

Improving follow-up testing in children with Shiga toxin-producing *Escherichia coli* through provision of a provider information sheet

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Figure S1. Shiga-Toxin Producing *Escherichia coli*: Information for Health Care providers



Please note the following HUS information for your patient recently diagnosed with STEC infection:

Name: _____ Date of positive lab result: _____
DOB: _____ PHN: _____

Shiga Toxin producing *Escherichia coli* (STEC): Information for Health Care Providers

Shiga toxin producing *E. coli* (STEC) bacteria produce Shiga-like toxin, a cytotoxin that blocks protein synthesis and induces host cell death. Shiga toxin is also referred to as verotoxin; hence VTEC (verotoxin-producing *E. coli*) and STEC are synonymous.

Reservoir of infection and transmission - Cattle are the main reservoir of STEC, but most warm-blooded animals can be at least temporary hosts of STEC. *E. coli* may also exist on surfaces, in foods, and in recreational or drinking water. The main mode of transmission is fecal-oral, either directly or indirectly.

Incubation period, clinical illness and natural history of STEC infections

Diarrheal illness develops 3-4 days (range 1-10) after exposure/infection. Other symptoms may include fever, abdominal cramping, and vomiting.

Shiga toxin produces disease of varying severity including watery diarrhea, bloody diarrhea, hemorrhagic colitis, and hemolytic uremic syndrome (HUS). Shiga toxin induces a thrombotic microangiopathy that results in HUS – a syndrome characterized by hemolytic anemia, thrombocytopenia, and acute kidney injury. **HUS develops in about 5-15% of those with STEC** depending on the pathogen genotype/serotype (O157:H7 more likely to result in HUS from our experience), host (young children are at greatest risk, but elderly also at risk) and geographic location. **Onset of HUS is typically 5 to 13 days after the onset of the diarrhea. If HUS develops, 50-60% of cases require dialysis, generally for anuria.**

Management of confirmed or probable STEC infection

Confirmed STEC case - laboratory confirmation of infection with or without clinical illness, i.e. identification of STEC or Shiga toxin from an appropriate clinical specimen. **Probable STEC case** - clinical illness consistent with STEC infection in individuals who are either contacts to a confirmed case, or had the same exposure.

Recommended management of confirmed or probable cases of STEC infection:

- Avoid prescribing antibiotics
- Avoid use of other potential nephrotoxins such as NSAIDs
- Avoid medications that slow the gut (anti-motility, antidiarrheals, anticholinergics, narcotics)
- Maintain hydration in acute diarrheal illness - observational evidence suggests early intravascular volume expansion can prevent oligoanuric renal failure and need for dialysis.
- **Monitor for development of HUS clinically, and through sequential blood tests (repeat every 24-48 h until at least 3 days after diarrhea resolves or platelet count stabilizes or rises)**
 - **blood - CBC/peripheral smear**
 - **renal function - creatinine, urea**
 - **electrolytes**
- Consult specialists (pediatrics, infectious diseases, or nephrology) if:
 - patient unwell, dehydrated, or has reduced urine output, or tea-coloured urine, OR
 - creatinine is elevated or trending upward (increase by 25% from baseline), OR
 - platelets are reduced or trending downward (decrease of 25% from baseline), OR
 - hemoglobin is trending downward (25% reduction from baseline).

Developed by _____

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