

## Food-borne Infections

Agent	Incubation		Symptoms			
	common	limits	Vomit	Diarrhea	Abdo pain	Fever
Staphylococcus aureus	2-4 hrs	up 8 hrs	+++	+	±	±
Bacillus cereus, emetic	2-4 hrs	1-6 hrs	+++	+	+	-
Bacillus cereus, enteric	12 hrs	8-16 hrs	±	+++	+++	-
Clostridium botulinum	12-36 hrs	2-72 hrs	mostly neurological			
Clostridium perfringens	10-12 hrs	6-24 hrs	±	+++	++	-
E.coli ETEC	12-48 hrs		±	++	+++	+
E.coli EIEC	12-48 hrs		+	++	++	+
E.coli EHEC	2-3 days		-	++	++	-
Salmonella	18-24 hrs	6-72 hrs	±	++	+++	+
Shigella	1-3 days		±	++bld	++	++
Campylobacter jejuni	3-5 days		±	++bld	+++	+
Vibrio parahemolyticus	12 hrs	2-48 hrs	+	++	++	+
Yersinia enterocolitica	3-5 days		++	++	++	++
Norovirus	16-48 hrs		+++	++	+	±
Viral gastroenteritis	16-48 hrs		+	++	+	±

Agent	Food commonly involved	Source of contamination			
		IH	Cool	Hyg	Eqp
Staph. aureus	Beef, poultry, ham, pastries	+	-	++	-
Bacillus cereus	Cooked Rice	++	+	+	-
Clos. botulinum	Vegetables, fish	+	++	-	-
Clos. perfringens	Beef, poultry				-
Salmonella	Beef, raw milk, poultry, pork, ice cream,	++	+	+	+
E.coli ETEC	Salad, raw veg, cheese, water	++	+	+	+
E.coli EIEC	Salad, raw veg, cheese, water	++	+	+	+
E.coli EHEC	Beef, raw milk, water	++	+	+	+
Shigella	Salad, raw	+	-	+++	-
Campylobacter jejuni	Raw milk, poultry, water	+	+	-	-
Vibrio parahaemolyticus	Shellfish	+	++	-	-
Y enterocolitica	Pork	++	+	+	+
Norwalk		-	-	+++	-
Viral agent		-	-	+++	-

IH=Improper holding, Cool=Inadequate cooling, Hyg=Poor hygiene, Eqp=Contaminated equipment

# E. Coli O157:H7

## Epidemiology

### Source:

-Normal flora in animal intestinal tract,  
-Cattle, deer, sheep, dogs, horses, flies, birds.

-Contaminated food (beef, dairy products, produce, water)

**Anatomical source:** Stools

### Transmission

- Ingestion of contaminated food/water
- Contact w/ animals & their environment
- Person-to-person
- Fomite spread

### Infectious dose

Low- 100 organisms

**Incubation**  
**3-4 days**  
**(1-8 days)**

### Clinical case definition

- Diarrhea (often bloody)
- Hemorrhagic colitis
- Hemolytic uremic syndrome (HUS)
- post-diarrheal thrombotic thrombocytopenic purpura (TPP)
- Severe abdominal pain
- fever

### Complication:

- HUS in children- microangiopathic hemolytic anemia, thrombocytopenia, acute renal dysfunction
- Diabetes mellitus
- TPP in adults

**Death:** 3-5% fatality rate for HUS

### Outbreaks

- Food sources (ground beef, fruits, raw produce)
- Petting zoos
- Recreational water areas

~265,000 STEC cases per year in the U.S. 36% are O157:H7.

Send STEC culture to OPH

## Diagnosis

**Shiga-toxin producing *Escherichia coli* (STEC). O157:H7** is the most common strain

### Lab Diagnosis

- **Isolation of *E. coli* O157:H7 from a specimen**
- Transport on Cary-Blair transport media
- Isolates can be identified presumptively by lack of sorbitol fermentation on MacConkey-sorbitol agar culture plates
- Isolation of Shiga toxin-producing *E. coli* O157 from a clinical specimen
- **Use antisera to serotype *E. coli***
- Test any patient with HUS for *E. Coli*. Negative does not rule out diagnosis

**Suspect:** Post diarrheal HUS or TTP

### Probable:

- Isolation of *E. coli* O157 from a clinical specimen
- A clinically compatible case that is epidemiologically linked to a confirmed case
- Identification of Shiga toxin in a specimen from a clinically compatible case

### Confirmed:

- Clinically compatible case with
- Isolation of *E. coli* O157:H7 from a specimen,
- Isolation of Shiga toxin-producing *E. coli* from a clinical specimen

## Treatment, Prophylaxis

### Treatment

- Prevent or correct dehydration and electrolyte imbalance
- Antimicrobial therapy has not been proven beneficial and may increase the risk of HUS

### Contact precautions

### Control

Report case to OPH

### Food

- All ground beef should be cooked thoroughly until no pink remains and juices are clear
  - Milk, milk products, and fruit juices should be pasteurized
- Thorough hand washing with soap, especially after using the bathroom or contact with animals

**Notify public health authority of outbreaks in childcare centers**

**Exclude children from childcare centers, food handlers, and healthcare workers until illness is resolved**

People with diarrhea should avoid recreational water areas for 2 weeks after illness