



Shigella sp.



Salmonella enteritidis



Staphylococcus aureus



Escherichia coli



Listeria monocytogenes



Salmonella typhimurium

The 12 “Most Unwanted” Bacteria



Clostridium botulinum



Vibrio cholera



Campylobacter jejuni



Yersinia enterocolitica



Clostridium perfringens



Vibrio vulnificus

Campylobacter jejuni



Campylobacter jejuni

- Most common bacterial cause of diarrhea in the U.S. especially in young children.
- Raw milk, untreated water, raw and undercooked meat, poultry or shellfish.
- Incubation period 2-5 days
- Requires special conditions to grow.

Clostridium botulinum



Clostridium botulinum

- Soil bacterium that requires an oxygen free environment.
- Canned fruits and veggies, honey???
- Disease is due to a toxin
 - Botox
- 4 – 36 hr incubation
- Causes paralysis

Clostridium perfringens



Clostridium perfringens

- Similar to *C. botulinum* but less severe.
- Meat and meat products
- 8-12 hour incubation
- Abdominal pain and diarrhea
- Also causes gas gangrene

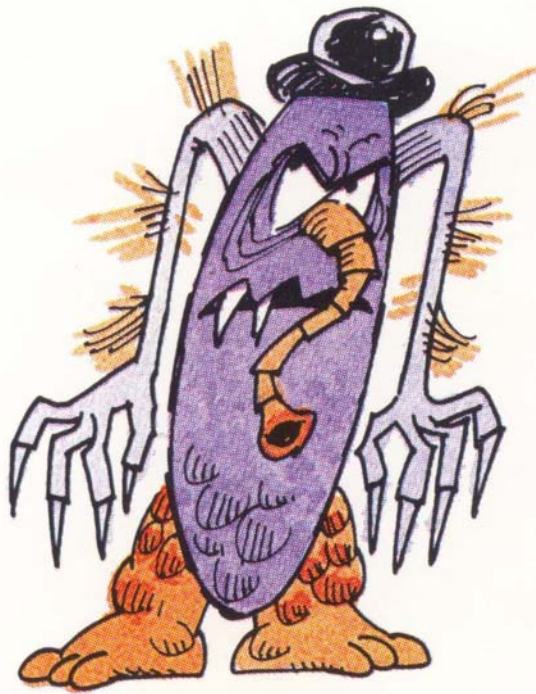
Escherichia coli O157:H7



Escherichia coli

- One of hundreds of strains of *E. coli*.
- Produces a deadly toxin that causes severe cramps and bloody diarrhea.
- Meat (i.e raw hamburger), uncooked produce, raw milk, unpasteurized juice, contaminated water.

Listeria monocytogenes



Listeria monocytogenes

- Can grow at refrigerator temperature
- Refrigerated, ready to eat foods, raw dairy products
- 48 – 72 hr incubation
- Fever, headache. Fatigue diarrhea.
- Can cause meningitis and miscarriages

Salmonella enteritidis



Salmonella enteritidis

- One of thousands of strains of *Salmonella*
- Raw and undercooked eggs, raw meat, poultry, seafood, raw milk, dairy and produce
- Get into eggs before the shell is formed.
- 12-72 hour incubation
- Diarrhea, fever and cramps.

Salmonella typhimurium



Salmonella typhimurium

- Similar to *S. enteritidis*
- “Emerging” pathogen
- Multidrug resistant strains are common – DT104
- Related to *S. typhi* – Typhoid Mary

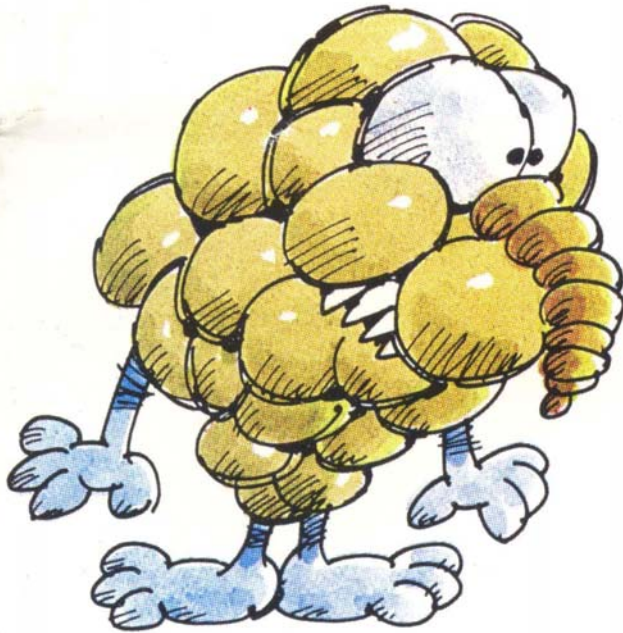
Shigella



Shigella sp.

- Only carried by humans and easily spread via food.
- Salads, milk, dair, ground beef, poultly and unclean water
- 1-7 day incubation
- Diarrhea, fever, cramps, vomiting, bloody stools
- One species causes dysentery

Staphylococcus aureus



Staphylococcus aureus

- Common skin bacterium
- Produces a fast acting toxin
- Dairy products, salads, cream filled pastries and deserts
- Incubation as little as 30 minutes
- Nausea, cramps, vomiting, diarrhea

Vibrio cholera



- Marine and freshwater bacterium
- Severe and often deadly illness
- Raw and undercooked seafood and contaminated water
- 6 hr to 5 day incubation
- Severe diarrhea and vomiting. Loss of body fluid leads to shock and death.

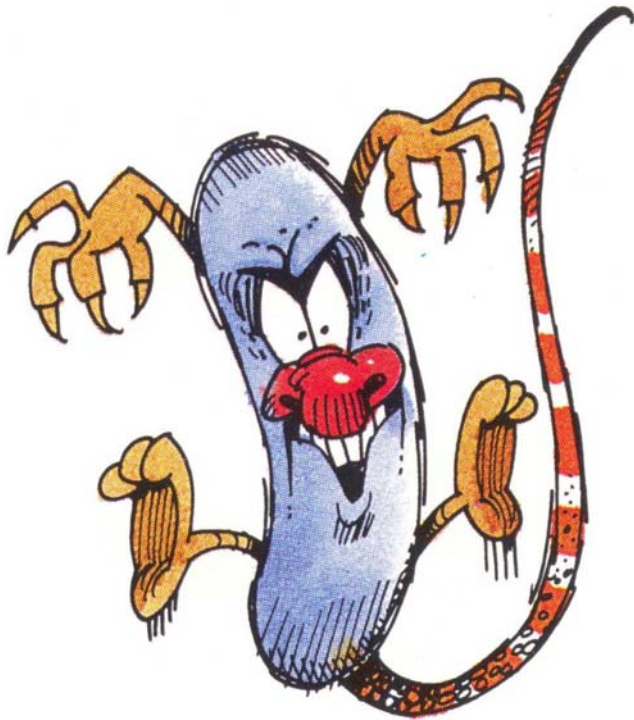
Vibrio vulnificus



Vibrio vulnificus

- Similar to *V. cholera*
- Less severe illness and less common but underreported
- Raw fish and shellfish
– raw oysters

Yersinia enterocolitica



Yersinia enterocolitica

- Yersiniosis, diarrhea and/or vomiting
- Raw meat and seafood, dairy, produce, untreated water
- 1-2 day incubation
- Related to the bacterium that causes plague