

Category	Key Characteristics	Associated Diseases	Diagnosis and Notes
<b>Campylobacter</b>	- Small, motile, curved, gram-negative rods.- Microaerophilic; grows best at 42°C.- Killed by gastric acids.- Zoonotic transmission, mainly from contaminated poultry.	- Gastroenteritis: diarrhea (may be bloody), fever, abdominal pain.- Complications: Guillain-Barré syndrome, reactive arthritis.	- Diagnosis: selective growth conditions, microscopic morphology, oxidase and catalase tests.
<b>Helicobacter</b>	- Spiral, gram-negative rods with corkscrew motility.- Produces urease and adapts to acidic environments.- Humans are the main reservoir.- Transmission: fecal-oral route.- Growth requires microaerophilic conditions.	- Gastritis (acute: nausea, vomiting, hypochlorhydria).- Chronic gastritis: gastric/duodenal ulcers.- Risk of gastric cancer and MALT lymphoma.	- Diagnosis: gastric biopsy, antigen tests with >95% sensitivity/specificity.- Non-invasive detection of stool antigens.
<b>Vibrio</b>	- Gram-negative, facultative anaerobes with polar flagella.- Halophilic; requires NaCl for growth.- Found in marine environments and linked to shellfish consumption.- Susceptible to stomach acids.	- Cholera ( <i>V. cholerae</i> O1/O139): severe watery diarrhea ("rice-water stools"), rapid dehydration.- Cholera toxin: increases water/electrolyte secretion.- Mortality up to 70% in untreated cases.	- Diagnosis: detection of cholera toxin or serogroups O1/O139.- Prompt treatment with fluids reduces mortality to <1%.
<b>Bacteroides</b>	- Anaerobic, gram-negative rods abundant on mucosal surfaces.- Stimulated by bile; pleomorphic appearance.- LPS has reduced endotoxin activity.	- Polymicrobial infections: respiratory, intraabdominal, and soft tissues.- <b>B. fragilis</b> : toxin causes watery diarrhea.- Can lead to bacteremia (3-10% of cases).	- Found in intraabdominal infections and immunocompromised patients.- Key species: Prevotella, Fusobacterium, Porphyromonas, and <b>B. fragilis</b> .
<b>Mycoplasma</b>	- Smallest free-living bacteria; lacks a cell wall.- Membrane contains sterols.- Pleomorphic shapes.- Resistant to antibiotics targeting cell walls (e.g., penicillins, cephalosporins).	- Respiratory diseases: tracheobronchitis, atypical pneumonia.- Genitourinary diseases: nongonococcal urethritis (NGU), pelvic inflammatory disease.	- Diagnosis: PCR for species-specific genes.- Gram stain and antigen tests are not reliable.
<b>Aggregatibacter</b>	- Gram-negative, facultative anaerobes.- Non-motile.- Found in the oral cavity.	- Localized aggressive periodontitis.- Can lead to endocarditis if bacteria spread to bloodstream and infect damaged/artificial heart valves.	- Key species: <b>A. actinomycetemcomitans</b> , <b>A. aphrophilus</b> .- Associated with periodontal and cardiac conditions.