

Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Verotoxin-producing *E. coli* infection indicator conditions, including Haemolytic Uraemic Syndrome (HUS)

Verotoxin-producing *E. coli* infection indicator conditions, including Haemolytic Uraemic Syndrome (HUS)

1.0 Provincial Reporting

Confirmed and probable cases of disease

2.0 Type of Surveillance

Case-by-case

3.0 Case Classification

3.1 Confirmed Case

Laboratory confirmation of infection with or without clinically compatible signs and symptoms:

- Isolation of Verotoxin producing *Escherichia coli* (VTEC) from an appropriate clinical specimen (e.g., stool, urine, blood)

OR

- Detection of verotoxin antigen or nucleic acid from an appropriate clinical specimen (e.g., stool, urine, blood)

3.2 Probable Case

- Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

OR

- Haemolytic uraemic syndrome (HUS) diagnosed by a physician and not caused by defects in serum complement, chemotherapy, immunosuppressants in organ transplants, pregnancy, oral contraceptives, or known infections other than *Escherichia coli* (*E. coli*)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation

Any of the following will constitute a confirmed case of Verotoxigenic *E. coli* infection:

- Positive VTEC culture
- Detection of verotoxin

4.2 Approved/Validated Tests

- Standard culture for VTEC with confirmation
- EIA for VTEC detection
- Serotyping of O and H antigens

4.3 Indications and Limitations

- Sorbitol MacConkey agar is reliable for detecting most isolates of VTEC serotype O157:H7 and H- because these serovars are sorbitol-negative. It is not reliable for detecting other VTEC serotypes.
- Serotyping is indicated to ensure identification of *E. coli* O157:H7 as well as non-O157 serotypes that are associated with serious disease especially serogroups O26, O45, O103, O111, O121, and O145.

- Further strain characterization, including phage-typing and molecular typing, is indicated for public health purposes

5.0 Clinical Evidence

Clinically compatible signs and symptoms are characterized by diarrhea (often bloody) and abdominal cramps. Fever is often absent. Illness may be complicated by Hemolytic Uremic Syndrome (HUS), thrombocytopenia purpura (TTP) or pulmonary edema. Asymptomatic infections may also occur and the organism may cause extra-intestinal infections.

Clinical evidence of HUS includes: uraemia, thrombocytopenia, acute renal failure, and central nervous system signs and symptoms. A diarrheal prodrome usually occurs in 86 to 95% of patients and of those with diarrhea, 60 to 75% of the diarrhea is bloody.

6.0 ICD Code (s)

6.1 ICD-10 Code(s)

A04.3 Enterohaemorrhagic *E. coli* infection (includes VTEC)

6.2 ICD-9/ICD-9CM Code(s)

008.04 Enterohaemorrhagic *E. coli* infection (includes VTEC)

7.0 Comments

- O157 strains that do not include the H7 motility factor nonetheless meet case definition
- Non-O157 VTEC strains also meet case definition
- Although VTEC has been renamed to Shiga toxin producing *E. coli*, this is not reflected in Ontario's Reportable Diseases Regulation

8.0 References

- Acha PN, Szyfres B. Zoonoses and communicable diseases common to man and animals. 3rd ed. Volume I. Bacterioses and mycoses. Washington DC: Pan American Health Organization; 2003.
- Heymann D, editor. Control of communicable diseases manual. 18th ed. Washington: American Public Health Association; 2004.
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