MENINGITIS

Epidemiology/Facts

- 1.2 million cases every year worldwide
-30% to 50% of survivors develop neurologic disabilities

Risk Factors

- passive and active exposure to cigarette smoke
- children with cholera implants
- sickle cell disease
- URI, otitis media
- alcoholism
- immunosuppression

Organisms

- Strep pneumoniae (available vaccine)
- Neisseria meningitidis (vaccine available)
- Haemophilus influenzae (vaccine available)
- Listeria monocytogenes (between 1 month and 60 years)
- Herpes Simplex Virus
- West Nile Virus

Infection process originates with nasopharyngeal colinations and translocation

Signs/Symptoms

- fever, chills, vomiting
- headache, photophobia
- nuchal rigidity
- Brudzinkski sign
- Kernig sign
- altered mental status, seizure
- lethargy, drowsiness

Diagnostics

- abnormal CSF chemistries

a.) elevated WBC count (>100 cells/mm3)
b.) elevated protein (>50 mg/dL)
c.) decreased glucose levels (<40 mg/dL)

- CSF gram stain & cultures

LOWER RESPIRATORY TRACT

Etiology

- most common reason patients seek medical attention
- pneumonia most common infectious cause of death in the US
- usually follows colonization of the upper respiratory tract with potential pathogens

Pathophysiology

- inhaled aerosolized particles
- enter lung via bloodstream from extra pulmonary infection
- aspiration of oropharyngeal contents

Organisms & Risk Factors

Acute Bronchitis	viral, self-limiting
Chronic Bronchitis	environmental, bacterial
Influenza	
Respiratory Syncytial Virus (RSV): newborns (baseline health status)	
CAP	S.pneumonia H. flu N. Menin M. cattar
HAP/HCAP	S. aureus GNR resistance
Aspiration PNA	oropharyngeal (CAP) + anaerobes

By **heatherisawesome**
(x0xheather_)
cheatography.com/x0xheather/

Published 2nd September, 2017.
Last updated 12th September, 2017.

LOWER RESPIRATORY TRACT (cont)

Signs & Symptoms

- cough
- coryza
- rhinitis
- sore throat
- malaise
- fatigue
- headache
- fever
- fever rhonchi
- coarse bilateral rales
- wheezing purulent sputum
- hemoptysis
- chest pain
- dense infiltrate on CXR (pneumonia only)
- increased WBC
- WBC
- decreased O2 saturation
- labored breathing
- tachycardia
- tachypnea

Diagnostics

- sputum gram stain & cultures
- rapid flu swabs

CXR

BONE AND JOINT INFECTION

Organisms

Osteomyelitis & infectious arthritis	Staphylococcus aureus (usually) Pseudomonas aeruginosa streptococcus e. coli staphylococcus epidermis anaerobes all can be isolated

Hematogenous vs. contiguous spread

Signs & Symptoms

- significan tenderness, pain, swelling, fever, chills, decreased motion, and malaise

BONE AND JOINT INFECTION (cont)

- elevated erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and white blood cell (WBC) count, positive blood cultures, synovial build analysis (increased WBC, cultures)
- bone changes observed on radiographs 10-14 days after the onset of infection
- contrasted CT scans positive even sooner

INTRA-ABDOMINAL INFECTION

Pathophysiology

- Defect in the GI tract (polymicrobic)
- Necrotizing pancreatitis (polymicrobic)
- Perforated ulcer (polymicrobic)
- Appendicitis (polymicrobic)
- Penetrating trauma (polymicrobic)
- IBD (polymicrobic)
- Peritoneal dialysis (eg: staphylococcus auerus)
- Cirrhosis (eg: e. coli)

Signs & Symptoms

- Fever
- Hypoactive bowel sounds
- Abdominal distension/tenderness
- Nausea/vomiting
- Elevated WBC
- Hypovolemic shock
- Ascites fluid (eg: high WBC, high protein, gram stain)

URINARY TRACT INFECTION

Patho & Organisms

- E. coli (85%)
- Staph saprophyticus
- Proteus spp.
- Klebsiella spp.
- pseudomonas aeruginosa
- enterococcus

- Recurrent UTIs (reinfection more than two weeks apart)
- Relapse less than two weeks (due to unsuccessful treatment, resistant organisms, anatomical abnormalities)

Risk Factors

Uncomplicated	Often post-coital; healthy adult female
Complicataed	Male, kids Diabetes Immunocompromised Pregnancy Device-related (foley catheter) Menopause

Lower UTI Signs/Symptoms (Cystic)

- Dysuria
- Urgency
- Frequency
- Nocturia
- Suprapubic heaviness
- Hematuria

Upper UTI Signs/Symptoms (Pyelonephritis)

- Systemic symptoms
- Fever
- Nausea
- Vomiting
- Flank pain

Diagnostics (Urinalysis)

- Significant bacteriuria
- > 100,000 (10^5)/mL
- > 10^2/mL + symptoms
- RBCs
- WBCs
- Nitrites

UPPER RESPIRATORY TRACT INFECTIONS

Epidemiology

- most URI's have a viral etiology and resolved spontaneously
a.) sinusitis, pharyngitis, otitis
b.) symptoms lasting more than 7 days = bacterial?
- antibiotic use puts recipient at increased risk of selection/carriage of resistant organisms and future antibiotic failure
- bacterial infection may follow viral infection

Otitis

- day-care attendance
- recent antibiotic exposure
- age younger than 2 years
- frequent bouts of otitis media
- often follows viral nasopharyngeal infection that causes eustachian tub dysfunction
- otalgia, fever, irritability, tugging ears, discolored (grey), thickened, bulging eardrum
- S. pneumoniae
- H. influenzae
- M. catarrhalis
- S. aureus
- S. progenies
- P. aeruginosa

Sinusitis

- nasal discharge/congestion
- maxillary tooth pain
- facial or sinus pain that may radiate
- cough
- nasal discharge
- often follows visual URI that leads to inflamed nasal passages, trapping bacterial in sinuses
- chronic/recurrent infections occur three to four times a year
- S. pneumoniae and H. influenza

Pharyngitis

UPPER RESPIRATORY TRACT INFECTIONS (cont)

- viruses, group A strep, S. pyogenes
- seasonal outbreaks occur in winter and early spring, spread via direct contact with droplets
- sore throat, odynophagia, fever, headache
- erythma/inflammation of the tonsils and pharynx with or without patch exudates
- enlarged, tender lymph nodes
- red swollen uvula
- petechiae on the soft palate
- rapid antigen test for GAS

ENDOCARDIDTIS

Organisms & Risk Factors

- Cardia valve abnormalities: regurgutation, prosthetic heart valves
- intravenous drug abuse

- viridian's streptococci
- Streptococcus bovis
- Staphylococcus aureus
- fungal
- HACEK: haemophilus, aggregatibacter, cardiobacterium, eikenella corrodens, kingella

Diagnostics

- persistent bacteremia/fungemia
- echocardiography: valvular vegetation

Signs/Symptoms

- fever & murmur
- osler nodes
- infective emboli: renal, pulmonary, CNS

SKIN & SOFT TISSUE INFECTION

	Organisms
Folliculitis, furnucles (boils), and carbuncles*	Staphylococcus aureus (MRSA)
Erysipelas	Streptococcus pyogenes
Impetigo*	Staphylococcus aureus
Lymphangitis	S. pyogenes
Cellulitis	S. pyogenes and S. aureus
Necrotizing Faciitis	S. progenes
Diabetic Foot Infections, Decubitus Ulcers	Staphylococci, streptococci, enteric gram negative bacilli, and anaerobes
HUman/Animal Bite Wounds	Pasteurella multocida, eikenella ocrrodens, S. aureus, and anaerobes

* Highly Contagious *

Notes

- use caution with "spider bites"
- many of these infections originate as minor trauma, scratches (soap and water)
- predisposing factors: diabetes mellitus, local trauma or infection, recent surgery
- MRSA tips: transmission on fomites

By **heatherisawesome**
(x0xheather_)
cheatography.com/x0xheather/

Published 2nd September, 2017.
Last updated 12th September, 2017.

GASTROINTESTINAL INFECTION

Key Facts

Diarrhea is	eg: E. coli
Usually Viral	eg: Shigella
	eg: campylobacter
	eg: salmonella
	eg: clostridium

Patient education & prevention strategies are key
eg: traveller's diarrhea
eg: food poisoning
eg: vaccination

Pathophysiology: inflammatory secretion

Signs/Symptoms

- nausea
- abdominal pain
- cramping
- bloating
- dehydration

fever

- frequent urge to evacuate
- fever blood & severe dehydration

Risk Factors

- ingestion of raw or undercooked seafood (eg: vibrio cholera or noroviruses)
- use of antibiotics (eg: c. diff)
- use of PPI
- travel to tropical areas(eg: parasitic infections like guard, entamoeba, strongyloides, and cryptosporidium)
- travel to endemic areas (eg: vibrio cholera)

SEPSIS

Definition: life-threatening organ dysfunction due to a dysregulated host response to infection; it arises when the body's response to an infection injures its own tissues and organs

Infection + Quick Sepsis Organ Failure Assessment

Altered Mental Status	GSC < 15
Fast Respiratory Rate	> 22 BPM
Low Blood Pressure	< 100 SBP
Increased O2 Consumption	
Decreased O2 Delivery	

Procalcitonin Levels

Healthy	0.01
Local Infection	0.1 - 0.5
Systemic Infection	0.5 - 2.0
Severe Sepsis	2.0 - 10
Septic Shock	> 10

C-Reactive Protein (mg/L)

Minor Infection	10 - 20
Moderate Infection	20- 50
Severe Infection	> 50

By **heatherisawesome**
(x0xheather_)
cheatography.com/x0xheather/

Published 2nd September, 2017.
Last updated 12th September, 2017.