Terms you should know:

- enterobacteria (enterics)
- coliforms
- LT toxin
- ST toxin
- Shigella toxin
- Shiga toxin
- Shigalike toxin
- infectious dose
- dysentery

Escherichia coli

- Description: Gram-negative rods, ferments lactose (coliform)
- Diseases: Enterotoxigenic (ETEC): simple diarrhea
               Enteroinvasive (EIEC): Shigella-like dysentery
               Enterohemorrhagic (EHEC): dysentery, hemolytic uremic syndrome (O157:H7)
- Virulence factors: Flagella, pili for adherence, endotoxin (LPS)
- Exotoxins: LT and ST toxins (ETEC), Shigalike toxin (EIEC, EHEC)
  Can inject receptors into epithelial cell membranes to permit close contact
- Treatment: Antibiotics sometimes used for ETEC, but damage is mostly due to toxins
  Prevention by sanitation, thorough heating of food, etc.
- Reservoir and spread: Normal flora of humans and animals; also persists in environment
  Spreads by fecal-oral route

Salmonella typhi

- Description: Gram-negative rods, does not ferment lactose (non-coliform)
- Diseases: Typhoid fever
- Virulence factors: Flagella, pili, endotoxin
  Able to invade intestinal epithelium cells and then spread
- Treatment: Antibiotics (usually chloramphenicol due to resistance), fluids
- Reservoir and spread: Human reservoir only; spread by fecal-oral route (high infectious dose)
  Recovered patients may become asymptomatic carriers (gall bladder)

Shigella dysenteriae

- Description: Gram-negative rods, does not ferment lactose (non-coliform)
- Diseases: Dysentery (bloody diarrhea due to tissue damage)
- Virulence factors: Flagella, pili, endotoxin, powerful exotoxin (Shiga toxin)
  Invades intestinal epithelium cells by triggering phagocytosis
- Treatment: Antibiotics (resistance is a problem), fluids
- Reservoir and spread: Human reservoir only; spread by fecal-oral route (infectious dose <200)

Vibrio cholerae

- Description: Gram-negative curved rods
- Diseases: Cholera
- Virulence factors: Flagella, pili, cholera toxin (causes release of ions, then water by osmosis)
- Treatment: Fluids with salts and glucose (death is due to dehydration); poor vaccine
- Reservoir and spread: Environmental reservoir (water), spreads by fecal-oral route