


**TABLE 96-2** DIAGNOSIS AND RECOMMENDED ANTIMICROBIAL TREATMENT FOR DIARRHEA WITH SPECIFIC PATHOGENS IN ADULTS

ORGANISM	DIAGNOSIS	RECOMMENDATIONS
<i>Campylobacter jejuni</i>	Routine stool culture	Erythromycin 250 mg qid or azithromycin 500 mg daily for 7 days
<i>Vibrio cholerae</i> O1	Stool culture in special salt-containing media (TCBS), test isolate for O1 serotype	Doxycycline 300 mg single dose, or single dose of fluoroquinolone, or tetracycline 500 mg qid for 3 days, or TMP-SMZ 160/800 mg bid for 3 days
<i>Clostridium difficile</i>	Stool test for <i>C. difficile</i> toxin A or B by EIA, or PCR for the B toxin gene	Stop implicated antibiotic. For mild to moderate illness, metronidazole 500 mg tid for 10 days; for severe illness, vancomycin 125 mg qid for 10-14 days
Enterotoxigenic <i>Escherichia coli</i>	Stool culture for <i>E. coli</i> , with assay for enterotoxin	Fluoroquinolone orally for 3 days (e.g., ciprofloxacin 500 mg bid, levofloxacin 500 mg daily, norfloxacin 400 mg bid). If susceptible, TMP-SMZ 160/800 mg bid for 3 days
Nontyphoidal <i>Salmonella</i>	Routine stool culture	Antimicrobials not recommended. If extraintestinal involvement or immunocompromise is present, TMP-SMZ (if susceptible) or quinolone as above, or ceftriaxone 100 mg/kg/day in one or two divided doses for 7 to 14 days, or longer if endovascular infection or relapsing
<i>Shigella</i>	Routine stool culture	Fluoroquinolone for 3 days (e.g., ciprofloxacin 500 mg bid, levofloxacin 500 mg daily, norfloxacin 400 mg bid). If susceptible, TMP-SMZ 160/800 mg bid for 3 days
Shiga toxin–producing <i>E. coli</i>	Stool culture with sorbitol-MacConkey agar, followed by serotyping for O157, then H7, with EIA for shiga toxins	Antibiotics and antimotility drugs should be avoided
Noncholeraic <i>Vibrio</i>	Stool culture in special salt-containing media (TCBS)	Fluoroquinolone orally for 3-5 days (ciprofloxacin 500 mg bid, levofloxacin 500 mg daily, norfloxacin 400 mg bid)
<i>Yersinia enterocolitica</i>	Stool culture on MacConkey media incubated at 25° to 28° C	Antibiotics usually not required. For severe infection or bacteremia, treat with TMP-SMZ or fluoroquinolone or doxycycline plus aminoglycoside
<i>Cyclospora</i>	Stool trichrome or acid-fast stain for parasites	TMP-SMZ 160/800 mg bid for 7-10 days
<i>Cryptosporidium</i>	Stool trichrome or acid-fast stain for parasites, EIA for <i>Cryptosporidium</i> species	Self-limited in immunocompetent persons. If severe or if patient is immunocompromised, consider paromomycin 500 mg tid for 7 days
<i>Isospora</i>	Stool trichrome or acid-fast stain for parasites	TMP-SMZ 160/800 mg bid for 7-10 days
<i>Entamoeba histolytica</i>	Stool examination for ova and parasites, EIA for <i>E. histolytica</i>	Metronidazole 750 mg tid for 5-10 days, plus iodoquinol 650 mg tid for 20 days or paromomycin 500 mg tid for 7 days
<i>Giardia</i>	Stool examination for ova and parasites, EIA for <i>Giardia</i> species	Metronidazole 500 to 750 mg tid for 7-10 days

bid, Twice a day; EIA, enzyme immunoassay; PCR, polymerase chain reaction; qid, four times a day; tid, three times a day; TCBS, thiosulfate-citrate-bile salts-sucrose agar; TMP-SMZ, trimethoprim-sulfamethoxazole.

ileum and cause diarrhea with fever, nausea, or vomiting. Diarrhea usually resolves in 2 to 3 days. Complications include bacteremia and metastatic seeding of atherosclerotic plaques and prostheses. Antimicrobial treatment does not shorten the duration of diarrhea and may prolong intestinal carriage in stools; therefore, antibiotics are indicated only for cases of severe disease or extraintestinal involvement.

### **Campylobacter jejuni**

Disease caused by *Campylobacter jejuni* usually results from ingestion of undercooked poultry or direct contact with animals. The infective dose is  $10^4$  to  $10^6$  organisms, with an incubation period of 1 to 5 days. Acute watery diarrhea is the most common presentation; less frequently, systemic symptoms including fever may occur. Prodromal symptoms such as fever, myalgia, headache, and malaise may precede diarrhea. Complications include reactive arthritis, especially associated with the human leukocyte antigen B27 (HLA-B27), and Guillain-Barré syndrome, which can occur 2 to 3 weeks after diarrhea has resolved. Antibiotic therapy shortens the carriage state.

### **Vibrio**

*V. cholerae* can be divided by the O-antigen of lipopolysaccharide into more than 150 strains. The toxigenic strains *V. cholerae* O1 and O139 produce cholera toxin and are associated with clinical illness. The infectious oral inoculum is about  $10^5$  to  $10^8$  organisms, with an incubation period of 6 hours to 5 days. Classic

cholera starts with vomiting, abdominal pain, and diarrhea. Diarrhea progresses to voluminous watery stools which have been described as “rice water” because they are clear with flecks of mucus. Massive diarrhea can lead to dehydration and shock within a few hours. The illness may be fulminant, with death occurring 3 to 4 hours after onset. Fever and bacteremia are rare. In endemic areas, the diagnosis is usually made on clinical grounds.

The characteristics of noncholeraic *Vibrio* species are covered in Tables 96-1 and 96-2.

### **Diarrhea-Causing Escherichia coli**

There are several types of diarrheagenic *E. coli*, each with a different pathogenesis leading to diarrhea. In addition to ETEC and STEC, these include enteropathogenic, enteroinvasive, enteroaggregative, and diffusely adherent *E. coli*. ETEC is the most common cause of traveler’s diarrhea. It results in an enterotoxin-mediated watery diarrhea with abdominal cramps and vomiting. Enteropathogenic *E. coli* has been associated with epidemic diarrhea in neonates.

EHEC or STEC is acquired by eating contaminated food or water. The oral inoculum is 10 to 100 organisms, with an incubation period of 3 to 4 days. Most disease in the United States is caused by *E. coli* O157:H7, an enterohemorrhagic strain. It is classically associated with bloody diarrhea, abdominal pain, and fecal leukocytes. Systemic complications include HUS in children and thrombotic thrombocytopenia purpura in adults.