


衛生福利部疾病管制署




急性腹瀉之鑑別診斷與治療

衛福部 疾病管制署
中區傳染病防治醫療網
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Diarrhea: Definition

- stool weight in excess of **200 grams per day**
- Collecting and weighing stools is neither practical nor required except in a clinical research setting.
- A good working definition is **three or more loose or watery stools per day**
- A definite decrease in consistency and increase in frequency based upon an individual baseline

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Diarrhea: Definition

- Diarrhea reflects increased water content of the stool, whether due to **impaired water absorption** and/or **active water secretion** by the bowel.
- In **severe** infectious diarrhea, the number of stools may reach 20 or more per day, with defecation occurring every 20 or 30 minutes. In this situation, the total daily volume of stool may **exceed two liters**, with resultant volume depletion and hypokalemia.
- Most patients with acute diarrhea have **three to seven** movements per day with total stool volume **less than one liter per day**.

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Etiology

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Noninfectious

- Drugs
- Food allergies
- Gastrointestinal diseases such as inflammatory bowel disease
- Other disease states such as thyrotoxicosis and the carcinoid syndrome.

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Small bowel infections

- watery diarrhea
- Large volume
- Abdominal cramping
- Bloating, gas
- Weight loss
- Fever is rarely a significant symptom
- Stool does **not contain occult blood or inflammatory cells**

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Large intestinal diarrheas

- Frequent,
- Regular
- Small volume
- Often painful bowel movements.
- Fever
- Bloody or mucoid stools are common,
- Red blood cells and inflammatory cells may be seen routinely on the stool smear

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Acute diarrhea: Definition

- 14 days in duration
- Persistent diarrhea — more than 14 days in duration
- Chronic — more than 30 days in duration

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Agents that commonly cause acute gastrointestinal illness

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腸道中可發現的病毒 (1)

A. 可引起腸胃炎的病毒

- 輪狀病毒
- 腺病毒 40 41
- 杯狀病毒(Caliciviruses)
 - 諾羅病毒(SRSV, Small Round Structured Viruses)
- 星狀病毒
- 小圓病毒(SRV, Small Round Viruses)
- 冠狀病毒
- 托羅病毒(Toroviruses)

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腸道中可發現的病毒 (2)

B. 可出現在腸道，但不會引起腸胃炎

- 脊髓灰質炎病毒
- 克沙其病毒 A
- 克沙其病毒 B
- 艾科病毒
- 腸病毒 68-71
- 甲肝病毒
- 戊肝病毒
- 腺病毒 1-39
- 呼腸孤病毒(Reoviruses)

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腸道中可發現的病毒 (3)

C. 只有在特殊族群才會造成腸胃炎

- 巨細胞病毒
- 單純皰疹病毒
- 水痘病毒
- 愛滋病毒

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Bacteria

- Salmonella
- Campylobacter
- Shigella
- Escherichia coli O157:H7
- Clostridium difficile

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Protozoa

- Cryptosporidium
- Giardia
- Cyclospora
- Entamoeba histolytica

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Etiology

- Most cases of acute infectious gastroenteritis are probably **viral**, in most studies, **stool culture** has been positive in only **1.5 to 5.6 percent** of cases
- In contrast, **bacterial causes** are responsible for most cases of **severe diarrhea**
- **Protozoa** are **less** commonly identified as the etiologic agents of acute gastrointestinal illness.

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Diagnostic approach

- Careful **history** to determine the **duration** of symptoms
- The **frequency and characteristics** of the stool
- Evidence of extracellular **volume depletion** (eg, decreased skin turgor, orthostatic hypotension)
- **Fever and peritoneal signs** may be clues to infection with an **invasive** enteric pathogen

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Indications for diagnostic evaluation

- **Profuse watery** diarrhea with signs of **hypovolemia**
- Passage of many small volume stools containing **blood and mucus**
- **Bloody** diarrhea
- Temperature **38.5°C** (101.3°F)
- Passage of **6 unformed stools per 24 hours** or a duration of illness **>48 hours**
- **Severe abdominal pain**
- **Recent use of antibiotics or hospitalized patients**
- Diarrhea in the **elderly** (70 years of age) or the **immunocompromised**

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Small bowel	Colon
<ul style="list-style-type: none"> • Bacteria : Salmonell Escherichia coli Clostridiu perfringens Staphylococcus aureus Aeromonas hydrophila Bacillus cereus Vibrio cholera 	<ul style="list-style-type: none"> • Bacteria : Campylobacter* Shigella Clostridium difficile Yersinia Vibrio parahaemolyticus Enteroinvasive E. coli Plesiomonas shigelloides Klebsiella oxytoca (rare)

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Small Bowel Colon

- Virus :
 - Rotovirus
 - Norovirus
- Protozoa :
 - Cryptosporidium*
 - Microsporidium*
 - Isospora
 - Cyclospora
 - Giardia lamblia

- Virus :
 - Cytomegalovirus*
 - Adenovirus
 - Herpes simplex virus
- Protozoa :
 - Entamoeba histolytica

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Historical clue

- Symptoms that begin within **six hours** suggest ingestion of a preformed toxin of Staphylococcus aureus or Bacillus cereus
- Symptoms that begin at **8 to 16 hours** suggest infection with Clostridium perfringens
- Symptoms that begin at **more than 16 hours** can result from viral or bacterial infection (eg, contamination of food with enterotoxigenic or enterohemorrhagic E. coli
- **Recent antibiotic use**

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Fecal leukocytes and occult blood

- The variable estimates :may be partially due to differences in specimen processing and in operator experience. So the role has been **questioned**
- The presence of occult blood and fecal leukocytes supports the diagnosis of a **bacterial** cause of diarrhea in the context of the medical history and other diagnostic evaluation
- **Bacterial culture in high risk patients.**
- Fecal leukocyte determination is probably **not of value** in patients who develop diarrhea while **hospitalized**, in whom testing for **Clostridium difficile** is much more likely to be helpful(院內感染沒有診斷價值)

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it is reasonable to **continue symptomatic therapy for several days before considering further evaluation** in patients who do not have severe illness, particularly if occult blood and fecal leukocytes are absent

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When to obtain stool cultures

- Immunocompromised patients, including (HIV)
- Patients with comorbidities that increase the risk for complications
- Patients with more severe, inflammatory diarrhea (including bloody diarrhea)
- Patients with underlying inflammatory bowel disease in whom the distinction between a flare and superimposed infection is critical
- Some employees, such as food handlers, occasionally require negative stool cultures to return to work

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When to obtain stool for ova and parasites

- Sending stool samples for ova and parasites is **not cost effective** for the majority of patients with acute diarrhea

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Indications for ova and parasite study

- **Persistent** diarrhea (associated with Giardia, Cryptosporidium, and Entamoeba histolytica)
- Persistent diarrhea following **travel** to special region (associated with Giardia, Cryptosporidium, and Cyclospora)
- Persistent diarrhea with exposure to infants in **daycare centers** (associated with Giardia and Cryptosporidium)
- Diarrhea in a man who has sex with men (**MSM**) or a patient with AIDS (associated with Giardia and Entamoeba histolytica in the former, and a variety of parasites in the latter)
- A community **waterborne outbreak** (associated with Giardia and Cryptosporidium)
- **Bloody diarrhea with few or no fecal leukocytes** (associated with intestinal amebiasis)

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Endoscopy

- Endoscopy **is uncommonly needed** in the diagnosis of acute diarrhea. It may be helpful in the following settings:
- Distinguishing **inflammatory bowel disease** from infectious diarrhea
- Diagnosing C. difficile infection and looking for **pseudomembranes** in patients who are toxic while results of tissue culture assays are pending. The widespread adoption of **ELISA** for C. difficile toxins A and B has reduced the time for C. difficile results to become available and thus decreased the need for endoscopy in these patients.
- In **immunocompromised** patients who are at risk for opportunistic infections with agents such as cytomegalovirus.
- In patients in whom **ischemic colitis** is suspected but the diagnosis remains unclear after clinical and radiologic assessment.

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Treatment

- Oral rehydration solutions
- Empiric antibiotic therapy

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When to treat

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Those with moderate to severe travelers' diarrhea as characterized by more than four unformed stools daily, fever, blood, pus, or mucus in the stool.

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Those with more than eight stools per day, volume depletion, symptoms for more than one week

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Those in whom hospitalization is being considered and immunocompromised hosts

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Signs and symptoms of bacterial diarrhea such as fever, bloody diarrhea (except, for suspected EHEC or C. difficile infection), and the presence of occult blood or fecal leukocytes in the stool

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Empirical antibiotics treatment

- We recommend empiric therapy with an **oral fluoroquinolone** (ciprofloxacin 500 mg twice daily, or levofloxacin 500 mg once daily) for three to five days in the absence of suspected EHEC or fluoroquinolone-resistant campylobacter infection.
- **Azithromycin** (500 mg PO once daily for three days) and erythromycin (500 mg PO twice daily for five days) are alternative agents particularly if fluoroquinolone resistance is suspected .

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Symptomatic therapy

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The antimotility agent **loperamide** (Imodium, 洛派丁胺) may be used for the symptomatic treatment of patients with acute diarrhea in whom **fever is absent** or low grade and the stools are **not bloody**. The dose of loperamide is two tablets (4 mg) initially, then 2 mg after each unformed stool, not to exceed 16 mg/day for 2 days.

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Diphenoxylate

- Diphenoxylate (Lomotil, 苯乙派啶) is an alternative agent. The dose of diphenoxylate is two tablets (4 mg) four times daily for 2 days
- has central opiate effects and may cause cholinergic side effects.

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- Treatment with these agents may mask the amount of fluid lost, since fluid may pool in the intestine. Thus, fluids should be used aggressively when antimotility agents are employed
- Both drugs may facilitate the development of the **hemolytic-uremic syndrome (HUS)** in patients infected with **EHEC**

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Bismuth subsalicylate

- (Pepto-Bismol) when compared with placebo significantly reduced the number of unformed stools and increased the proportion of patients free of symptoms at the end of treatment trials
- **May be used in patients with significant fever and dysentery, conditions in which loperamide should be avoided**
- The dose of bismuth subsalicylate is 30 mL or two tablets every 30 minutes for eight doses.

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Dietary recommendations

- **Adequate nutrition** during an episode of acute diarrhea is important to facilitate enterocyte renewal if patients are anorectic
- A **short period** of consuming only liquids will not be harmful
- Boiled starches and cereals (eg, potatoes, noodles, rice, wheat, and oat) with salt are indicated in patients with watery diarrhea; crackers, bananas, soup, and boiled vegetables may also be consumed

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Summary and recommendations

- Several studies have evaluated the accuracy of fecal leukocytes alone or in combination with occult blood testing.
- The ability of these tests to predict the presence of an inflammatory diarrhea has varied greatly
- We recommend obtaining stool cultures on initial presentation in immunocompromised patients (HIV-infected, elderly, patients with comorbidities or with underlying inflammatory bowel disease), those with severe or bloody diarrhea, and in food handlers.

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