# Kentucky Field Guide for Foodborne and Waterborne Diseases

(Organized Alphabetically by Agent)

<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS</th>
</tr>
</thead>
</table>
| Bacillus cereus ("emetic" variety) | 2-4 hours (1-6 hours) | Vomiting, with nausea and diarrhea (abrupt onset) | 24 hours | Not communicable (preformed enterotoxin) | Fried rice, meats, vegetables | • Isolation of 10^6 B. cereus/gm of implicated food, **OR** Isolation of B. cereus from stool or vomitus of ill person.  
• Enteric pathogens kit with Cary-Blair preservative. Must be refrigerated. Form 219 |
| Bacillus cereus ("diarrheal" variety) | 6-24 hours | Cramps and diarrhea | 24-48 hours | Not communicable (enterotoxin formed in vivo) | Fried rice, meats, vegetables | • Isolation of 10^6 B. cereus/gm of implicated food, **OR** Isolation of B. cereus from stool of ill person.  
• Feces, rectal swabs, vomitus.  
• Enteric pathogens kit with Cary-Blair preservative. Must be refrigerated. Form 219 |
| Campylobacter jejuni | 48 hours-5 days (24 hours-10 days) | Cramps and diarrhea (sometimes bloody), with vomiting and fever | 48 hours-10 days | 2-7 weeks | Raw milk, poultry, water | • Isolation of C. jejuni from implicated food, **OR** Isolation of C. jejuni from stool or blood of ill person  
• Feces, rectal swabs  
• Enteric pathogens kit with Cary-Blair preservative. Must be refrigerated. Form 219 |

---

1 The KY Field Guide to Foodborne and Water-Borne Diseases is based on the Oregon Health Services Compendium of Acute Foodborne Diseases and a similar table developed by epidemiologists at the Foodborne and Diarrheal Disease Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, Centers for Disease Control and Prevention, and on Tauxe RV, Hughes JM. Foodborne Disease. In: Mandell GL, Benne HJE, Dolin R. Principles and Practice of Infectious Disease 4th ed. NY: Churchill Livingstone; 1995, page 1017 (table 6).

2 CDC. Diagnosis and management of foodborne illness: a primer for physicians. MMWR 2001; 50(RR2). Reprinted with the permission of the American Medical Association; the Center for Food Safety and Nutrition, FDA and the Food Safety Inspection Service, USDA. Available on-line at [http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5002a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5002a1.htm)


3 CDC. Diagnosis and management of Foodborne illness: a primer for physicians. MMWR 2001; 50(RR2). Reprinted with the permission of the American Medical Association; the Center for Food Safety and Nutrition, FDA and the Food Safety Inspection Service, USDA. Available on-line at [http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5002a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5002a1.htm)

4 “Characteristic foods” for each foodborne and water-borne agent are based on epidemiological data gathered by epidemiologists in the Acute and Communicable Disease Program, Center for Disease Control and Epidemiology, Oregon Health Division, and on Tauxe RV, Hughes JM. Foodborne Disease. In: Mandell GL, Benne HJE, Dolin R. Principles and Practice of Infectious Disease 4th ed. NY: Churchill Livingstone; 1995, page 1017 (table 6).


Kentucky Department for Public Health, 275 East Main St., Frankfort, KY 40621. (502) 564-3261. 24 hour Division of Epidemiology Emergency HOTLINE: 1-888-9REPORT, 1-888-973-7678.

Revised February 2018
<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS(^6)</th>
</tr>
</thead>
</table>
| Ciguatera poisoning       | 1-6 hours; usually within 24 hours | Diarrhea, nausea, vomiting, paresthesias, reversal of temperature sensation      | Days to weeks to months | Not communicable           | Large ocean fish (groupers, amberjack barracuda, snapper) | • Demonstration of ciguatoxin in epidemiologically implicated fish, **OR** clinical syndrome among persons who have eaten a type of fish previously associated with ciguatera fish poisoning  
• Collect epidemiologically implicated fish |
| Clostridium botulinum     | 12–48 hours (2 hours to 8 days) | Nausea, vomiting, diarrhea, with or just before onset of descending paralysis     | Days to months       | Not communicable (preformed enterotoxin) | Improperly canned or similarly preserved foods; honey (infants) | • Detection of *C. botulinum* toxin from implicated food, **OR** Detection of *C. botulinum* toxin from human sera, or feces, **OR** Isolation of *C. botulinum* from stool of persons with clinical syndrome, **OR** Consistent clinical syndrome in persons known to have eaten same food as persons with laboratory proven cases.  
• 25-50 g feces, 10 ml sera in red stoppered tube\(^6\)  
• Sterile, leak-proof unbreakable container. Form 219 |
| Clostridium perfringens   | 10-12 hours (6-24 hours)         | Cramps and diarrhea                                                               | 24-48 hours         | Not communicable (enterotoxin formed in vivo) | Meat, poultry, gravy, Mexican foods | • Isolation of >10⁵ *C. perfringens*/g of implicated food, **OR** Isolation of *C. perfringens* in stool of ill persons, **OR** Detection of enterotoxin by latex agglutination (from stool extracts of culture isolates).  
• 5-50 g stool  
• Kit #10 |

\(^{6}\) DLS staff must be contacted before any specimens for botulism will be tested.
<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cryptosporidium parvum</td>
<td>2-12 days (usually 7 days)</td>
<td>Profuse watery diarrhea, abdominal cramps, nausea, low-grade fever, anorexia, vomiting (Some infected individuals have no symptoms at all.)</td>
<td>1-2 weeks</td>
<td>Weeks to months</td>
<td>Fruits, produce, or water</td>
<td>• Isolation of <em>C. parvum</em> oocysts from implicated food, OR Isolation of <em>C. parvum</em> oocysts from stool of ill persons, OR Demonstration of <em>C. parvum</em> in intestinal fluid, or small bowel biopsy specimens, OR Demonstration of <em>C. parvum</em> antigen in stool by a specific immunodiagnostic test (e.g., enzyme-linked immunosorbent assay (ELISA)). • Walnut-sized stool • 10% formalin. Form 219</td>
</tr>
<tr>
<td><em>Escherichia coli</em> Enteroinvasive (EIEC)</td>
<td>12-48 hours</td>
<td>Cramps and diarrhea, with fever, headache</td>
<td>5-10 days</td>
<td>Weeks to months</td>
<td>Uncooked vegetables, salads, water, cheese</td>
<td>• Demonstration of <em>E. coli</em> of same serotype in implicated food and stools in persons, OR Isolation of <em>E. coli</em> of the same serotype shown to be enteroinvasive or enterotoxigenic from stool of ill persons • Feces, rectal swabs • Enteric pathogens kit with buffered glycerol saline. Must be refrigerated. Form 219</td>
</tr>
<tr>
<td><em>Escherichia coli</em> enterotoxigenic (ETEC)</td>
<td>24-48 hours (21-68 hours)</td>
<td>Cramps, watery diarrhea, some vomiting Usual symptom profile: diarrhea 80-100% cramps 82% vomiting &lt;50% nausea &lt;50% fever &lt;50% myalgia &lt;50% headache &lt;50%</td>
<td>24 hours-11 days (medium 3 days)</td>
<td>Weeks to months</td>
<td>Seafood (crab, shrimp and scallops), salads and other foods served cold</td>
<td>• Demonstration of <em>E. coli</em> of same serotype in implicated food and stools in persons, OR Isolation of <em>E. coli</em> of the same serotype shown to be enteroinvasive or enterotoxigenic from stool of ill persons • Feces, rectal swabs • Enteric pathogens kit with buffered glycerol saline. Must be refrigerated. Form 219</td>
</tr>
</tbody>
</table>

---


Kentucky Department for Public Health, 275 East Main St., Frankfort, KY 40621. (502) 564-3261. 24 hour Division of Epidemiology Emergency HOTLINE: 1-888-9REPORT, 1-888-973-7678. Revised February 2018
<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness³</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS⁵</th>
</tr>
</thead>
</table>
| *Escherichia coli* enterohemorrhagic (*E. coli* O157:H7 & others) | 48 hours-8 days (24 hours-10 days) | Bloody diarrhea, with cramps, vomiting, fever; hemolytic uremic syndrome (2-7% of cases) | 5-10 days | 1-4 weeks | Beef, venison, raw milk, water, produce | • Demonstration of *E. coli* isolates from stools that are enterotoxigenic or enterohemorrhagic.  
• Feces, rectal swabs  
• Enteric pathogens kit with buffered glycerol saline. Must be refrigerated. Form 219 |
| Heavy Metals (antimony, arsenic, cadmium, copper, iron, lead, mercury, tin, zinc) | 5 minutes - 8 hours (usually <1 hour) | Vomiting, with nausea, cramps, and diarrhea | Usually self-limited | Not communicable | Acidic foods and beverages prepared, stored or cooked in containers coated, lined or contaminated with offending metal | • Demonstration of high concentration of metal in epidemiologically implicated food  
• Collect suspect food or metal container |
| *Listeria monocytogenes* | 24 hours (9-50 hours) | Fever, with diarrhea, myalgia, headache  
Usual symptom profile: fever 72% diarrhea 68% myalgia 56% cramps 55% vomiting 35% | 3-7 days | Not known | Inadequately pasteurized milk, precooked meat | • Isolation of *Listeria monocytogenes* of the same serotype from two or more ill persons exposed to epidemiologically implicated food or to food from which the same-type *Listeria monocytogenes* has been isolated  
• Feces, rectal swabs  
• Enteric pathogens kit with Cary-Blair preservative. Must be refrigerated. Form 219 |
| Norwalk virus and other caliciviruses | 24-48 hours (10-72 hours) | Vomiting, with diarrhea, headache and myalgia  
Usual symptom profile: diarrhea 80% vomiting 60% nausea 75% fever 50% | 24-72 hours | Duration of vomiting and diarrhea | Shellfish, water, salads, frosting, "handled" foods | • Diagnosed is often based on symptoms, onset times, and ruling out other enteric pathogens, OR  
Identification of virus in stool by polymerase chain reaction (PCR).  
• Stool or vomitus of ill person  
• Sterile, leak-proof container without preservatives. Must be refrigerated. Form 275 |
<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS</th>
</tr>
</thead>
</table>
| Paralytic shellfish poisoning | 30 minutes–3 hours | Paresthesias, feeling of floating, loss of balance, dry mouth, double vision, dysarthria, shortness of breath | Days | Not communicable | Clams, mussels, cookies | • Detection of toxin in epidemiologically implicated fish, OR detection of large numbers of shellfish-poisoning associated species of dinoflagellates in water from which epidemiologically implicated mollusks are gathered  
• Collect epidemiologically implicated fish |
| Poisonous mushrooms (muscimol, muscarine, psilocybin, coprinus artementaris, ibotenic acid) | <2 hours | Vomiting, diarrhea, confusion, visual disturbances, salivation, diaphoresis, hallucinations, disulfiram-like reaction | Usually selflimited | Not communicable | Wild mushrooms | • Clinical syndrome among persons who have eaten mushroom identified as toxic type, OR demonstration of toxin in epidemiologically implicated mushroom or food containing mushrooms  
• Collect mushrooms or food containing mushrooms |
| Salmonella spp (non-typhoid) | 12-36 hours (6 hours-10 days) | Cramps and diarrhea, with vomiting and fever | 4-7 days | Several days to several years, depending on type Concentrations/ infectivity typically higher when symptomatic | Poultry, eggs, meat, raw milk (cross contamination important) | • Isolation of *Salmonella* from implicated food or water, OR Isolation of *Salmonella* from stool from ill persons.  
• Feces, rectal swabs  
• Enteric pathogens kit with buffered glycerol saline. Form 219 |
| Scombroid fish poisoning (histamine fish poisoning) | 1 minute–3 hours; usually within 6 hours | Cramps, diarrhea, headache, nausea, flushing, urticaria | 3-6 hours | Not communicable | Mishandled fish (mahi-mahi, tuna, mackerel, bluefish, salmon, bonito, skipjack) | • Demonstration of histamine in epidemiologically implicated fish, OR clinical syndrome among persons who have eaten a type of fish previously associated with histamine fish poisoning (fish of order Scombroidei)  
• Collect epidemiologically implicated fish |
# KENTUCKY FIELD GUIDE FOR FOODBORNE AND WATERBORNE DISEASES

(Organized Alphabetically by Agent)

<table>
<thead>
<tr>
<th>Agent 1</th>
<th>Usual Incubation Period (Range) 2</th>
<th>Symptom Profile</th>
<th>Duration of Illness 3</th>
<th>Period of Communicability</th>
<th>Characteristic Foods 4</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shellfish poisoning (diarrheic, neurotoxic, amnesic)</td>
<td>20 minutes - 2 hours</td>
<td>Cramps, diarrhea, headaches, vomiting, amnesia, seizures</td>
<td>Days</td>
<td>Not communicable</td>
<td>Mussels, oysters</td>
<td>• Detection of toxin in epidemiologically implicated food OR detection of large numbers of shellfish-poisoning associated species of dinoflagellates in water from which epidemiologically implicated mollusks are gathered • Collect any amount of epidemiologically implicated shellfish</td>
</tr>
<tr>
<td>Shigella</td>
<td>24-48 hours (12 hours-6 days)</td>
<td>Cramps and diarrhea (may be bloody), with fever</td>
<td>4-7 days</td>
<td>4 weeks after illness</td>
<td>Eggs, salads, lettuce</td>
<td>• Isolation of Shigella from implicated food, OR Isolation of Shigella from stool of ill persons. • Feces, rectal swabs • Enteric pathogens kit with buffered glycerol saline. Form 219</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>2-4 hours (30 minutes-8 hours)</td>
<td>Vomiting, with nausea, cramps, and diarrhea (abrupt onset)</td>
<td>24-48 hours</td>
<td>Not communicable (preformed enterotoxin)</td>
<td>Sliced/chopped ham and meats, custards, cream fillings, mushrooms, egg salad</td>
<td>• Isolation of an enterotoxin producing strain of S. aureus in implicated food, OR Isolation of enterotoxin producing strain of S. aureus from stool of ill persons • Staphylococcus aureus Feces, rectal swabs • Enteric pathogens kit with buffered glycerol saline. Form 219</td>
</tr>
<tr>
<td>Vibrio cholerae non-O1 and non-O139</td>
<td>12-24 hours (12 hours-5 days)</td>
<td>Profuse watery diarrhea and vomiting, which can lead to severe dehydration and death within hours</td>
<td>72 hours-7 days: causes life threatening dehydration</td>
<td>Several days</td>
<td>Shellfish</td>
<td>• Isolation of V. cholerae non-O1 or non-O139 from stool of ill person. Isolation of V. cholerae non-O1 or non-O139 from implicated food is supportive evidence. • Feces, rectal swabs • Enteric pathogens kit with Cary-Blair preservative. Must be refrigerated. Form 219</td>
</tr>
<tr>
<td>Vibrio cholerae O1 and O139</td>
<td>24-72 hours (12 hours-5 days)</td>
<td>Diarrhea, vomiting water</td>
<td>72 hours-7 days</td>
<td>Usually a few days after recovery except carrier state</td>
<td>Shellfish, water or foods contaminated by infected food handlers</td>
<td>• Isolation of toxigenic V. cholerae O1 or O139 from implicated food, OR Isolation of V. cholerae O1 or O139 from stool or vomitus of ill persons, OR Significant rise (fourfold) in vibriocidal antibodies. • Feces, rectal swabs</td>
</tr>
</tbody>
</table>
# KENTUCKY FIELD GUIDE FOR FOODBORNE AND WATERBORNE DISEASES

(Organized by Incubation Period)

<table>
<thead>
<tr>
<th>Agent 1</th>
<th>Usual Incubation Period (Range) 2</th>
<th>Symptom Profile</th>
<th>Duration of Illness 3</th>
<th>Period of Communicability</th>
<th>Characteristic Foods 4</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS 5</th>
</tr>
</thead>
</table>
| Scombroid fish poisoning (histamine fish poisoning) | 1 minute–3 hours; usually within 6 hours | Cramps, diarrhea, headache, nausea, flushing, urticaria | 3-6 hours             | Not communicable           | Mishandled fish (mahi-mahi, tuna, mackerel, bluefish, salmon, bonito, skipjack) | • Demonstration of histamine in epidemiologically implicated fish OR clinical syndrome among persons who have eaten a type of fish previously associated with histamine fish poisoning (fish of order Scombroidei).  
• Collect epidemiologically implicated fish. |
| Heavy Metals (antimony, arsenic, cadmium, copper, iron, lead, mercury, tin, zinc) | 5 minutes - 8 hours (usually <1 hour) | Vomiting with nausea, cramps, and diarrhea          | Usually self-limited  | Not communicable           | Acidic foods and beverages prepared, stored or cooked in containers coated, lined or contaminated with offending metal | • Demonstration of high concentration of metal in epidemiologically implicated food.  
• Collect suspect food or metal container. |
| Shellfish poisoning (diarrheic, neurotoxic, amnesic) | 20 minutes - 2 hours              | Cramps, diarrhea, headaches, vomiting, amnesia, seizures | Days                  | Not communicable           | Mussels, oysters         | • Detection of toxin in epidemiologically implicated food OR detection of large numbers of shellfish-poisoning associated species of dinoflagellates in water from which epidemiologically implicated mollusks are gathered.  
• Collect any amount of epidemiologically implicated shellfish. |

---

1 The KY Field Guide to Foodborne and Water-Borne Diseases is based on the Oregon Health Services Compendium of Acute Foodborne Diseases and a similar table developed by epidemiologists at the Foodborne and Diarrheal Disease Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, Centers for Disease Control and Prevention, and on Tauxe RV, Hughes JM. Foodborne Disease. In: Mandell GL, Benne HJE, Dolin R. Principles and Practice of Infectious Disease 4th ed. NY: Churchill Livingstone; 1995, page 1017 (table 6).  
2 CDC. Diagnosis and management of foodborne illness: a primer for physicians. MMWR 2001; 50(RR2). Reprinted with the permission of the American Medical Association; the Center for Food Safety and Nutrition, FDA and the Food Safety Inspection Service, USDA. Available on-line at [http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5002a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5002a1.htm)  
4 “Characteristic foods” for each foodborne and water-borne agent are based on epidemiological data gathered by epidemiologists in the Acute and Communicable Disease Program, Center for Disease Control and Epidemiology, Oregon Health Division, and on Tauxe RV, Hughes JM. Foodborne Disease. In: Mandell GL, Benne HJE, Dolin R. Principles and Practice of Infectious Disease 4th ed. NY: Churchill Livingstone; 1995, page 1017 (table 6).  
<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS³⁵</th>
</tr>
</thead>
</table>
| Paralytic shellfish poisoning             | 30 minutes–3 hours              | Paresthesias, feeling of floating, loss of balance, dry mouth, double vision, dysarthria, shortness of breath | Days                | Not communicable          | Clams, mussels, cockles | • Detection of toxin in epidemiologically implicated fish OR detection of large numbers of shellfish-poisoning associated species of dinoflagellates in water from which epidemiologically implicated mollusks are gathered.  
• Collect epidemiologically implicated fish. |
| Ciguatera poisoning                       | 1-6 hours; usually within 24 hours | Diarrhea, nausea, vomiting, paresthesias, reversal of temperature sensation | Days to weeks to months | Not communicable          | Large ocean fish (grouper, amberjack barracuda, snapper) | • Demonstration of ciguatoxin in epidemiologically implicated fish OR clinical syndrome among persons who have eaten a type of fish previously associated with ciguatera fish poisoning.  
• Collect epidemiologically implicated fish. |
| Poisonous mushrooms (muscimol, muscarine, psilocybin, coprinus artementaris, ibotenic acid) | <2 hours                        | Vomiting, diarrhea, confusion, visual disturbances, salivation, diaphoresis, hallucinations, disulfiram-like reaction | Usually selflimited | Not communicable          | Wild mushrooms | • Clinical syndrome among persons who have eaten mushroom identified as toxic type OR demonstration of toxin in epidemiologically implicated mushroom or food containing mushrooms.  
• Collect mushrooms or food containing mushrooms. |
| Bacillus cereus ("emetic" variety)       | 2-4 hours (1-6 hours)           | Vomiting with nausea and diarrhea (abrupt onset) | 24 hours            | Not communicable (preformed enterotoxin) | Fried rice, meats, vegetables | • Isolation of 10⁵ B.cereus/gm of implicated food OR Isolation of B.cereus from stool of ill person.  
• Enteric pathogens kit with Cary-Blair media. Refrigerate. Complete Form 219 or order in Outreach. |
| Staphylococcus aureus                     | 2-4 hours (30 minutes-8 hours)  | Vomiting with nausea, cramps, and diarrhea (abrupt onset) | 24-48 hours         | Not communicable (preformed enterotoxin) | Sliced/chopped ham and meats, custards, cream fillings, mushrooms, egg salad | • Isolation of an enterotoxin producing strain of S.aureus implicated food OR Isolation of B.cereus from stool of ill persons.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |
| Bacillus cereus ("diarrheal" variety)    | 6-24 hours                      | Cramps and diarrhea                          | 24-48 hours         | Not communicable (enterotoxin formed in vivo) | Fried rice, meats, vegetables | • Isolation of 10⁵ B.cereus/gm of implicated food OR Isolation of B.cereus from stool of ill person.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary-Blair media. Refrigerate. Complete Form 219 or order in Outreach. |
# Kentucky Field Guide for Foodborne and Waterborne Diseases

*(Organized by Incubation Period)*

<table>
<thead>
<tr>
<th>Agent 1</th>
<th>Usual Incubation Period (Range) 2</th>
<th>Symptom Profile</th>
<th>Duration of Illness 3</th>
<th>Period of Communicability</th>
<th>Characteristic Foods 4</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Clostridium perfringens</em></td>
<td>10-12 hours (6-24 hours)</td>
<td>Cramps and diarrhea</td>
<td>24-48 hours</td>
<td>Not communicable (enterotoxin formed in vivo)</td>
<td>Meat, poultry, gravy, Mexican foods</td>
<td>• Isolation of &gt;10⁵ <em>C. perfringens</em>/gm of implicated food, OR Isolation of <em>C. perfringens</em> in stool of ill persons, OR Detection of enterotoxin by latex agglutination (from stool extracts of culture isolates). • 5-50 g stool. Kit #10.</td>
</tr>
<tr>
<td><em>Vibrio cholerae</em> non-O1 and non-O139</td>
<td>12-24 hours (12 hours-5 days)</td>
<td>Profuse watery diarrhea and vomiting, which can lead to severe dehydration and death within hours</td>
<td>72 hours-7 days; causes life threatening dehydration</td>
<td>Several days</td>
<td>Shellfish</td>
<td>• Isolation of <em>V. cholerae</em> non-O1 or non-O139 from stool of ill person. Isolation of <em>V. cholerae</em> non-O1 or non-O139 from implicated food is supportive evidence. • Feces, rectal swabs. • Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach.</td>
</tr>
<tr>
<td><em>Vibrio parahaemolyticus</em></td>
<td>12-24 hours (2-48 hours)</td>
<td>Cramps, watery diarrhea with nausea, vomiting, and fever</td>
<td>2-5 days</td>
<td>Not communicable</td>
<td>Seafood, especially crabs and oysters</td>
<td>• Isolation of 10⁵/g <em>V. parahaemolyticus</em> from implicated food (usually seafood) OR Isolation of <em>V. parahaemolyticus</em> from stool of ill persons. • Feces, rectal swabs. • Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach.</td>
</tr>
<tr>
<td><em>Salmonella spp</em> (non-typhoid)</td>
<td>12-36 hours (6 hours-10 days)</td>
<td>Cramps and diarrhea, with vomiting and fever</td>
<td>4-7 days</td>
<td>Several days to several years, depending on type Concentrations/infectivity typically higher when symptomatic</td>
<td>Poultry, eggs, meat, raw milk (cross contamination important)</td>
<td>• Isolation of <em>Salmonella</em> from implicated food or water OR Isolation of <em>Salmonella</em> from stool of ill persons. • Feces, rectal swabs. • Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach.</td>
</tr>
</tbody>
</table>

---

2. Revised February 2018
## KENTUCKY FIELD GUIDE FOR FOODBORNE AND WATERBORNE DISEASES

(Organized by Incubation Period)

<table>
<thead>
<tr>
<th>Agent 1</th>
<th>Usual Incubation Period (Range) 2</th>
<th>Symptom Profile</th>
<th>Duration of Illness 3</th>
<th>Period of Communicability</th>
<th>Characteristic Foods 4</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Clostridium botulinum</em></td>
<td>12–48 hours (2 hours to 8 days)</td>
<td>Nausea, vomiting, diarrhea, with or just before onset of descending paralysis</td>
<td>Days to months</td>
<td>Not communicable (preformed enterotoxin)</td>
<td>Improperly canned or similarly preserved foods; honey (infants)</td>
<td>• Detection of <em>C. botulinum</em> toxin from implicated food, <strong>OR</strong> Detection of <em>C. botulinum</em> toxin from human sera, or feces, <strong>OR</strong> Isolation of <em>C. botulinum</em> from stool of persons with clinical syndrome, <strong>OR</strong> Consistent clinical syndrome in persons known to have eaten same food as laboratory confirmed cases. <strong>●</strong> 25-50 g feces, 10 ml sera in red stoppered tube.<strong>●</strong>  Sterile, leak-proof unbreakable container. Complete Form 219 or order test in Outreach.</td>
</tr>
<tr>
<td><em>Escherichia coli Enteroinvasive (EIEC)</em></td>
<td>12-48 hours</td>
<td>Cramps and diarrhea with fever, headache</td>
<td>5-10 days</td>
<td>Weeks to months</td>
<td>Uncooked vegetables, salads, water, cheese</td>
<td>• Demonstration of <em>E. coli</em> of same serotype in implicated food and stools in persons <strong>OR</strong> Isolation of <em>E. coli</em> of the same serotype shown to be enteroinvasive from stool of ill persons. <strong>●</strong> Feces, rectal swabs. <strong>●</strong> Enteric pathogens kit with Cary Blair media. Refrigerate. Complete Form 219.</td>
</tr>
<tr>
<td><em>Vibrio vulnificus</em></td>
<td>12-72 hours</td>
<td>Fever, diarrhea, abdominal cramps, nausea, vomiting hypotension, septicemia in individuals with chronic liver disease, chronic alcoholism, hemochromatosis, or immunocompromising conditions</td>
<td>Not communicable</td>
<td>Seafood</td>
<td>• Isolation of <em>V. vulnificus</em> from implicated food (usually seafood) <strong>OR</strong> Isolation of <em>V. vulnificus</em> from a clinical specimen (blood, wound, stool). <strong>●</strong> Feces, rectal swabs. <strong>●</strong> Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach.</td>
<td></td>
</tr>
</tbody>
</table>

---

6 DLS staff must be contacted before any specimens for botulism will be tested.
## KENTUCKY FIELD GUIDE FOR FOODBORNE AND WATERBORNE DISEASES

*Organized by Incubation Period*

<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness³</th>
<th>Period of Communicability</th>
<th>Characteristic Foods 4</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS 5</th>
</tr>
</thead>
</table>
| Listeria monocytogenes       | 24 hours (9-50 hours)           | Fever with diarrhea, myalgia, headache               | 3-7 days             | Not known                 | Inadequately pasteurized milk, precooked meat                                      | • Isolation of *Listeria monocytogenes* from a normally sterile site.  
• Isolate from blood, cerebrospinal fluid, amniotic fluid, placental/fetal tissue.  
• Pure culture TSA or blood agar slant. Complete Form 219 or order test in Outreach. |
| Escherichia coli enterotoxigenic (ETEC)⁷ | 24-48 hours (21-68 hours)     | Cramps, watery diarrhea, some vomiting               | 24 hours-11 days (medium 3 days) | Weeks to months          | Seafood (crab, shrimp and scallops), salads and other foods served cold           | • Demonstration of *E. coli* of same serotype in implicated food and stools in persons  
• Isolation of *E. coli* of the same serotype shown to be enterotoxigenic from stool of ill persons.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary Blair media. Refrigerate. Complete Form 219. |
| Norwalk virus and other caliciviruses | 24-48 hours (10-72 hours) | Vomiting, with diarrhea, headache and myalgia        | 24-72 hours          | Duration of vomiting and diarrhea | Shells, water, salads, frosting, “handled” foods                                    | • Diagnosis is often based on symptoms, onset times, and ruling out other enteric pathogens OR Identification of virus in stool by PCR.  
• Stool of ill person.  
• Sterile, leak-proof container without preservatives. Refrigerate. Complete Form 275 or order test in Outreach. |
| Shigella                     | 24-48 hours (12 hours-6 days)   | Cramps and diarrhea (may be bloody) with fever       | 4-7 days             | 4 weeks after illness     | Eggs, salads, lettuce                                                            | • Isolation of *Shigella* from implicated food OR Isolation of *Shigella* from stool of ill persons.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |

---


Kentucky Department for Public Health, 275 East Main St., Frankfort, KY 40621. (502) 564-3261. 24 hour Division of Epidemiology Emergency HOTLINE: 1-888-9REPORT, 1-888-973-7678. Revised February 2018
# Kentucky Field Guide for Foodborne and Waterborne Diseases

(Organized by Incubation Period)

<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Vibrio cholerae O1</em> and <em>O139</em></td>
<td>24-72 hours (12 hours-5 days)</td>
<td>Diarrhea, vomiting water</td>
<td>72 hours-7 days</td>
<td>Usually a few days after recovery except carrier state</td>
<td>Shellfish, water or foods contaminated by infected food handlers</td>
<td>• Isolation of toxigenic <em>V. cholerae</em> O1 or 0139 from implicated food, <strong>OR</strong> Isolation of <em>V. cholerae</em> O1 or 0139 from stool or vomitus of ill persons, <strong>OR</strong> Significant rise (fourfold) in vibriocidal antibodies. <strong>Feces, rectal swabs.</strong> **Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach.</td>
</tr>
<tr>
<td><em>Yersinia enterocolitica</em></td>
<td>36-48 hours (24 hours-10 days)</td>
<td>Cramps, diarrhea, fever, headache, vomiting, pseudoappendicitis</td>
<td>1-3 weeks</td>
<td>2-3 weeks</td>
<td>Milk, tofu, pork</td>
<td>• Isolation of organism from clinical specimens from two or more ill persons <strong>OR</strong> isolation of organism from epidemiologically implicated food. <strong>Feces, rectal swabs.</strong> **Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach.</td>
</tr>
<tr>
<td><em>Campylobacter jejuni</em></td>
<td>48 hours-5 days (24 hours-10 days)</td>
<td>Cramps and diarrhea (sometimes bloody) with vomiting and fever</td>
<td>48 hours-10 days</td>
<td>2-7 weeks</td>
<td>Raw milk, poultry, water</td>
<td>• Isolation of <em>C. jejuni</em> from implicated food <strong>OR</strong> Isolation of <em>C. jejuni</em> from stool or blood of ill person. <strong>Feces, rectal swabs.</strong> **Enteric pathogens kit with Cary-Blair media. Refrigerate. Complete Form 219 or order in Outreach.</td>
</tr>
<tr>
<td><em>Escherichia coli</em> enterohemorrhagic (<em>E. coli</em> O157:H7 &amp; others)</td>
<td>48 hours-8 days (24 hours-10 days)</td>
<td>Bloody diarrhea with cramps, vomiting, fever; hemolytic uremic syndrome (2-7% of cases)</td>
<td>5-10 days</td>
<td>1-4 weeks</td>
<td>Beef, venison, raw milk, water, produce</td>
<td>• Demonstration of <em>E. coli</em> isolates from stools that are shiga toxin-producing or enterohemorrhagic. <strong>Feces, rectal swabs.</strong> **Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order in Outreach.</td>
</tr>
</tbody>
</table>
| *Cryptosporidium parvum* | 2-12 days (usually 7 days) | Profuse watery diarrhea, abdominal cramps, nausea, low-grade fever, anorexia, vomiting (Some infected individuals have no symptoms at all.) | 1-2 weeks | Weeks to months | Fruits, produce, or water | • Isolation of *C. parvum* oocysts from implicated food, **OR** Isolation of *C. parvum* oocysts from stool of ill persons, **OR** Demonstration of *C. parvum* in intestinal fluid, or small bowel biopsy specimens, **OR** Demonstration of *C. parvum* antigen in stool by a specific immunodiagnostic test (e.g., EIA/ELISA). **Walnut-sized stool. 10% formalin. Complete Form 219.**

---

Kentucky Department for Public Health, 275 East Main St., Frankfort, KY 40621. (502) 564-3261. 24 hour Division of Epidemiology Emergency HOTLINE: 1-888-9REPORT, 1-888-973-7678. Revised February 2018
# KENTUCKY FIELD GUIDE FOR FOODBORNE AND WATERBORNE DISEASES

(Organized by Symptomology)

<table>
<thead>
<tr>
<th>Agent†</th>
<th>Usual Incubation Period (Range)²</th>
<th>Symptom Profile</th>
<th>Duration of Illness³</th>
<th>Period of Communicability</th>
<th>Characteristic Foods⁴</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS⁵</th>
</tr>
</thead>
</table>
| *Bacillus cereus* (*"emetic"* variety) | 2-4 hours (1-6 hours) | Vomiting, with nausea and Diarrhea (abrupt onset) | 24 hours | Not communicable (preformed enterotoxin) | Fried rice, meats, vegetables | • Isolation of 10⁵ *B. cereus*/gm of implicated food OR Isolation of *B. cereus* from stool of ill person.  
• Enteric pathogens kit with Cary-Blair media. Refrigerate. Complete Form 219 or order in Outreach. |
| *Staphylococcus aureus* | 2-4 hours (30 minutes-8 hours) | Vomiting, with nausea, cramps, and diarrhea (abrupt onset) | 24-48 hours | Not communicable (preformed enterotoxin) | Sliced/chopped ham and meats, custards, cream fillings, mushrooms, egg salad | • Isolation of an enterotoxin producing strain of *S. aureus* in implicated food OR Isolation of enterotoxin producing strain of *S. aureus* from stool of ill persons.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |

---

1 The KY Field Guide to Foodborne and Water-Borne Diseases is based on the Oregon Health Services Compendium of Acute Foodborne Diseases and a similar table developed by epidemiologists at the Foodborne and Diarrheal Disease Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, Centers for Disease Control and Prevention, and on Tauxe RV, Hughes JM. Foodborne Disease. In: Mandell GL, Benne HJE, Dolin R. Principles and Practice of Infectious Disease 4th ed. NY: Churchill Livingstone; 1995, page 1017 (table 6).
2 CDC. Diagnosis and management of foodborne illness: a primer for physicians. MMWR 2001; 50(RR2). Reprinted with the permission of the American Medical Association; the Center for Food Safety and Nutrition, FDA and the Food Safety Inspection Service, USDA. Available on-line at [http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5002a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5002a1.htm)
4 “Characteristic foods” for each foodborne and water-borne agent are based on epidemiological data gathered by epidemiologists in the Acute and Communicable Disease Program, Center for Disease Control and Epidemiology, Oregon Health Division, and on Tauxe RV, Hughes JM. Foodborne Disease. In: Mandell GL, Benne HJE, Dolin R. Principles and Practice of Infectious Disease 4th ed. NY: Churchill Livingstone; 1995, page 1017 (table 6).

Kentucky Department for Public Health, 275 East Main St., Frankfort, KY 40621. (502) 564-3261. 24 hour Division of Epidemiology Emergency HOTLINE: 1-888-9REPORT, 1-888-973-7678. Revised February 2018
### Agents typified by abdominal cramps and diarrhea, without fever, within 24 hours of consuming.

<table>
<thead>
<tr>
<th>Agent1</th>
<th>Usual Incubation Period (Range)2</th>
<th>Symptom Profile</th>
<th>Duration of Illness3</th>
<th>Period of Communicability</th>
<th>Characteristic Foods4</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS5</th>
</tr>
</thead>
</table>
| *Bacillus cereus* (*"diarrheal" variety)* | 6-24 hours | Cramps and diarrhea | 24-48 hours | Not communicable (enterotoxin formed in vivo) | Fried rice, meats, vegetables | - Isolation of $10^6$ *B. cereus*/gm of implicated food OR Isolation of *B. cereus* from stool of ill person.  
- Feces, rectal swabs.  
- Enteric pathogens kit with Cary-Blair media. Refrigerate. Complete Form 219 or order in Outreach. |
| *Clostridium perfringens* | 10-12 hours (6-24 hours) | Cramps and diarrhea | 24-48 hours | Not communicable (enterotoxin formed in vivo) | Meat, poultry, gravy, Mexican foods | - Isolation of $>10^5$ *C. perfringens*/gm of implicated food, OR Isolation of *C. perfringens* in stool of ill persons, OR Detection of enterotoxin by latex agglutination (from stool extracts of culture isolates).  
- 5-50 g stool. Kit #10. |

### Agents typified by abdominal cramps and diarrhea, with fever, within 12-48 hours of consuming.

<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)2</th>
<th>Symptom Profile</th>
<th>Duration of Illness3</th>
<th>Period of Communicability</th>
<th>Characteristic Foods4</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS5</th>
</tr>
</thead>
</table>
| *Campylobacter jejuni* | 48 hours-5 days (24 hours-10 days) | Cramps and diarrhea (sometimes bloody) with vomiting and fever | 48 hours-10 days | 2-7 weeks | Raw milk, poultry, water | - Isolation of *C. jejuni* from implicated food OR Isolation of *C. jejuni* from stool or blood of ill person.  
- Feces, rectal swabs.  
- Enteric pathogens kit with Cary-Blair media. Refrigerate. Complete Form 219 or order in Outreach. |
| *Escherichia coli* Enteroinvasive (EIEC) | 12-48 hours | Cramps and diarrhea with fever, headache | 5-10 days | Weeks to months | Uncooked vegetables, salads, water, cheese | - Demonstration of *E. coli* of same serotype in implicated food and stools in persons OR Isolation of *E. coli* of the same serotype shown to be enteroinvasive from stool of ill persons.  
- Feces, rectal swabs.  
**KENTUCKY FIELD GUIDE FOR FOODBORNE AND WATERBORNE DISEASES**
*(Organized by Symptomology)*

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th><strong>Usual Incubation Period (Range)</strong></th>
<th><strong>Symptom Profile</strong></th>
<th><strong>Duration of Illness</strong></th>
<th><strong>Period of Communicability</strong></th>
<th><strong>Characteristic Foods</strong></th>
<th><strong>Criteria for Confirmation:</strong> Type and amount of specimens and handling requirements for shipping to DLS</th>
</tr>
</thead>
</table>
| *Salmonella spp* (non-typhoid) | 12-36 hours (6 hours-10 days) | Cramps and diarrhea with vomiting and fever | 4-7 days | Several days to several years, depending on type | Poultry, eggs, meat, raw milk (cross contamination important) | • Isolation of *Salmonella* from implicated food or water **OR** Isolation of *Salmonella* from stool of ill persons.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |
| *Shigella* | 24-48 hours (12 hours-6 days) | Cramps and diarrhea (may be bloody) with fever | 4-7 days | 4 weeks after illness | Eggs, salads, lettuce | • Isolation of *Shigella* from implicated food **OR** Isolation of *Shigella* from stool of ill persons.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |
| *Vibrio parahaemolyticus* | 12-24 hours (2-48 hours) | Cramps watery, diarrhea with nausea, vomiting, and fever | 2-5 days | Not communicable | Seafood, especially crabs and oysters | • Isolation of 10^8/g *V. parahaemolyticus* from implicated food (usually seafood) **OR** Isolation of *V. parahaemolyticus* from stool of ill persons.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |
| *Vibrio vulnificus* | 12-72 hours | Fever, diarrhea, abdominal cramps, nausea, vomiting hypotension, septicemia in individuals with chronic liver disease, chronic alcoholism, hemochromatosis, or immunocompromising conditions | Not communicable | Seafood | • Isolation of *V. vulnificus* from implicated food (usually seafood) **OR** Isolation of *V. vulnificus* from a clinical specimen (blood, wound, stool).  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |
| *Yersinia enterocolitica* | 36-48 hours (24 hours–10 days) | Cramps, diarrhea, fever, headache, vomiting, pseudoappendicitis | 1-3 weeks | 2-3 weeks | Milk, tofu, pork | • Isolation of organism from clinical specimens from two or more ill persons **OR** isolation of organism from epidemiologically implicated food.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |

---

Kentucky Department for Public Health, 275 East Main St., Frankfort, KY 40621. (502) 564-3261. 24 hour Division of Epidemiology Emergency HOTLINE: 1-888-9REPORT, 1-888-973-7678.  
Revised February 2018

---

167
### KENTUCKY FIELD GUIDE FOR FOODBORNE AND WATERBORNE DISEASES

(Organized by Symptomology)

<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agents typified by vomiting, diarrhea, cramps, myalgias, and headache with fever, within 24 hours of consuming.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| *Listeria monocytogenes* | 24 hours (9-50 hours) | Fever with diarrhea, myalgia, headache | 3-7 days | Not known | Inadequately pasteurized milk, precooked meat | • Isolation of *Listeria monocytogenes* from a normally sterile site.  
• Isolate from blood, cerebrospinal fluid, amniotic fluid, placental/fetal tissue.  
• Pure culture TSA or blood agar slant. Complete Form 219 or order test in Outreach. |
| **Agents typified by vomiting, diarrhea, cramps, myalgias, and headache without fever, within 24-48 hours of consuming.** |
| *Norwalk virus and other caliciviruses* | 24-48 hours (10-72 hours) | Vomiting, with diarrhea, headache and myalgia | 24-72 hours | Duration of vomiting and diarrhea | Shellfish, water, salads, frosting, "handled" foods | • Diagnosis is often based on symptoms, onset times, and ruling out other enteric pathogens OR Identification of virus in stool by PCR.  
• Stool of ill person.  
• Sterile, leak-proof container without preservatives. Refrigerate. Complete Form 275 or order test in Outreach. |
| **Agents typified by watery diarrhea and headache without fever, within 24-48 hours of consuming.** |
| *Escherichia coli enterotoxigenic (ETEC)* | 24-48 hours (21-68 hours) | Cramps, watery diarrhea, some vomiting | 24 hours-11 days (medium 3 days) | Weeks to months | Seafood (crab, shrimp and scallops), salads and other foods served cold | • Demonstration of *E. coli* of same serotype in implicated food and stools in persons OR Isolation of *E. coli* of the same serotype shown to be enterotoxigenic from stool of ill persons.  
• Feces, rectal swabs.  
• Enteric pathogens kit with Cary Blair media. Refrigerate. Complete Form 219. |

---


Kentucky Department for Public Health, 275 East Main St., Frankfort, KY 40621. (502) 564-3261. 24 hour Division of Epidemiology Emergency HOTLINE: 1-888-9REPORT, 1-888-973-7678. Revised February 2018
**KENTUCKY FIELD GUIDE FOR FOODBORNE AND WATERBORNE DISEASES**

*(Organized by Symptomology)*

<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vibrio cholerae O1 and O139</strong></td>
<td>24-72 hours (12 hours-5 days)</td>
<td>Diarrhea, vomiting water</td>
<td>72 hours-7 days</td>
<td>Usually a few days after recovery except carrier state</td>
<td>Shellfish, water or foods contaminated by infected food handlers</td>
<td>• Isolation of toxigenic <em>V. cholerae</em> O1 or O139 from implicated food, OR Isolation of <em>V. cholerae</em> O1 or O139 from stool or vomitus of ill persons, OR Significant rise (fourfold) in vibriocidal antibodies. • Feces, rectal swabs. • Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach.</td>
</tr>
</tbody>
</table>

| **Vibrio cholerae non-O1 and non-O139** | 12-24 hours (12 hours-5 days)   | Profuse watery diarrhea and vomiting, which can lead to severe dehydration and death within hours | 72 hours-7 days; causes life threatening dehydration | Several days | Shelfish | • Isolation of *V. cholerae* non-O1 or non-O139 from stool of ill person. Isolation of *V. cholerae* non-O1 or non-O139 from implicated food is supportive evidence. • Feces, rectal swabs. • Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |

**Agents typified by bloody diarrhea without fever, within 48 hours of consuming.**

<p>| Escherichia coli enterohemorrhagic (<em>E. coli</em> O157:H7 &amp; others) | 48 hours-8 days (24 hours-10 days) | Bloody diarrhea with cramps, vomiting, fever; hemolytic uremic syndrome (2-7% of cases) | 5-10 days | 1-4 weeks | Beef, venison, raw milk, water, produce | • Demonstration of <em>E. coli</em> isolates from stools that are shiga toxin-producing or enterohemorrhagic. • Feces, rectal swabs. • Enteric pathogens kit with Cary-Blair preservative. Refrigerate. Complete Form 219 or order test in Outreach. |</p>
<table>
<thead>
<tr>
<th>Agent</th>
<th>Usual Incubation Period (Range)</th>
<th>Symptom Profile</th>
<th>Duration of Illness</th>
<th>Period of Communicability</th>
<th>Characteristic Foods</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Botulism</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Clostridium botulinum</em></td>
<td>12–48 hours (2 hours to 8 days)</td>
<td>Nausea, vomiting, diarrhea, with or just before onset of descending paralysis</td>
<td>Days to months</td>
<td>Not communicable (preformed enterotoxin)</td>
<td>Improperly canned or similarly preserved foods; honey (infants)</td>
<td>▪ Detection of <em>C. botulinum</em> toxin from implicated food, <strong>OR</strong> Detection of <em>C. botulinum</em> toxin from human sera, or feces, <strong>OR</strong> Isolation of <em>C. botulinum</em> from stool of persons with clinical syndrome, <strong>OR</strong> Consistent clinical syndrome in persons known to have eaten same food as laboratory confirmed cases. ▪ 25-50 g feces, 10 ml sera in red stoppered tube. <strong>7</strong> ▪ Sterile, leak-proof unbreakable container. Complete Form 219 or order test in Outreach.</td>
</tr>
<tr>
<td><strong>Cryptosporidiosis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cryptosporidium parvum</em></td>
<td>2-12 days (usually 7 days)</td>
<td>Profuse watery diarrhea, abdominal cramps, nausea, low-grade fever, anorexia, vomiting (Some infected individuals have no symptoms at all.)</td>
<td>1-2 weeks</td>
<td>Weeks to months</td>
<td>Fruits, produce, or water</td>
<td>▪ Isolation of <em>C. parvum</em> oocysts from implicated food, <strong>OR</strong> Isolation of <em>C. parvum</em> oocysts from stool of ill persons, <strong>OR</strong> Demonstration of <em>C. parvum</em> in intestinal fluid, or small bowel biopsy specimens, <strong>OR</strong> Demonstration of <em>C. parvum</em> antigen in stool by a specific immunodiagnostic test (e.g., enzyme-linked immunosorbent assay (ELISA). ▪ Walnut-sized stool. 10% formalin. Complete Form 219.</td>
</tr>
</tbody>
</table>

---

7 DLS staff must be contacted before any specimens for botulism will be tested.

# Kentucky Field Guide for Foodborne and Waterborne Diseases

(Organized by Symptomology)

<table>
<thead>
<tr>
<th>Agent1</th>
<th>Usual Incubation Period (Range)2</th>
<th>Symptom Profile</th>
<th>Duration of Illness3</th>
<th>Period of Communicability</th>
<th>Characteristic Foods4</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy Metals (antimony, arsenic, cadmium, copper, iron, lead, mercury, tin, zinc)</td>
<td>5 minutes - 8 hours (usually &lt;1 hour)</td>
<td>Vomiting with nausea, cramps, and diarrhea</td>
<td>Usually self-limited</td>
<td>Not communicable</td>
<td>Acidic foods and beverages prepared, stored or cooked in containers coated, lined or contaminated with offending metal</td>
<td>• Demonstration of high concentration of metal in epidemiologically implicated food. • Collect suspect food or metal container.</td>
</tr>
<tr>
<td>Poisonous mushrooms (muscimol, muscarine, psilocybin, coprinus artremenitaris, ibotenic acid)</td>
<td>&lt;2 hours</td>
<td>Vomiting, diarrhea, confusion, visual disturbances, salivation, diaphoresis, hallucinations, disulfiram-like reaction</td>
<td>Usually self-limited</td>
<td>Not communicable</td>
<td>Wild mushrooms</td>
<td>• Clinical syndrome among persons who have eaten mushroom identified as toxic type OR demonstration of toxin in epidemiologically implicated mushroom or food containing mushrooms. • Collect mushrooms or food containing mushrooms.</td>
</tr>
<tr>
<td>Shellfish poisoning (diarrheic, neurotoxic, amnesic)</td>
<td>20 minutes - 2 hours</td>
<td>Cramps, diarrhea, headaches, vomiting, amnesia, seizures</td>
<td>Days</td>
<td>Not communicable</td>
<td>Mussels, oysters</td>
<td>• Detection of toxin in epidemiologically implicated food OR detection of large numbers of shellfish-poisoning associated species of dinoflagellates in water from which epidemiologically implicated mollusks are gathered. • Collect any amount of epidemiologically implicated shellfish.</td>
</tr>
<tr>
<td>Ciguatera poisoning</td>
<td>1-6 hours; usually within 24 hours</td>
<td>Diarrhea, nausea, vomiting, paresthesias, reversal of temperature sensation</td>
<td>Days to weeks to months</td>
<td>Not communicable</td>
<td>Large ocean fish (groupers, amberjack, barracuda, snapper)</td>
<td>• Demonstration of ciguatoxin in epidemiologically implicated fish OR clinical syndrome among persons who have eaten a type of fish previously associated with ciguatera fish poisoning. • Collect epidemiologically implicated fish.</td>
</tr>
<tr>
<td>Scombroid fish poisoning (histamine fish poisoning)</td>
<td>1 minute– 3 hours; usually within 6 hours</td>
<td>Cramps, diarrhea, headache, nausea, flushing, urticaria</td>
<td>3-6 hours</td>
<td>Not communicable</td>
<td>Mishandled fish (mahi-mahi, tuna, mackerel, bluefish, salmon, bonito, skipjack)</td>
<td>• Demonstration of histamine in epidemiologically implicated fish OR clinical syndrome among persons who have eaten a type of fish previously associated with histamine fish poisoning (fish of order Scombroidei). • Collect epidemiologically implicated fish.</td>
</tr>
</tbody>
</table>

1. **Agent** refers to the specific type of pathogen or contaminant responsible for the illness.
2. **Usual Incubation Period (Range)** indicates the typical time it takes for symptoms to develop after exposure, with ranges given for variability.
3. **Duration of Illness** suggests how long the symptoms last, often noted as being usually self-limited.
4. **Characteristic Foods** specify what types of foods are typically associated with the illness.
5. **Criteria for Confirmation** outline specific requirements for confirming the diagnosis, including type and amount of specimens needed and handling instructions for shipping to a designated laboratory (DLS).

---

Kentucky Department for Public Health, 275 East Main St., Frankfort, KY 40621. (502) 564-3261. 24 hour Division of Epidemiology Emergency HOTLINE: 1-888-9REPORT, 1-888-973-7678. Revised February 2018
<table>
<thead>
<tr>
<th>Agent1</th>
<th>Usual Incubation Period (Range)2</th>
<th>Symptom Profile</th>
<th>Duration of Illness3</th>
<th>Period of Communicability</th>
<th>Characteristic Foods4</th>
<th>Criteria for Confirmation: Type and amount of specimens and handling requirements for shipping to DLS5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paralytic shellfish poisoning</td>
<td>30 minutes–3 hours</td>
<td>Paresthesias, feeling of floating, loss of balance, dry mouth, double vision, dysarthria, shortness of breath</td>
<td>Days</td>
<td>Not communicable</td>
<td>Clams, mussels, cockles</td>
<td>• Detection of toxin in epidemiologically implicated fish OR detection of large numbers of shellfish-poisoning associated species of dinoflagellates in water from which epidemiologically implicated mollusks are gathered. • Collect epidemiologically implicated fish.</td>
</tr>
</tbody>
</table>