



Diarrheagenic *Escherichia coli*

(non-Shiga-toxin-producing *E. coli*)

Technical Information

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Clinical Features

Watery or bloody diarrhea, abdominal cramps, with or without fever.


Etiologic Agent

Escherichia coli of many different serotypes, categorized into four major groups according to virulence mechanisms: enterotoxigenic (ETEC); enteropathogenic (EPEC); enteroinvasive (EIEC); and enteroaggregative (EAagg EC). Other groups (e.g., diffusely adherent *E. coli*) are less well established as pathogens.

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Incidence

Unknown; very few laboratories can identify these organisms. Enterotoxigenic *E. coli* are the most common cause of travelers' diarrhea and have caused several foodborne outbreaks in the United States. There are an estimated 79,420 cases of ETEC in the United States each year. EPEC and EIEC primarily infect children in the developing world. Enteroaggregative *E. coli* probably cause chronic diarrhea in HIV-infected patients.

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Sequelae

Sequelae of ETEC, EPEC, and EIEC infection are not well described. Enteroaggregative *E. coli* may cause chronic diarrhea.

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Transmission

Through food or water contaminated with human or animal feces. Person-to-person transmission may also occur, but is likely to be less common.

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Risk Groups

International travelers are at greatest risk for ETEC infection, while EPEC and EIEC are most common among young children in the developing world. EAaggEC are most common among immunocompromised persons

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Surveillance

There is no formal surveillance system for diarrheagenic *E. coli* and most laboratories are unable to identify them.

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Trends

Apparent steady increase in domestic ETEC outbreaks. ETEC are increasingly resistant to available antimicrobial agents, and this is likely true for EPEC, EIEC, and EAggEC as well.

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Challenges

Improve surveillance by transferring the techniques for identification and serotyping diarrheagenic *E. coli* to public health and clinical laboratories. Better understand the molecular genetics of the diverse virulence mechanisms of these organisms and thereby develop tools to enable more rapid detection of emerging diarrheagenic *E. coli* strains.

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Opportunities

Improve surveillance of new and emerging diarrheagenic *E. coli* strains through studies of sporadic or outbreak-associated cases of diarrhea of unknown etiology. Measure the effect of non-vaccine interventions to prevent diarrheal disease on the incidence of infections caused by diarrheagenic *E. coli* through collaborative intervention studies.

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