Hemolytic Uremic Syndrome Investigation Overview

The following guidelines provide a brief overview of the steps of a Hemolytic Uremic Syndrome (HUS) investigation. Hemolytic Uremic Syndrome is a post-diarrheal illness associated with an infectious agent, usually a Shiga toxin- producing Escherichia coli, most commonly *E .coli* O157. HUS is characterized by the acute onset of microangiopathic hemolytic anemia, renal injury, and low platelet count.

Thrombotic thrombocytopenic purpura (TTP) also can also be characterized by central nervous system (CNS) involvement and fever and may have a more gradual onset. Most cases of HUS (but few cases of TTP) occur after an acute gastrointestinal illness (usually diarrheal) and can cause life threatening kidney failure.

For additional support, consult the NC Communicable Disease Branch at (919) 733-3419.

Basic Steps of a Hemolytic Uremic Syndrome Investigation

1. Ensure case definition is met	• Laboratory evidence of anemia (acute onset) with microangiopathic changes, low platelet count **AND** acute renal injury evidenced by either hematuria, proteinuria, or elevated creatinine level **must** be present at some time during the illness to meet the case definition, either with or without history of acute or bloody diarrhea in the preceding 3 weeks.
2. Collect clinical information	• Use information collected from medical records or speak with the case • If patient hospitalized, obtain admission note, progress note, and discharge summary
3. Incubation period	• HUS symptoms usually start two to three weeks after E coli symptoms
4. Manage the case	• Evaluate laboratory result to determine if requirements for case definition are met • HUS/TTP caused by non-infectious agent(s) (i.e. chemical HUS) are **not** reportable • Interview the case/review medical records and complete the Part 2 Form/risk history and clinical packages in NCEDSS
5. Identify other potential cases	• The purpose of HUS surveillance is to look for unrecognized cases of Shiga toxin-producing *E. coli* infection • Advise symptomatic individuals, especially children, that a physician/healthcare providers evaluation should be obtained immediately
6. Identify source of exposure	• Obtain additional information including travel, exposure to livestock and other animals, consumption of raw/undercooked meat • If source of exposure is suspected to be livestock, the North Carolina Department of Agriculture (NCDA) must be notified • The county agricultural extension agent may be an additional resource to consider • The state public health veterinarian can assist with contacting these agencies (919) 733- 3419
7. Manage high risk cases/contacts*	• If other cases are identified, ***notify CD Branch immediately***.

➢ Symptomatic Contacts	• Refer to healthcare provider for appropriate testing and treatment • Provide control measures

➢ Implement Control Measures	• ***Follow guidance in CD Manual for Shiga toxin-producing E. coli infection, if patient has history of E. coli infection***
	• Due to small infective dose exclude the following:
	  • Food handlers, healthcare, and childcare workers until asymptomatic and 2 consecutive negative stool cultures collected 24 hours apart and not sooner than 48 hours after completion of antibiotic.
	• **Childcare centers** (single case) – Exclude until asymptomatic and 2 consecutive negative stool cultures collected 24 hours apart and not sooner than 48 hours after completion of antibiotic.
	  • **Outbreak** (two or more cases in the same facility) - Ill children should be excluded until asymptomatic and 2 negative stool cultures at least 24 hours apart and not sooner than 48 hours after completion of antibiotic. Strict hand hygiene should be followed. The childcare center should be closed to new admissions during the outbreak. Also, prevent transfer of exposed children to other centers. Environmental Health Specialist should perform assessment of practices associated with diapering, hand washing and food handling.
	  • **Childcare attendees or workers identified with *E. coli O157* infection require immediate attention due to the potential life-threatening consequences of HUS in young children.**
	• Involve Environmental Health Specialist to ensure appropriate disinfection of contaminated areas of restaurant, childcare center or long-term care facility if involved.

*High-risk includes individuals at high-risk for severe illness or complications, healthcare workers, childcare workers, and food handlers

- *Resources – Symptoms | E. coli | CDC*

Critical Elements for NCEDSS

- Document if high risk (food worker, childcare attendee/worker, or healthcare worker)