cans or bottles. In these countries, avoid tap water, fountain drinks, and ice cubes. Depending on where you are traveling, you may need to take extra precautions with the food you eat. Traveler's health guidance based on the country being traveled to can be found here: <https://wwwnc.cdc.gov/travel/destinations/list>
- Persons who think they might have become ill from eating potentially contaminated foods should consult their health care provider, especially if they have diarrhea last more than three days.

Additional Recommendations for Handling and Preparing Produce:

- **Wash:** Wash hands with soap and warm water before and after handling or preparing fruits and vegetables. Wash cutting boards, dishes, utensils and counter tops with soap and hot water between the preparation of raw meat, poultry, and seafood products and the preparation of fruits and vegetables that will not be cooked.
- **Prepare:** Wash all fruits and vegetables thoroughly under running water before eating, cutting, or cooking. Fruits and vegetables that are labeled "prewashed" do not need to be washed again at home. Scrub firm fruits and vegetables, such as melons and cucumbers, with a clean produce brush. Cut away any damaged or bruised areas on fruits and vegetables before preparing and eating.
- **Store:** Refrigerate cut, peeled, or cooked fruits and vegetables as soon as possible, or within 2 hours. Store fruits and vegetables away from raw meat, poultry, and seafood.

References:

1. Centers for Disease Control and Prevention (CDC). About Cyclosporiasis. Web. 10/11/2024. <https://www.cdc.gov/cyclosporiasis/about/index.html>
2. Centers for Disease Control and Prevention (CDC). Preventing Cyclosporiasis. Web. 10/11/2024. https://www.cdc.gov/cyclosporiasis/prevention/?CDC_AAref_Val=https://www.cdc.gov/parasites/cyclosporiasis/prevent.html

Appendix:

A. Cyclosporiasis-Epidemiology-

<https://www.cdc.gov/cyclosporiasis/index.html>

Overview: Cyclosporiasis is an intestinal illness caused by the microscopic parasite *Cyclospora cayetanensis*, also known as Cyclospora. People can become infected by consuming food or water that contains the parasite.

Symptoms: Common symptoms include watery diarrhea, loss of appetite, weight loss, cramping, bloating, increased gas, nausea, and fatigue. Less common symptoms may include vomiting, body aches, headache, low-grade fever, and other flu-like symptoms.

Transmission: Cyclospora spreads when people eat food or drink water that was contaminated with feces (stool). Direct person-to-person transmission is unlikely.

Treatment: Supportive care, such as rest and plenty of fluids, is advised. Consult a healthcare provider if symptoms occur. Cyclosporiasis is treated with trimethoprim-sulfamethoxazole (Bactrim, Septra, Cotrim).

Prevention: To prevent Cyclosporiasis, avoid food or water that may be contaminated with feces. When traveling to endemic areas (tropical and subtropical regions), note that routine chemical disinfection or sanitization is unlikely to kill Cyclospora. Follow food safety handling recommendations for safe preparation and storage.

B. North Carolina Division of Public Health Communicable Disease Manual-

provides public health management of reportable diseases and conditions in North Carolina.

<https://epi.dph.ncdhhs.gov/cd/lhds/manuals/cd/toc.html>

Reportable Diseases and Conditions in alphabetical order:

https://epi.dph.ncdhhs.gov/cd/lhds/manuals/cd/reportable_diseases.html

C. REDCap Cyclospora Reporting Form-

health department staff complete this form once they are in contact with a sickened individual.

<https://survey.dph.ncdhhs.gov/surveys/?s=YCJXKJEY8ATAWYP7>