

Bacterial Enteric Infections

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Epidemiology

HIV-associated alterations in mucosal immunity or intestinal integrity and treatment with acid-suppressive agents may increase the risk of enteric bacterial infections. Rates of Gram-negative bacterial enteric infections are at least 10 times higher among adults with HIV than in the general population, but these rates are lower among people with HIV who are treated with antiretroviral therapy (ART).¹ The risk of bacterial diarrhea varies according to CD4 T lymphocyte (CD4) cell count and is greatest in individuals with clinical AIDS or CD4 counts <200 cells/mm³.

The bacteria most frequently isolated by culture from adults with HIV in the United States are *Shigella*, *Campylobacter*, and nontyphoidal *Salmonella* spp. (particularly *Salmonella enterica* serotypes Typhimurium and Enteritidis).¹⁻⁶ Diarrheagenic *Escherichia coli*, particularly enteroaggregative *E. coli*, may contribute to the burden of diarrheal disease,⁷ but their role is understood poorly because reporting to public health systems is not required. Data on *Helicobacter pylori* infection in HIV infection are limited and do not suggest excess risk in people with HIV.⁸

Clostridioides difficile-associated infection (CDI) is common in people with HIV⁹; in addition to traditional risk factors, such as exposure to a health care facility or to antibiotics, data¹⁰ suggest that low CD4 count (<50 cells/mm³) is an independent risk factor. Incidence of community-onset CDI is increasing, and clinicians also should consider CDI in the evaluation of outpatient diarrheal illnesses in people with HIV.

Other enteric infections that may cause diarrhea—such as *Mycobacterium avium* complex (MAC), cytomegalovirus, and various protozoa—are discussed elsewhere in these guidelines.

As with bacterial enteric infections in people without HIV, the probable source for most bacterial enteric infections in people with HIV is ingestion of contaminated food or water.¹¹ Sexual activity with the potential for direct or indirect fecal-oral exposure also increases risk of infections, especially with *Shigella*¹² and *Campylobacter*.^{3,13-16}

Clinical Manifestations

Three major clinical syndromes of infection are associated with Gram-negative enteric bacteria among people with HIV:

- Self-limited gastroenteritis;
- Severe and prolonged diarrheal disease, potentially associated with fever, bloody diarrhea, and weight loss; *and*
- Bacteremia associated with extra-intestinal involvement, with or without concurrent or preceding gastrointestinal (GI) illness.^{6,17,18}

Severe community-associated diarrhea often is defined as six or more loose stools (loose stool is defined as defecated material that takes the shape of a container) per day with or without other signs of systemic illness, such as fecal blood, orthostatic hypotension, or fever. In people with HIV, the risk of more profound illness increases with the degree of immunosuppression but risk diminishes