normal microbiota digestive system

not usually general microbes in esophagus, stomach and duodenum
microbes in teeth, tongue, sm. intestine, colon, rectum
microbiota feed, outcompete pathogens, produce vitamins
oral antimicrobials
mucous membranes prevent microbes entering blood

bacterial diseases of the digestive system

dental caries	erosion of teeth; can result in holes/pits in teeth/tooth loss
	bacteria produce dextran (sticky sugar)
	plaques metabolize dextran
	bacteria invades dentin and pulp (eroding teeth)
	decades enamel, then dentin, then pulp
period-ontal disease	inflammation of surrounding tissues (gingiva= gums)
	tartar trapped
	anaerobic pockets- porphy-romonas gingivalis (acute necror-izing ulcerative gingivitis)
	teeth loosen and fall out
	enzymes are produced causing pigmented, eroding and change of colour in gums
	1 healthy gingivae 2 gingivitis 3 periodontal pockets 4 period-ontitis
peptic ulcers	abdominal pain - erosion of stomach or duodenum lining

bacterial diseases of the digestive system (cont)

	perforations- internal bleeding, bowel obstruction (could lead to shock)
	1 bacteria invade mucus and attach to gastric epithelial cells
	2 helicobacter, its toxins, and inflammation cause the layer of mucus to become thin
	3 gastric acid destroys epithelial cells and underlying tissues
	antibiotics and acid-inhibiting drugs, or acid reduced diet
bacterial gastro-enteritis	diarrhea, nausea, vomiting, abdominal pain, cramps, kidney failure, anemia, **dysentery**- ulceration or bleeding of intestinal wall.
	can be caused by: poorly prepared foods, contaminated water, poor sanitation conditions
	treated by self-administered, electrolytes, antidiarhheal drugs <- not good choice keeps everything in body
cholera	*vibro cholerae*
	loss of electrolytes
	rice-water stool (contains mucus), dehydration, hypoka-lemia, hypovolemic shock
	supportive care- replacing fluids
shigel-losis	shigella
	shigella enters epithelial cell lining intestinal tract

bacterial diseases of the digestive system (cont)

	shigella multiplies inside cell
	shigella invades neighbouring epithelial cells thus avoiding immune defenses (shiga toxins released)
	an abscess forms as epithelial cells are killed by the infection. The bacteria rarely spread in the blood stream
	treated antibiotics if necessary
traveler's diarrhea	*escherichia coli*- a cloiform
	virulent genes:; fimbrae, adhesins, toxins
	numerous antigens: O<- found on cell, K <- found on capsule, H<- found on flagella
	dangerous strain: E. coli O157:H7 (binds to neutrophils)
	loss of fluids + electrolytes
	attachments to intestinal cells + rids good E. coli
	treatment replace lost fluids.. avoid antidiarrheal drugs
campyl-obacter diarrhea	*campylobacter jejuni*
	improper cooked poultry
	colonizes jejunum, ileum, colon
	adhesins, cytotoxins, lipid A
antimi-crobial-asso-ciated diarrhea	*Clostridium difficile*
	5-10 bowel movements a day

bacterial diseases of the digestive system (cont)	
	severe diarrhea + inflammation, colon lesions= pseudomembranous colitis
	Toxin A: breaks junctions of mucous membranes
	Toxin B: kills colon cells
	treatments: metronidazole, vancomycin, eat probiotics fecal transplant
salmonellosis and typhoid fever	*Salmonella enterica*
	salmonellosis- surface of egg shell
	typhoid fever- blood stream infection spreads
	1 salmonella attaches to epithelial cells lining the sm. intestine
	2 salmonella triggers endocytosis
	3 salmonella multiplies within food vesicle
	4 salmonella kills host cell, inducing fever, cramps, and diarrhea
	5 bacteremia: salmonella moves into bloodstream
	treat with antibiotics
bacterial food poisoning	intoxication (enterotoxin)
	symptoms depend on toxin (5 different toxins of *staphylococcus aureus*)
	1-6 hours after food eaten intoxication occurs

bacterial diseases of the digestive system (cont)	
mumps	mumps virus, *Rubulavirus genus*
	inflammation, swollen glands, fever
	parotitis- inflammation of parotid gland
	treated w/ comfort care
viral gastroenteritis	consuming fo contaminated food
	symptoms 24hrs after consumption
	cramping, diarrhea, nausea, vomiting, complications rare
	resolve after 1 week
	fecal-oral route
	common agents: calcivirus (norovirus). astrovirus, rotavirus <- most severe vaccine for it
viral hepatitis	inflammation of liver
	jaundice, abdominal pain, abnormal urine and stool
	eventual coma
	chronic infection = cirrhosis (scarring of liver), liver failure, liver cancer