

# Understanding Acute Gastroenteritis 認識急性腸胃炎

Infection Control Branch

Centre for Health Protection

衛生防護中心 感染控制處

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# 1.1 What is Acute Gastroenteritis (AGE)?

## 急性腸胃炎是甚麼?

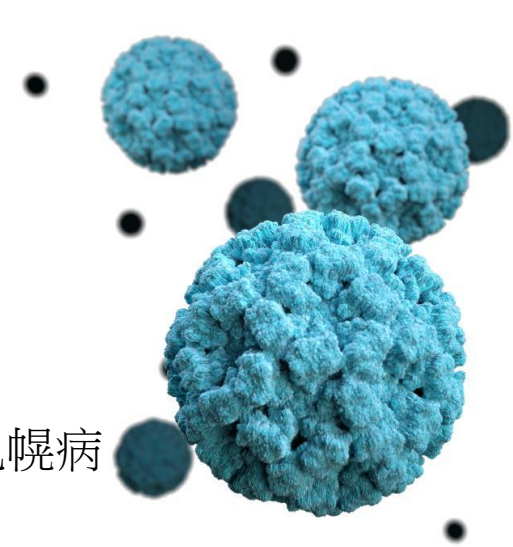
- Terminology 術語
  - **Acute** : rapid onset and short duration 突發、病徵短暫
  - **Gastroenter**: gastrointestinal tract / gut / bowels 胃腸
  - **itis**: inflammation 發炎
- Characteristics of viral AGE 急性病毒性腸胃炎的特徵
  - Sudden onset of frequent loose or watery stools, may have vomiting and fever  
患者會出現大便頻密並且呈稀爛或水狀的情況，同時可能出現嘔吐及發燒
  - Usually mild and recovery is spontaneous  
病情通常輕微，一般會自然痊癒
  - Dehydration may occur  
可能會出現脫水

## 1.2 Causes of AGE 急性腸胃炎的成因

- Bacterial 細菌性
  - Salmonella 沙門氏菌
  - *Vibrio parahaemolyticus* 副溶血性弧菌
  - Dysentery 痢疾
  - Cholera 霍亂
  - STEC 產志賀毒素大腸桿菌
  - Antibiotic-associated colitis 抗生素相關結腸炎
    - *Clostridioides difficile* 難辨梭菌
- Viral (common) 病毒性 (常見)
  - Norovirus 諾如病毒
  - Rotavirus 輪狀病毒
  - Sapovirus 札幌病毒
  - Astrovirus 星狀病毒
  - Adenovirus 腺病毒
- Parasites 寄生蟲
  - Giardiasis 藍氏賈第鞭毛蟲病
  - Cryptosporidiosis 隱孢子蟲病
  - *Entamoeba histolytica* 溶組織內阿米巴
- Non-infectious causes 非傳染性因素
  - Tend to be chronic 多為長期病患

## 2. Norovirus 諾如病毒

## 2.1 Virology 病毒學



- A small non-enveloped RNA virus 細小、非包膜、單鏈核糖核酸病毒
- Caliciviridae family includes genus *Norovirus* and *Sapovirus* 杯狀病毒科，包括諾如病毒及札幌病毒
- Divided into 10 genogroups and 49 genotypes 分成10個基因群及49個基因型
- Genetic recombination and point mutation cause new strains to emerge and causes epidemics every few years  
基因重組和點突變會產生新的病毒株，並每隔幾年引發新一輪疫情
- Affects both high and low-income countries 同時影響高及低收入國家
- Seasonality: can be acquired throughout the year but incidence tends to peak in winter months in temperate countries  
季節性：全年都有諾如病毒感染的病例，但在溫帶國家一般於冬季較為流行
- “Winter-vomiting disease”
- First identified in outbreak in Norwalk, Ohio in 1968. 於1968年從美國俄亥俄州諾沃克首被發現
- “Norwalk virus” (species) 諾沃克病毒(種)

- **Most common cause of AGE in children since introduction of Rotavirus vaccination**  
自從開始接種輪狀病毒疫苗，諾如病毒感染成為引致兒童急性腸胃炎的最常見病因
- **Common causes of outbreak in long-term care facilities (LTCFs), hospitals, schools, cruise ships, prisons, restaurants and catering premises**  
常見爆發於長期護理設施、醫院、學校、郵輪、監獄及餐飲處所
- **Highly infectious (infectious dose 18 virions only)**  
傳染性極高 (感染量：只需18粒病毒體)
- **Survive in environmental surface from days to weeks especially in low temperature e.g. frozen foods**  
能夠在物體表面存活數日至數周，尤其於低溫，如冷凍食品
- **Relatively resistant to disinfectants e.g. alcohol, quaternary ammonium compounds (QAC)**  
對消毒劑相對耐受，例如：酒精、季銨化合物

## 包膜病毒

### Enveloped virus

例如：流感病毒

e.g. Influenza virus

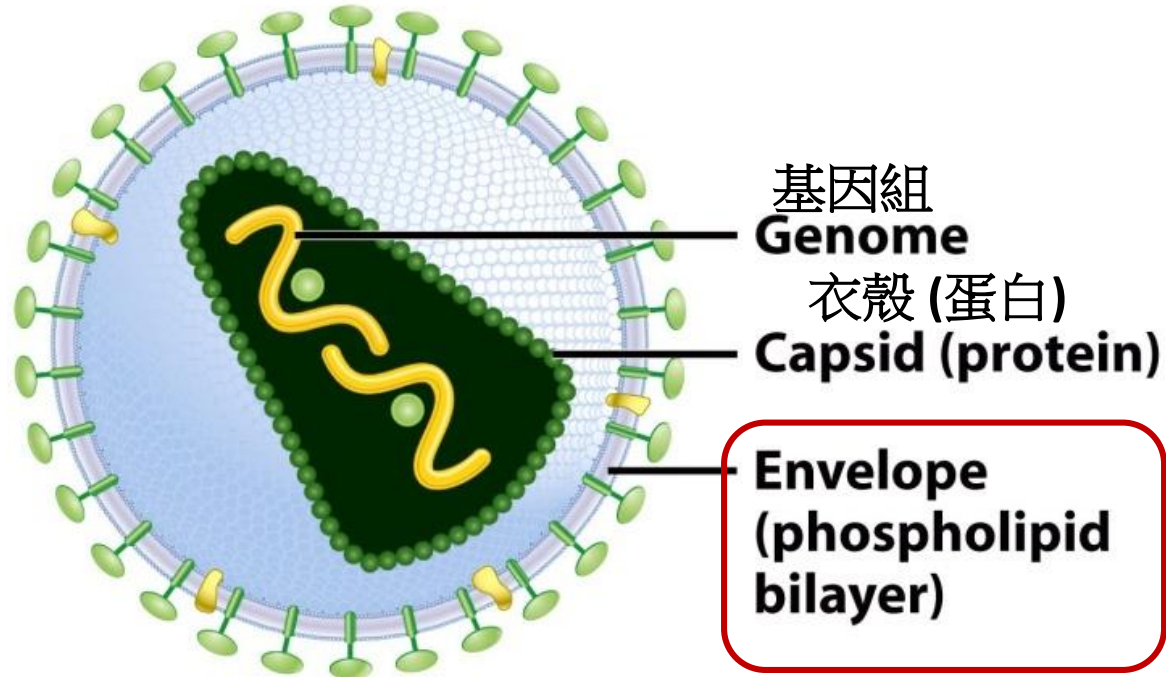


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病毒包膜  
(磷脂雙層)

## 非包膜病毒

### Nonenveloped virus

例如：諾如病毒

e.g. Norovirus

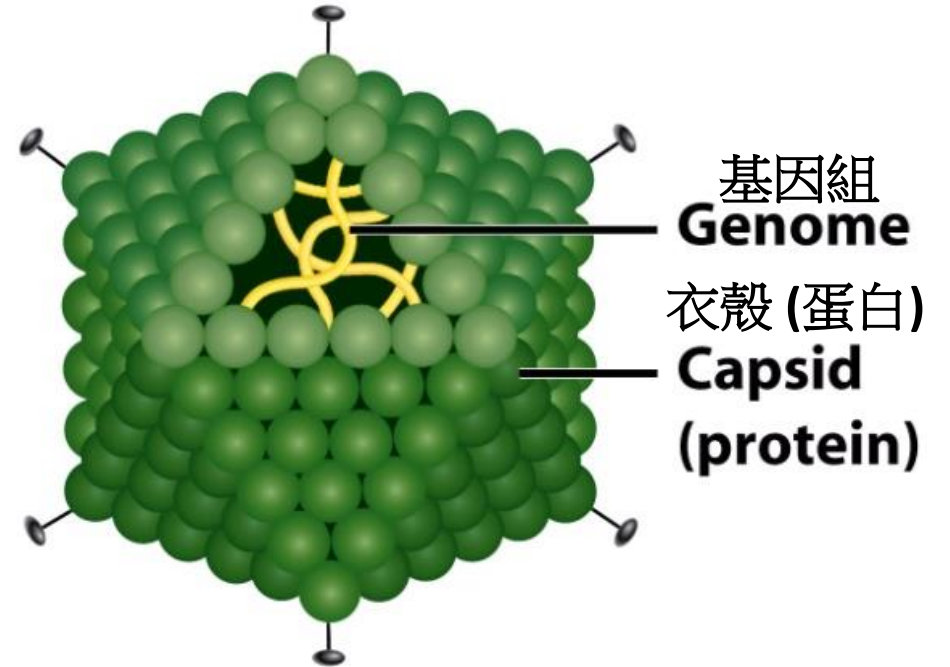


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## 2.2 Mode of transmission 傳播途徑

- Contact 接觸傳播
  - Direct from person to person (most common) e.g. by hands 直接由人與人的接觸傳播 (最常見)，例如：雙手
  - Indirect through environment or objects contaminated by feces and vomitus 間接由接觸受排泄物或嘔吐物污染的地方或物品
- Aerosol of splashes from vomiting 嘔吐時產生的噴沫傳播
  - Breathing in droplets suspended in the air 吸入在空氣中停留的飛沫
  - Low infectious dose 感染量低
- Foodborne and waterborne 食物傳播或水傳播
  - Most common food items: leafy vegetables, fruits, bivalves (shellfish and oysters) 常見食物：葉菜、水果、雙貝類 (貝殼類海產及蠔)
  - Consumed raw and contamination may occur during food handling process 未經烹煮或在處理食物的過程中受污染
  - Environmental water contamination with concentration in shellfish meat 受病毒污染的水會積聚於貝殼類海產
  - Various types of water: water sources at camps, recreational water exposure, commercial ice consumption, etc. 多種不同來源的水：營地的供水設施、作康樂用途的水設施、商業用冰塊等等

## 2.3 Clinical features 臨床病徵

- Watery diarrhea, non-bloody, no mucus 糞便呈水狀，不帶血及／或黏液
- Incubation period is short ~ 12-48 hours 潛伏期短，通常為 12-48小時
- Rapid and sudden onset 病發迅速及突然
- Short duration of illness with spontaneous recovery in 1-3 days 病徵短暫，患者一般會在1-3天內自行痊癒
- Patients appear uncomfortable but not ill-looking 患者感覺不適，但沒有病容
- Vomiting is common (>50%); fever is uncommon and low-grade if present 嘔吐最為常見 (>50%)；少部分患者可能出現輕微發燒
- Run a mild disease course, more severe in immunocompromised 一般病情輕微，當中以缺乏免疫力的人士較為嚴重
- May lead to dehydration as complication 可能會引致脫水

## 2.4 Lab Diagnosis 化驗診斷

- Polymerase chain reaction (PCR) 聚合酶連鎖反應
  - Mainstay of diagnostic test 主要的診斷性檢測
  - Highly sensitive and specific 高靈敏度及特異度
  - May detect norovirus 1-2 days before symptoms start 可於症狀出現前1-2天偵測到諾如病毒
  - Multiplex PCR platforms can detect multiple pathogens at the same time 多重聚合酶連鎖反應測試可同時偵測多個病原體
  - Stool (best), vomitus, rectal swabs if stool not available 糞便樣本(最理想)，嘔吐物或肛門採樣樣本亦可
- Antigen tests 抗原測試
  - Short turnaround time 需時較短
  - Less sensitive and not suitable to be used solely 靈敏度較低，已不適合單獨使用
  - Considered if PCR is not available 只應在無法進行聚合酶連鎖反應測試時考慮
- Electronic microscopy 電子顯微鏡檢測
  - Direct visualization of virions from stool samples 直接由糞便樣本顯示病毒體
  - Cannot distinguish from other AGE viruses due to similar sizes and shapes 由於大小及形狀相若，無法與其他可引致急性腸胃炎的病毒區分
  - Low sensitivity 靈敏度低

## 2.5 Treatment 治療

- Supportive treatment 輔助性治療
  - Ensure adequate hydration & electrolyte replacement 補充足夠水分及電解質
- Specific antiviral for treatment is not available 沒有針對諾如病毒的抗病毒藥物
- Antibiotics are not useful 抗生素對此病沒有療效
  - may need to rule out a second cause of diarrhea if atypical presentation as asymptomatic norovirus infection can occur  
諾如病毒或會造成無症狀感染，可能需要排除腹瀉的第二個原因
- Do not self-medicate with anti-diarrhea drugs 切勿自行服用止瀉藥
  - May prolong the course of illness 可能會延長病情
  - Adverse effects are common 副作用常見

## 2.6 Prevention 預防

- Contact precautions should be exercised until 48 hours after symptoms resolve  
應採取接觸傳播防護措施，直至症狀已停止48小時
  - Food handler should not prepare food until 48 hours after symptoms resolve  
處理食物的員工不應處理食物，直至症狀已停止48小時
  - Healthcare worker should refrain from work until 48 hours after symptoms resolve  
醫護人員應避免工作，直至症狀已停止48小時
  - Children in school / childcare centres 學校/幼兒中心的兒童
    - UK – exclude till 48 hours after resolution of symptoms 英國 - 停止上學，直至症狀已停止48小時
    - HK – ditto 香港 - 同上
    - USA – can return to school if stools are contained in diaper or can use toilet well and stool frequency is no more than two times above baseline, even if stool is loose 美國 - 如學童有使用尿片或能正確使用廁所，同時排便次數較平時多兩次或以下(即使大便呈稀爛)，亦可上學
- Shedding of viruses in stool may last for several weeks (mean duration 4 weeks as detected by PCR) but are considered non-infectious 糞便內可持續帶有病毒至數星期(平均4星期，經由聚合酶連鎖反應檢測)，但不具傳染性

- **Use effective disinfectant for environment disinfection**  
使用有效的消毒清潔劑作環境消毒
  - Commercial products containing QAC may not be effective  
市面上含季銨化合物的消毒產品可能無效
  - Chlorine-based disinfectant e.g. hypochlorite solution is effective but should contain at least 1000 ppm chlorine (1:49 diluted household bleach)  
含氯清潔劑，例如氯含量達1000ppm的次氯酸鈉溶液(1比49稀釋家用漂白水)
- **Hand hygiene 手部衛生**
  - Hand washing with soap is preferred to alcohol-based hand rubs  
以梘液洗淨雙手比使用酒精搓手液較為理想
- **Cleaning up vomitus and stools 清理嘔吐物或排泄物**
  - Wear surgical mask and gloves at least 最少須戴上外科口罩及手套
  - Ensure good ventilation 保持空氣流通
- **Norovirus vaccine is not yet available but under development**  
預防諾如病毒的疫苗仍在研發階段

### 3. Conclusion 總結

- Norovirus is highly infectious 諾如病毒極具傳染性
- Most cases are mild with spontaneous recovery 大部分病情輕微，患者會自然痊癒
- Preventable by proper personal and environmental hygiene, prompt isolation of cases and return to school only after recovered  
可透過正確個人及環境衛生、及時隔離個案及在康復後才返校來預防

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Thank you 謝謝