

Chapter 14 – Epidemiology

Pathology, Infection and Disease

- Pathology - the scientific study of _____
- Pathogen – _____
- Three areas of primary concern in pathology
 - Etiology – the _____ of a disease
 - Pathogenesis – how the _____
 - Structural and functional changes brought about by disease and the effects on human body
 - Signs and symptoms
- Infection – _____ or _____ of the body by _____
 - Can include presence of microbe not normally found in that part of body
- Disease – a change in the _____ due to _____
 - Body is _____ of performing normal function
- Possible to have _____ without detectable _____

Normal Microbiota

- _____ microbiota – microbes that colonize human _____
 - Aka “normal flora”
- _____ microbiota – microbes that colonize human for a _____ without causing disease
 - Days, weeks, months
- Specific microbes are _____
 - *Propionibacterium* – _____ eyes
 - *Lactobacillus* – mouth, _____
 - *Staphylococcus epidermidis* - _____
- Many factors affect distribution, composition of normal microbiota
 - Diet, age, health, stress, hygiene, etc ...
- Microbial _____ – _____ overgrowth of _____ microorganisms, aka “_____”
 - Protect host against _____
- *Clostridium difficile* has problems growing in intestines due to _____
 - *C. difficile* commonly causes gastrointestinal infections _____
 - Many normal microbiota _____
- _____ – _____ ingested to provide beneficial effect
 - _____ bacteria can prevent growth of pathogens
 - *Lactobacterium*, *Bifidobacterium*

Relationship between host and microbe

- _____ – relationship between microbes and host; “_____”
- _____ – a type of symbiosis in which one organism _____, the other is _____
 - Many _____ are commensals
- _____ – a type of symbiosis in which _____
 - *E. coli* in large intestine produces Vitamin K
 - *E. coli* obtains nutrients

- _____ – a type of symbiosis in which one organism _____
_____ of the other
 - Many _____ are parasites

Opportunistic Microorganisms

- Under certain conditions, _____ microbes can _____
 - *E. coli* is _____ in intestines, _____ in bladder
- _____ – normally _____ bacteria that
_____ disease in certain conditions
 - Gain access through puncture wounds, in weakened or compromised patients

Classifying Infectious Diseases

- Every disease alters body structures and functions in particular ways
 - Characteristic of disease
- _____ – changes in _____
 - “Subjective” changes _____
 - Eg, Aches and pains, malaise
- _____ – “Objective” changes that _____
 - Eg, temperature, swelling, hives
- _____ disease - a disease that _____ from one host to another
- _____ disease - a disease _____ from one host to another
- _____ disease – _____ host to host

Severity or Duration of a Disease

- _____ disease – develops _____, lasts short time
- _____ disease – develops _____, disease is continual or recurring for _____
- _____ disease – _____ between acute and chronic
- _____ disease – causative agent remains _____, but then becomes _____ to produce disease

Extent of Host involvement

- _____ infection – pathogen is _____ of the body
- _____ infection – pathogen (or products) are spread _____
- _____ infection – _____ of local infection to another _____ of body
 - Tetanus, dentist infections
- _____ infection - acute infection that causes the _____
- _____ infection – infection by _____ after a primary (predisposing) infection _____
 - Sometimes _____ than primary infection
- _____ (_____) infection – does not cause _____

Reservoirs of Infection

- Reservoir of infection – a _____ of the pathogen
 - Provides conditions for _____
- Human reservoirs
 - People can _____
 - _____ people, and “ _____ ” (_____)

- Animal reservoirs
 - Transmission by _____, _____, fur, vectors
- Nonliving reservoirs
 - Some pathogens grow in nonliving reservoirs
 - Most common is _____, _____, _____ foods

Transmission of Disease

- Pathogens can be transmitted by three routes
_____ transmission
- Direct – _____
 - No _____ involved
- Indirect – via _____ object
 - Spread by _____ (_____ objects)
- Droplet - _____ (_____, _____)
 - Travel only _____, < _____ (_____)
- _____ transmission - transmission by a _____
- Waterborne – pathogens spread _____
 - Contaminated with _____, _____ sewage
- Foodborne – pathogen transmitted _____
 - Usually _____, poorly _____, _____
- Airborne – spread by _____ that _____
 - Small droplets can remain airborne _____

Vectors – _____ that _____ from one host to another

- Arthropods most common
- _____ – _____ transport of pathogens on body parts
- _____ – _____ process
 - Usually from bites
 - Involves complex life cycle

Nosocomial Infections

- _____ infections – disease that does _____ of being present at time of _____
 - Acquired as a result of _____

Source of infection

- Microbes _____
 - Hospital is _____ for microbes
 - Many _____ are _____
- Weakened or compromised state of host
 - Compromised host – patient whose _____
- Chain of transmission
 - _____ from _____ to _____ to _____