Neisseria meningitidis (meningococcus)
Description: Gram-negative bean-shaped cocci in pairs
Diseases: Meningococcal meningitis
Virulence factors: Polysaccharide capsule prevents phagocytosis
Secreted proteases destroy IgA antibody
Able to “steal” iron from host iron-binding proteins
Invasive; endotoxin does most tissue damage
Treatment: Penicillin; prophylactic treatment of carriers with rifampin
Vaccine used only for high-risk populations
Reservoir and spread: Human reservoir only; spread by respiratory route
Many asymptomatic carriers

Haemophilus influenzae
Description: Gram-negative rods
Diseases: Meningitis
Virulence factors: Polysaccharide capsule; invasive
Treatment: Antibiotics; prophylactic treatment of carriers
Subunit vaccine given to children (1990) has greatly reduced incidence
Reservoir and spread: Human reservoir; spread by respiratory route

Clostridium tetani
Description: Gram-positive rods; forms endosporles; obligate anaerobe
Diseases: Tetanus
Virulence factors: Exotoxin (tetanospasmin) causes disease; moves to CNS and inhibits transmission of inhibitory signals to muscles
Treatment: Antitoxin antibodies if administered early enough
Prevention by toxoid vaccine is most important form of control
Reservoir and spread: Spores in soil enter body through wounds
Bacteria can multiply in anaerobic wound tissue and produce toxin