

Test Bank

Subject:
Medicine-Infectious

Rotation
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Sources: Davidsons principles and
practice of medicine, AMBOSS, First
Aid, Slides

جابر

The following topics should be studied very well as most of the questions are about them:

- 1) Brucellosis.
- 2) TB.
- 3) Side effects and uses of levofloxacin, Metronidazole, Ciprofloxacin, vancomycin and ceftriaxone.
- 4) HIV.
- 5) Vaccines: which of them are safe in pregnancy, flu and hepatitis vaccines.
- 6) C. difficile.
- 7) There are some questions on parasitic and worm infections: tinea, enterobius, ascaris.
- 8) Memorize SIRS criteria: there are some questions about it from 2012-2014 exams, you also have to memorize it for other systems like GI.
- 9) PPD test positive criteria, rule of 3, and AIDS-defining illnesses: see the last page.

1) A 32-year-old woman was just diagnosed with HIV, which of the following is the most appropriate action?

- A) give treatment only if her viral load above 50,000 copies / mL
- B) Give treatment only if she's not pregnant
- C) Await 2 months and then start treatment
- D) Start antiretroviral treatment
- E) Give treatment only if her CD4 count is below 200 cells/mL

Starting ART

Guidelines now recommend starting ART in all people with confirmed HIV infection, irrespective of CD4 count or clinical status. Early initiation of ART, compared with the previous strategy of deferring ART until CD4 thresholds or clinical disease occurs, has been shown to reduce morbidity and mortality, and has the additional benefit of reducing the risk of transmission. In asymptomatic PLWH initiating ART on the same day that the diagnosis is confirmed has been shown to improve retention in care.

Answer: D

2) A patient said that he noticed smooth brown worms around 40 cm in length coming out of his anus. This worm is most likely?

- A) *Ascaris lumbricoides*
- B) *Trichuris trichiura*
- C) *Ankylostoma duodenale*
- D) *Necator americanus*
- E) *Enterobius vermicularis*

Ascaris lumbricoides (roundworm)

This pale yellow nematode is 20–35 cm long and the largest of the intestinal nematodes. Humans are infected by eating food contaminated with mature ova. *Ascaris* larvae hatch in the duodenum, migrate through the lungs, ascend the bronchial tree, are swallowed and mature in the small intestine. This tissue migration can provoke both local and general hypersensitivity reactions, with pneumonitis, eosinophilic granulomas, wheezing and urticaria.

Clinical features

Intestinal ascariasis causes symptoms ranging from vague abdominal pain to malnutrition. The large size of the adult worm and its tendency to aggregate and migrate result in obstructive complications. Tropical and subtropical areas are endemic for ascariasis, and here it causes up to 35% of all intestinal obstructions, most commonly in the terminal ileum. Obstruction can be complicated further by intussusception, volvulus, haemorrhagic infarction and perforation. Other complications include blockage of the bile or pancreatic duct and obstruction of the appendix by adult worms. Ascariasis in non-endemic areas has been associated with pig husbandry and may be caused by *Ascaris suum*, which is indistinguishable from *A. lumbricoides*.

Answer: A

3) Which of the following is FALSE about brucellosis?

- A) The most common focal complication is osteoarticular infections
- B) It is commonly transmitted from human to human
- C) *Brucella abortus* is the most virulent brucella species
- D) It should be treated for several weeks
- E) B+C

13.42 Treatment of brucellosis
Adults with non-localised disease
<ul style="list-style-type: none"> Doxycycline 100 mg twice daily orally for 6 weeks plus gentamicin 5 mg/kg IV once daily for 7 days or Doxycycline 100 mg twice daily orally plus rifampicin 600–900 mg orally once daily for 6 weeks
Bone disease
<ul style="list-style-type: none"> Doxycycline 100 mg twice daily plus rifampicin 600–900 mg once daily orally for 6 weeks plus gentamicin 5 mg/kg IV once daily for 7 days or Ciprofloxacin 750 mg twice daily orally plus rifampicin 600–900 mg orally once daily for 3 months

- Osteoarticular
 - symptoms affect 20-60% of patients
 - the most commonly reported complications
 - sacroiliitis is the most common

Brucellosis

Brucellosis is an enzootic infection (i.e. endemic in animals) caused by Gram-negative coccobacilli. The four species causing human disease and their animal hosts are: *Brucella melitensis* (goats, sheep and camels in Europe, especially the Mediterranean basin, the Middle East, Africa, India, Central Asia and South America), *B. abortus* (cattle, mainly in Africa, Asia and South America), *B. suis* (pigs in South Asia) and *B. canis* (dogs). *B. melitensis* causes the most severe disease; *B. suis* is often associated with abscess formation.

Answer: E

4) which of the following antibiotics has been particularly associated with hemolytic reactions in patients with G6PD deficiency?

- A) Dapsone
- B) Clindamycin
- C) Cloxacillin
- D) Piperacillin
- E) Vancomycin

- Contraindications of Dapsone
 - G6PD deficiency
 - Consider use in pregnant and breastfeeding women only if benefits outweigh the risks
 - Cautious use in patients with renal and/or hepatic dysfunction

Antibiotics that trigger hemolysis in G6PD

Dapsone, nitrofurantion, TMP-SMX

Answer: A

5) The highest risk of needle stick injury is related to which of the following viruses?

- A) Hepatitis A
- B) HIV
- C) Hepatitis C
- D) Hepatitis B
- E) Hepatitis E

B > C > HIV

Answer: D

6) Most common cause of viral meningitis:

- A) Herpesviruses
- B) Enteroviruses
- C) Lymphocytic choriomeningitis virus (LCMV)
- D) Mumps
- E) JC virus

Viral meningitis

Viruses are the most common cause of meningitis, usually resulting in a benign and self-limiting illness requiring no specific therapy. It is much less serious than bacterial meningitis unless there is associated encephalitis. A number of viruses can cause meningitis (see Box 28.59), the most common being enteroviruses. Where specific immunisation is not employed, the mumps virus is a common cause.

Answer: B

7) Negative PPD for latent TB:

- A) 6 mm in a patient on long-term steroids
- B) 12 mm in an immigrant from endemic/high prevalence country in the last 5 years
- C) 7 mm in person with recent contact with active TB patient
- D) 10 mm in a 60-year-old healthy woman
- E) 13 mm in a mycobacteriology laboratory professional

• TST: Depending on patient characteristics, a TST can be positive with an induration ≥ 5 mm, ≥ 10 mm, or ≥ 15 mm.
• For healthy individuals with no risk factors, an induration < 15 mm is considered negative for TB.

Positive TST according to induration diameter (46)

≥ 5 mm	<ul style="list-style-type: none">• Individuals exposed to AFB smear-positive case• Individuals with HIV• Individuals with clinical or radiographic evidence of active or prior TB• Individuals with organ transplants or receiving immunosuppressive therapy (7)
≥ 10 mm	<ul style="list-style-type: none">• Individuals who have moved within the last 5 years from a country with a high TB burden (> 20 cases per 100,000 population) (7)• Individuals living or working in high-risk settings (e.g., homeless shelters, prisons)• Individuals receiving organ donor• Individuals with laboratory workers• Individuals with illnesses such as diabetes and CKD• Children < 5 years of age• Children who have had contact with adults in high-risk categories• Individuals with low BMI (7)
≥ 15 mm	<ul style="list-style-type: none">• All other healthy individuals with no known risk factors (7)

r: D

8) Treatment for brucellosis in children:

- A) Doxycycline only for 6 weeks
- B) Rifampin only for 6 weeks
- C) Doxycycline and Rifampin for 6 weeks
- D) rifampin and TMP-SMX for 6 weeks

Treatment

- Multidrug regimens are the mainstay of therapy
 - because of high relapse rates reported with monotherapy
- Doxycycline and rifampin:
 - 6 weeks
- Doxycycline (6 weeks) + streptomycin (2-3 weeks)
 - more effective
- **Children < 8 years**
 - The use of rifampin + (TMP-SMX) for 6 weeks
- **Pregnant:**
 - Brucellosis treatment is a challenging problem
 - limited studies
 - rifampin alone or in combination with TMP-SMX

Answer: D

9) Sepsis is not associated with:

- A) Dysesthesias in gloves-and-stocking distribution
- B) Absent or reduced reflexes
- C) ARDS
- D) Metabolic alkalosis
- E) Hypotension

Sepsis	Sepsis
Etiology	Common complications [43]
Pathophysiology	<ul style="list-style-type: none">Acute respiratory distress syndromeAcute kidney injuryDiffuse intravascular coagulopathyAcute liver failureMyocardial dysfunction, e.g., cardiomyopathy, acute coronary syndromeMultiple organ failure
Clinical features	Critical illness polyneuropathy [53]
<ul style="list-style-type: none">General features<ul style="list-style-type: none">Fever, chills, and diaphoresisTachycardiaTachypneaGeneralized edema (capillary leak)Features of organ dysfunction (see SOFA score)<ul style="list-style-type: none">CNS impairment: altered mental statusCardiovascular failure: hypotensionCoagulopathy → disseminated intravascular coagulation → petechiae, purpuraLiver failure: jaundiceKidney failure: oliguriaRespiratory failure: symptoms of acute respiratory distress syndrome (ARDS)	<ul style="list-style-type: none">Definition: axonal injury, particularly to the motor neurons, as a sequela of sepsis and multiple organ dysfunctionClinical features<ul style="list-style-type: none">Predominantly distal, symmetrical, flaccid paralysis of the extremities with muscle atrophy; may affect the diaphragmAbsent or reduced reflexesDysesthesias in a glove-and-stocking distribution may be present

10) Wrong about IM influenza vaccine

- A) Contraindicated in pregnancy
- B) Contraindicated in immunocompromised patients
- C) Contraindicated in bone marrow transplant patients
- D) A + B
- E) A + B + C

✓ **Influenza vaccine**
Given Annually, from September to May
Indications: elderly, immunocompromised, HCW, pregnancy and any person who wants to take it
2 types:
1-Inactivated vaccine: given by I.M injection
-This vaccine is safe in immunocompromised pt and pregnancy
-Composed of 3 or 4 strains of influenza virus: A(H1), A(H3), B(Yamagata) + B(Victoria)

Answer: E

11) Drug that causes arthropathy:

- A) Clindamycin
- B) Levofloxacin
- C) Amoxicillin
- D) Metronidazole
- E) Azithromycin

Fluoroquinolone
Levofloxacin: teratogenic, only > 18 y, arthropathy and alteration of bone growth, tendon tearing, joint swelling

Answer: B

12) Severe external ear pain and discharge, most likely organism:

- A) Klebsiella
- B) Staphylococcus aureus
- C) Pseudomonas aeruginosa
- D) GAS
- E) GBS

Malignant otitis externa

Abbreviation: MOE

A subtype of otitis externa characterized by a necrotizing inflammation of the external auditory canal. Most frequently caused by Pseudomonas aeruginosa. Risk factors include poorly controlled diabetes mellitus and immunosuppression.

Answer: C

13) Which of the following is NOT considered anti-pseudomonal antibiotic?

- A) Gentamycin
- B) Cefepime
- C) Ciprofloxacin
- D) Ceftriaxone
- E) Ceftazidime

Anti-pseudomonal antibiotics

Gentamicin , Cefepime , Ciprofloxacin. , Ceftazidime

Pseudomonas aeruginosa

Ciprofloxacin, piperacillin-tazobactam, aztreonam, meropenem, aminoglycosides, ceftazidime/cefepime

Answer: D

14) Which of the following vaccines is contraindicated in persons with underlying immunodeficiency?

- A) Influenza vaccine
- B) Conjugated Pneumococcal vaccine
- C) Measles-mumps-rubella (MMR) vaccine
- D) Hepatitis B vaccine
- E) Tetanus vaccine

✓MMR vaccine

Live attenuated , 2 doses , Given to women who experienced congenital rubella syndrome
 *This syndrome happened in 90-95% of women who are infected with rubella during pregnancy especially in the first trimester , and there is very high risk of abortion
 -MMR vaccine is not safe in pregnancy , and After the vaccine , pregnancy is not allowed for 2 months
 -MMR vaccine is **contraindicated** in immunocompromised patients

Answer: C

15) 60-year-old man comes with productive cough, hemoptysis, weight loss, night sweats. His chest X-ray shows a right upper lobe cavity. You suspect that he has tuberculosis. His HIV test is negative. His sputum Acid Fast Bacillus was negative on three occasions. The best next step in his management is:

- A) Repeat sputum AFB after one month
- B) Do blood culture for mycobacteria
- C) Do bronchoscopy
- D) Treat empirically for TB
- E) Do PPD test

Diagnosis

- sputum: in the early morning on 3 days
 - every 8 hours (hospital)
 - Children: early-morning gastric aspirate
- bronchoscopy with biopsy and bronchial washing
- bone marrow Bx
- liver Bx
- ± blood cultures
- PCR on smears

Diagnosis

- Obtain HIV in all patients with TB
- CXR
 - may show a patchy
 - nodular infiltrate
 - upper-lobe involvement is most common
 - in any part of the lung
 - cavity: indicates advanced infection
 - high bacterial load
- Military TB: appearance of numerous small nodular lesions that resemble millet seeds on CXR

Answer: C

16) All the followings are true about Clostridium difficile disease EXCEPT:

- A) It is diagnosed by detection of serum antibodies to toxin A and B
- B) It is caused by Gram-positive bacilli
- C) Recurrence rate can reach 20%
- D) It is the most common cause of hospital-acquired diarrhea
- E) It is treated by metronidazole

Investigations

C. difficile can be isolated from stool culture in 30% of patients with antibiotic-associated diarrhoea and over 90% of those with pseudomembranous colitis, but also from 5% of healthy adults and up to 20% of older adults in residential care. The diagnosis of CDI therefore rests on detection of toxins A or B in the stool. Current practice in the

Clostridioides difficile infection

Clostridioides (formerly *Clostridium*) *difficile* is the most common cause of antibiotic-associated diarrhoea, and is an occasional constituent of the gut microbiome. *C. difficile* can produce two toxins (A and B). *C. difficile* infection (CDI) usually follows antimicrobial therapy, which alters the composition of the gastrointestinal flora and may facilitate colonisation with toxigenic *C. difficile*, if the patient is exposed to *C. difficile* spores. The combination of toxin production and the ability to produce environmentally stable spores accounts for the clinical features and transmissibility of CDI. A hypervirulent strain of *C. difficile*, ribotype 027, has emerged, which produces more toxin and more severe disease than other *C. difficile* strains.

Clinical features

Disease manifestations range from diarrhoea to life-threatening pseudomembranous colitis. Around 80% of cases occur in people over 65 years of age, many of whom are frail with comorbid diseases. Symptoms usually begin in the first week of antibiotic therapy but can occur up to 6 weeks after treatment has finished. The onset is often insidious, with lower abdominal pain and diarrhoea that may become profuse and watery. The presentation may resemble acute ulcerative colitis with bloody diarrhoea, fever and even toxic dilatation and perforation. Ileus is also seen in pseudomembranous colitis.

Answer: A

Antibiotic therapy for *C. difficile* infection in adults [1][2][3]

after : cdiff - <https://www.cdc.gov>

Category	Treatment options
Initial episode	<ul style="list-style-type: none"> First-line <ul style="list-style-type: none"> Oral fidaxomicin [3] OR oral vancomycin [4] Second-line for nonsevere cases (if vancomycin and fidaxomicin are unavailable or inappropriate, e.g., in patients with allergies): oral metronidazole [2]
Fulminant CDI	<ul style="list-style-type: none"> First-line: high-dose oral vancomycin [2] Consider adding IV metronidazole [1][2] In patients with paralytic ileus, consider adding vancomycin enemas. [4]

17) Which of the following pathogens most commonly complicate H1N1 influenza:

- A) H. influenza
- B) Streptococcus pneumoniae *Staph. aureus*
- C) Legionella pneumophila
- D) Anaerobic bacteria
- E) Mycoplasma pneumonia

Answer: B

18) All of the following are true about influenza vaccine EXCEPT:

- A) It's given annually
- B) It is contraindicated in patients with Guillain-Barre syndrome
- C) It is composed of three strains of influenza virus *[3 or 4]*
- D) It is contraindicated in immunocompromised patients
- E) It is safe in pregnancy

Answer: D

19) All the following is true about Brucella except:

- A) Brucella melitensis is more virulent than Brucella abortus
- B) Treatment is at least for 6 weeks
- C) Endocarditis is the most common cause of death
- D) Sacroiliitis is a rare focal complication
- E) It is a Gram-negative, facultative intracellular bacillus

Answer: D

19) All the following cutoffs for the PPD in the corresponding population are considered positive except:

- A) 3 mm in an AIDS patient
- B) 10 mm in a household contact of active TB case
- C) 17 mm in healthy person
- D) 8 mm in a patient with a kidney transplant
- E) 13 mm in an IV drug abuser

• TST: Depending on patient characteristics, a TST can be positive with an induration ≥ 5 mm, ≥ 10 mm, or ≥ 15 mm. ◦ For healthy individuals with no risk factors, an induration < 15 mm is considered negative for TB.	
	Positive TST according to induration diameter ^[46]
≥ 5 mm	<ul style="list-style-type: none">• Individuals exposed to AFB smear-positive case• Individuals with HIV• Individuals with clinical or radiographic evidence of active or prior TB• Individuals with organ transplants or receiving immunosuppressive therapy ^[47]
≥ 10 mm	<ul style="list-style-type: none">• Individuals who have moved within the last 5 years from a country with a high TB burden (> 20 cases per 100,000 population) ^[7]• Individuals living or working in high-risk settings (e.g., homeless shelters, prisons)• Individuals who inject drugs• Mycobacteriology laboratory workers• Individuals with illnesses such as diabetes and CKD• Children < 5 years of age• Children who have had contact with adults in high-risk categories• Individuals with low BMI ^[48]
≥ 15 mm	<ul style="list-style-type: none">• All otherwise healthy individuals with no known risk factors ^[49]

Answer: A

20) Which of the following isn't a side effect to vancomycin?

- A) red man syndrome
- B) neutropenia
- C) phlebitis
- D) neuropathy
- E) nephrotoxicity

Vancomycin

red man syndrome , nephrotoxicity 🍌 , bone marrow suppression , neutropenia, allergic reaction leading to hypotension , itching , erythema , and sometimes leads to sepsis , phlebitis

Answer: D

21) A patient with recurrent abscesses, pneumonia, and high IgE:

- A) Defect in phagocytosis
- B) Defect in chemotaxis
- C) Mixed defect

Autosomal dominant hyper-IgE syndrome (Job syndrome)

Deficiency of Th17 cells due to STAT3 mutation → impaired recruitment of neutrophils to sites of infection

Cold (noninflamed) staphylococcal Abscesses, retained Baby teeth, Coarse facies, Dermatologic problems (eczema), ↑ IgE, bone Fractures from minor trauma

↑ IgE
↑ eosinophils
Learn the ABCDEF's to get a Job STAT!

HYPER-IgE SYNDROME

1. Also called Job syndrome
2. Inheritance pattern: Autosomal Dominant
3. Presentation:
 - a. Recurrent skin abscesses
 - b. Recurrent pulmonary infections
 - c. Recurrent *S aureus* infections
 - d. Characteristic facial features (eg. broad nose)
 - e. Bony abnormalities (eg. scoliosis)

HUMORAL IMMUNODEFICIENCY SYNDROMES

Humoral immunodeficiency syndromes					
Condition	B cell count	IgG	IgA	IgM	IgE
CD40 ligand deficiency (hyper-IgM syndrome)	Normal	↓	↓	↑	↓
Common variable immunodeficiency	Normal	↓	↓	↓	↓
Job syndrome (hyper-IgE syndrome)	Normal	Normal	Normal	Normal	↑
Selective IgA deficiency	Normal	Normal	↓	Normal	Normal
X-linked agammaglobulinemia	↓	↓	↓	↓	↓

Answer: B

22) ESBL (extended spectrum beta lactamase) bacteria defining feature is resistance to:

- A) Imipenem
- B) Meropenem
- C) Ceftriaxone
- D) Cefuroxime

Extended-spectrum beta-lactamase-producing bacteria (ESBL)

- **Resistance:** Bacteria produce **beta-lactamases** that have a broad spectrum and cleave penicillins, cephalosporins, and, in isolated cases, carbapenems.
- **Pathogens:** particularly gram-negative bacteria (e.g., Enterobacteriaceae such as *Klebsiella* spp., *Escherichia coli*)
- **Diseases**
 - Nosocomial urinary tract infections
 - Health care-associated pneumonia
- Measures: isolation in separate rooms required

Answer: C

23) which Schistosoma causes bladder cancer?

- A) *S. haematobium*
- B) *S. mansoni*
- C) *S. japonicum*

13.63 Pathogenesis of schistosomiasis		
Time	<i>Schistosoma haematobium</i>	<i>S. mansoni</i> and <i>S. japonicum</i>
Cercarial penetration		
Days	Papular dermatitis at site of penetration	As for <i>S. haematobium</i>
Larval migration and maturation		
Weeks	Pneumonitis, myositis, hepatitis, fever, 'serum sickness', eosinophilia, seroconversion	As for <i>S. haematobium</i>
Early egg deposition		
Months	Cystitis, haematuria	Colitis, granulomatous hepatitis, acute portal hypertension
	Ectopic granulomatous lesions: skin, CNS etc.	As for <i>S. haematobium</i>
	Immune complex glomerulonephritis	
Late egg deposition		
Years	Fibrosis and calcification of ureters, bladder; bacterial infection, calculi, hydronephrosis, carcinoma	Colonic polyposis and strictures, periporal fibrosis, portal hypertension
	Pulmonary granulomas and pulmonary hypertension	As for <i>S. haematobium</i>

Answer: A

24) Which vaccine of the following is safe to give in pregnancy?

- A) Injectable influenza
- B) MMR
- C) Human Papilloma Virus vaccine

Answer: A

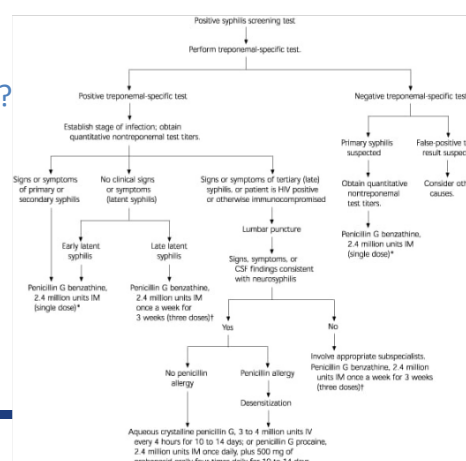
25) Which test of the following is diagnostic to syphilis?

- A) RPR
- B) VDRL
- C) Biopsy

- **NonTreponemal Test:**
 1. RPR: Rapid Plasma Reagin Test
 2. VDRL: Venereal Disease Research Laboratory

<https://www.cdc.gov/std/treatment-guidelines>

Answer: C



26) MCC of acute endocarditis:

- A) *S. viridans*
- B) *S. epidermidis*
- C) *E. faecalis*
- D) *S. aureus*

Answer: D

27) HVC antibody was positive: what's the best next step?

- A) LFT
- B) Viral load by PCR
- C) Liver biopsy

Answer: B

28) Patient complaining of perianal itching mainly during night and then he was diagnosed with enterobius vermicularis infection. Which of the following is wrong?

- A) It occurs mostly in children
- B) It is a pinworm
- C) Eggs are invisible in stool
- D) Anemia is commonly associated with this infection

- *Enterobius vermicularis* (pinworm)
- Pinworms are nematodes.
- Epidemiology^[2]
 - Most common helminthic infection in the U.S.
 - Prevalence in the US: ~ 12%
 - Primarily affects children 5–10 years of age
- Mode of transmission
 - Initial infection: fecal-oral
 - Reinfection: digital-oral after scratching anal region
- Clinical features
 - Anal pruritus (especially at night)
 - Vulvovaginitis, especially in children
 - Occasionally, symptoms of intestinal infection (i.e., nausea, vomiting, and abdominal pain which may become severe enough to mimic appendicitis)
- Diagnosis
 - Tape test: microscopic detection of oval eggs (ova) and/or pinworms on tape that has been pressed against the perianal region
 - Can be an incidental finding on endoscopy

D

29) Which of the following is the diagnostic test for active TB?

- A) 3 Sputum samples
- B) Chest CT scan
- C) Tuberculin skin test

Diagnosis
<ul style="list-style-type: none">• sputum: in the early morning on 3 days<ul style="list-style-type: none">– every 8 hours (hospital)– Children: early-morning gastric aspirate• bronchoscopy with biopsy and bronchial washing• bone marrow Bx• liver Bx• blood cultures• PCR on smears
Diagnosis
<ul style="list-style-type: none">• Obtain HIV in all patients with TB• CXR<ul style="list-style-type: none">– may show a patchy– nodular infiltrate– upper lobe involvement is most common– in any part of the lung– cavity: indicates advanced infection– high bacterial load• Milary TB: appearance of numerous small nodular lesions that resemble millet seeds on CXR

Answer: A

30) Which of the following TB infections is the most infectious?

- A) CNS
- B) Larynx
- C) Spine
- D) Calcified lung
- E) GIT

Answer: B

31) What's the most common cause of death in patients with brucellosis?

- A) Sacroiliitis
- B) Endocarditis
- C) Osteomyelitis
- D) Liver failure

Answer: B

32) Wrong about Ascaris lumbricoides:

- A) Diagnosed by detection of eggs in stool
- B) Most common helminth worldwide
- C) May cause Loeffler syndrome
- D) May cause periorbital edema

- **Epidemiology:** most common helminth infection worldwide (mainly affects children in tropical countries with low standards of hygiene)
- **Mode of transmission:** fecal-oral (infection occurs in the larval state following the consumption of contaminated food, especially raw vegetables that have been contaminated by human waste used as a fertilizer)
- **Life cycle:** Host ingests eggs → Eggs hatch and release larvae → Larvae invade intestinal walls → Larvae migrate to lungs via portal vein → Larvae migrate into alveoli, trachea ("tracheal migration"), and larynx → Larvae are expectorated into the mouth and swallowed back into the intestine → Larvae return to the intestine → Larvae mature into adult worms, which then lay new eggs.
- **Clinical features**
 - Most patients are asymptomatic.
 - Early symptoms
 - Dry cough, blood-tinged sputum, wheezing
 - **Loeffler syndrome:** a transient respiratory disorder characterized by accumulation of **eosinophils** in the lungs due to certain infections (usually parasites) or allergic reactions to drugs. Symptoms are usually mild and resolve spontaneously

- **Diagnosis**
 - CBC shows **eosinophilia**.
 - **Confirmatory test:** Stool samples show the presence of worms or visible oval eggs with a knobby appearance under the microscope.

Answer: D

33) Wrong about C. difficile:

- A) High risk antibiotics are clindamycin, cephalosporins, and fluoroquinolones
- B) Causes pseudomembranous colitis
- C) It's a gram-negative bacillus
- D) One of the risk factors to develop infection is taking PPIs
- E) It can cause toxic megacolon

Clostridia [1]

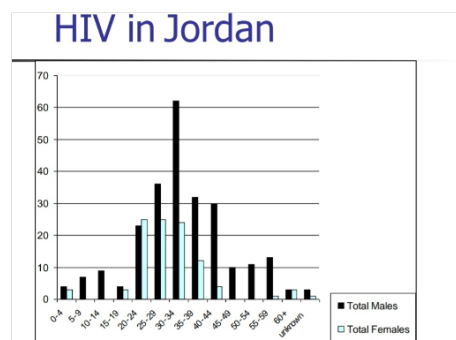
- All Clostridia are **gram positive, obligate anaerobic, spore-forming rods**.

Pathogen	Reservoir	Bacterial culture	Virulence factors and resistances	Associated conditions	Antibiotic of choice
Clostridioides difficile	<ul style="list-style-type: none"> • Gastrointestinal tract 	<ul style="list-style-type: none"> • Facultative pathogen 	<ul style="list-style-type: none"> • Toxin A (enterotoxin) • Toxin B (cytotoxin) 	<ul style="list-style-type: none"> • Pseudomembranous colitis • See "Clostridioides difficile infection" 	<ul style="list-style-type: none"> • One of the following: <ul style="list-style-type: none"> ◦ Metronidazole ◦ Oral vancomycin ◦ Fidaxomicin

Answer: C

34) Peak age of HIV in Jordan:

- A) 5-15
- B) 15-25
- C) 25-35
- D) 35-45
- E) 45-55



Answer: C

35) Cannot be acquired from unpasteurized milk:

- A) Mycobacterium bovis
- B) Listeria monocytogenes
- C) Brucella
- D) Bacillus anthrax

Answer: D

36) Most common congenital immunodeficiency disorder:

- A) Severe combined immunodeficiency
- B) Common variable immunodeficiency
- C) Bruton agammaglobulinemia
- D) IgA immunodeficiency

Selective IgA deficiency (SIgAD) [4][5]

- Definition: most common primary immunodeficiency that is characterized by a near or total absence of serum and secretory IgA
- Epidemiology: approx. 1:220 to 1:1,000
- Etiology: unknown
- Clinical features
 - Often asymptomatic
 - May manifest with sinusitis or respiratory infections (S. pneumoniae, H. influenzae)
 - Chronic diarrhea, partially due to elevated susceptibility to parasitic infection (e.g. by Giardia lamblia)
 - Associated with autoimmune diseases (e.g., gluten-sensitive enteropathy, inflammatory bowel disease, immune thrombocytopenia) and atopy
 - Anaphylactic reaction to products containing IgA (e.g., intravenous immunoglobulin)

Answer: D

37) Which of the following is true about HAV?

- A) Viral shed in feces at onset of symptoms
- B) It tends to be a chronic infection
- C) Its vaccine is safe in pregnancy
- D) It causes splenomegaly



Hepatitis A vaccination is considered suitable for use during pregnancy in previously unvaccinated individuals with an increased risk of infection or severe disease. [6]

Answer: C

38) Follicular tonsillitis is caused by:

- A) GBS
- B) GAS
- C) Staph aureus
- D) S. pneumonia
- E) Viridans streptococcus

- Head and neck
 - Pharyngitis
 - Tonsillitis
 - Peritonsillar abscess
 - Otitis media

Answer: B

39) Which of the following best describes the starting criteria for antiretroviral therapy in patients with HIV infection?

- A) Treatment is started if CD4 count is less than 300 cells/mL
- B) Treatment is started if patient is losing weight
- C) Treatment is started once patient is diagnosed with HIV
- D) Treatment is started if an opportunistic infection appears
- E) Treatment is started if viral load is more than 50,000

Answer: C

Starting ART

Guidelines now recommend starting ART in all people with confirmed HIV infection, irrespective of CD4 count or clinical status. Early initiation of ART, compared with the previous strategy of deferring ART until CD4 thresholds or clinical disease occurs, has been shown to reduce morbidity and mortality, and has the additional benefit of reducing the risk of transmission. In asymptomatic PLWH initiating ART on the same day that the diagnosis is confirmed has been shown to improve retention in care. Disclosure of HIV status, joining support groups and using patient-nominated treatment supporters should be encouraged, as these have been shown to improve adherence. Recognition and management of depression and substance abuse is important.

40) Which of the following vaccines contains live attenuated pathogen?

- A) Injectable tetanus vaccine
- B) Injectable MMR vaccine
- C) Injectable influenza vaccine
- D) Injectable hepatitis B vaccine
- E) Injectable polysaccharide pneumococcal vaccine

✓MMR vaccine

Live attenuated , 2 doses , Given to women who experienced congenital rubella syndrome
 *This syndrome happened in 90-95% of women who are infected with rubella during pregnancy especially in the first trimester , and there is very high risk of abortion
 -MMR vaccine is not safe in pregnancy , and After the vaccine , pregnancy is not allowed for 2 months
 -MMR vaccine is **contraindicated** in immunocompromised patients

answer: B

41) A 42-year-old woman presents to the emergency department with right-sided flank pain. She has a history of CKD stage 4 due to ADPKD. The pain has steadily worsened over the last 2 weeks. Associated symptoms are fever, nausea, and vomiting, but no dysuria or hematuria. Physical examination reveals blood pressure of 108/60 mm Hg, heart rate of 98/min, and temperature of 39 degrees, and right costophrenic angle tenderness. Serum creatinine is 2.8 mg/dL (0.6-1.1), which is unchanged from 3 months ago. Urinalysis is unremarkable. Blood cultures are obtained. A computed tomography scan without intravenous contrast reveals multiple fluid-filled cysts in both kidneys, as well as cysts in her liver. Which one of the following is the MOST appropriate treatment?

- A) Vancomycin
- B) Ciprofloxacin
- C) Linezolid
- D) Gentamicin
- E) Piperacillin

• Clinical use

- Norfloxacin, ciprofloxacin, and ofloxacin
 - Gram-negative rods causing urinary and gastrointestinal infections
 - Some gram-positive pathogens
 - Genitourinary infections caused by Neisseria gonorrhoeae, Chlamydia trachomatis, and/or Ureaplasma urealyticum
 - Ciprofloxacin: Pseudomonas aeruginosa (e.g., malignant otitis externa)

Answer: B

42) true about tinea:

- A) Cysticercosis is caused by tinea saginata
- B) Tinea solium is found in pork
- C) Tinea saginata is found in pork

	Intestinal taeniasis	Cysticercosis [12]
Description	• An intestinal infection with adult tapeworms that causes mainly GI symptoms	• A tissue infection with tapeworm larvae. Symptoms depend on the infected organ (e.g., muscles, brain, skin).
Pathogen	• <u>Taenia saginata</u> (beef tapeworm) • <u>Taenia solium</u> (pork tapeworm)	• <u>Taenia solium</u> (pork tapeworm)
Mode of transmission	• Ingestion of larvae (cysticerci) in raw or undercooked beef/pork	• Fecal-oral: eggs are ingested from contaminated water or vegetables
Life cycle	• Eggs hatch in the human intestine → Develop into adult worms → Produce proglottids which can detach from the tapeworm and are passed in the feces.	• Fecal-oral: eggs are ingested from contaminated water or vegetables
Clinical features	• Often asymptomatic • Symptoms caused by adult worms in the intestinal tract: abdominal pain, anorexia, weight loss, nausea, and vomiting	• Often asymptomatic • Symptoms caused by cysticerci accumulation in subcutaneous tissue, muscles, brain, spinal cord, and eyes <ul style="list-style-type: none"> ◦ Palpable subcutaneous cysts ◦ Myalgia ◦ Neurocysticercosis (cysticerci-containing cysts in the CNS): increased intracranial pressure, neurological deficits, seizures ◦ Ocular cysticercosis: eye pain, loss of visual acuity or vision in one eye

B

43) which of the following is NOT a side effect of Metronidazole?

- A) Red man syndrome
- B) Headache
- C) Disulfiram-like reaction
- D) Metallic taste

Vancomycin

red man syndrome , nephrotoxicity 🍌 , bone marrow suppression , neutropenia, allergic reaction leading to hypotension , itching , erythema , and sometimes leads to sepsis , phlebitis

Metronidazole

-metallic taste , headache , disulfiram-like drug(adverse reaction to alcohol leading to nausea, vomiting, flushing, dizziness, throbbing headache, chest and abdominal discomfort, and general hangover-like symptoms)
 -after long periods of usage: neurotoxicity 🍌 , closure of crohns disease fistula

Answer: A

44) 90% of congenital rubella syndrome occurs if mother get infected in:

- A) first trimester
- B) Second trimester
- C) Third trimester

Answer: A

45) A CSF sample showed: low glucose, high protein, lymphocytes, the least likely etiology is:

- A) TB
- B) HSV
- C) Sarcoidosis

Cerebrospinal fluid findings meningitis				
	OPENING PRESSURE	CELL TYPE	PROTEIN	GLUCOSE
Bacterial	↑	↑ PMNs	↑	↓
Fungal/TB	↑	↑ lymphocytes	↑	↓
Viral	Normal/↑	↑ lymphocytes	Normal/↑	Normal

Answer: B

46) Wrong about chylothorax:

- A) TG more than 110
- B) Cholesterol more than 200
- C) Exudative effusion

Answer: B

47) Which of the following doesn't trigger G6PD hemolysis?

- A) Dapsone
- B) Nitrofurantoin
- C) Levofloxacin
- D) TMP-SMZ

Adverse effects

- Methemoglobinemia
- Triggers hemolytic anemia in patients with G6PD deficiency
- Agranulocytosis
- GI upset
- Peripheral neuropathy

◦ Pulmonary fibrosis (see "Chronic NILD")

- Hemolytic anemia in patients with G6PD deficiency
- GI upset
- Reversible peripheral neuropathy

- Adverse effects of sulfonamides
 - Drug interactions due to CYP450 inhibition
 - Displacement of other drugs (e.g., warfarin) from albumin
 - Kernicterus in infancy
 - Nephrotoxicity (especially acute tubulointerstitial nephritis) [68]
 - GI upset
 - Hyperkalemia [69]
 - Agranulocytosis
 - Aplastic anemia, thrombocytopenia, and pancytopenia [70]
 - Triggers hemolytic anemia in G6PD-deficient patients
 - Stevens-Johnson syndrome
 - Hypersensitivity reactions (especially urticaria and hives) [71]
 - Photosensitivity
 - Fever

Antibiotics that trigger hemolysis in G6PD
Dapsone ,nitrofurantion , TMP-SMX

Answer: C

48) The percentage of transmitting HIV from the mother to the child is:

- A) 5%
- B) 10%
- C) 25%
- D) 50%
- E) 70%

Answer: C

49) Not in the management of common cold:

- A) Antibacterial drug administration
- B) Decongestant administration
- C) NSAID
- D) Hydration

- Symptomatic treatment: hydration, analgesics (e.g., acetaminophen, NSAIDs), and oral and/or topical decongestants (e.g., oxymetazoline, chlorpheniramine) [3][4]
- Antibiotics are not indicated unless a secondary bacterial infection is suspected.

Answer: A

50) TRUE regarding brucellosis:

- A) *B. canis* commonly infects goats and sheep
- B) *B. suis* is associated with suppurative destructive lesions
- C) *B. suis* is the most common one in humans
- D) It's more common in females

Brucellosis

Brucellosis is an enzootic infection (i.e. endemic in animals) caused by Gram-negative coccobacilli. The four species causing human disease and their animal hosts are: *Brucella melitensis* (goats, sheep and camels in Europe, especially the Mediterranean basin, the Middle East, Africa, India, Central Asia and South America), *B. abortus* (cattle, mainly in Africa, Asia and South America), *B. suis* (pigs in South Asia) and *B. canis* (dogs). *B. melitensis* causes the most severe disease; *B. suis* is often associated with abscess formation.

- *B. melitensis*
 - the most virulent and causes the most severe and acute cases
 - the most prevalent worldwide
- *B. suis*
 - A prolonged course of illness, often associated with suppurative destructive lesions

Answer: B

51) Which of the following needs only contact isolation?

- A) TB
- B) MRSA
- C) Measles
- D) Influenza

Isolation

- **Contact** (gowns, gloves, masks)
 - MRSA
- **Respiratory** (negative pressure room, N95 mask)
 - TB, Measles, VZV
- **Droplet** (surgical mask, private room)
 - Meningitis in the first 24hr, non H1N1 influenza
- **Protective** (private room, mask, gown, gloves)
 - Neutropenic pts

Answer: B

52) Which of the following is NOT an AIDS-defining illness?

- A) Kaposi sarcoma
- B) cryptosporidiosis
- C) Oral candidiasis
- D) TB
- E) CMV retinitis

**CDC AIDS defining diseases
(CD4 < 200 cells/ml)**

- | | |
|-----------------------|-------------------------|
| 1) Candidiasis | 11) Lymphoma |
| 2) Cervical cancer | 12) PCP |
| 3) Coccidioidomycosis | 13) Recurrent pneumonia |
| 4) Cryptococcosis | 14) MAC |
| 5) CMV | 15) PML |
| 6) Encephalopathy | 16) Salmonellosis |
| 7) HSV | 17) Brain Toxoplasmosis |
| 8) Histoplasmosis | 18) Wasting |
| 9) TB | 19) Kaposi's sarcoma |
| 10) Cryptosporidiosis | 20) Isosporiasis |

Answer: C

53) What's the most common cause of diarrhea in adults?

- A) Norovirus
- B) Rotavirus
- C) E. coli
- D) Adenovirus

Norovirus

Norovirus is the most common UK cause of infectious gastroenteritis and causes outbreaks in hospital wards, cruise ships and military camps. Food handlers may transmit this virus, which is relatively resistant to decontamination procedures. The incubation period is 24–48 hours. High attack rates and prominent vomiting are characteristic. Diagnosis may be achieved by antigen or DNA detection (PCR) in stool samples, although the characteristic clinical and epidemiological features mean that microbiological confirmation is not always necessary. The virus is highly infectious and cases should be isolated and environmental surfaces cleaned with detergents and disinfected with bleach.

Answer: A

54) Which of the following causes erysipelas?

- A) Exotoxin of *S. aureus*
- B) GBS
- C) GAS
- D) *P. aeruginosa*

Etiology [3][4]

- Beta-hemolytic streptococci: mostly group A *Streptococcus* (*S. pyogenes*)
- Less common pathogens for cellulitis
 - *S. aureus*
 - *Pasteurella multocida* (gram-negative, encapsulated coccobacillus): secondary to dog and cat bites

GAS is the most common cause of nonpurulent skin and soft tissue infections (i.e., erysipelas, cellulitis).

- Erysipelas: superficial skin infection involving the upper dermis
- Cellulitis: local infection of the deep dermis and subcutaneous tissue

Answer: C

55) 70-year-old patient started complaining of cough, SOB and weakness of 3 days duration. He was suspected to have been infected with H1N1 influenza A strain. All of the following are applicable EXCEPT?

- A) He should be given oseltamivir
- B) He should be started on prophylactic antibiotics
- C) His household contacts should be started on oseltamivir
- D) H1N1 diagnosis can be confirmed with nasopharyngeal swab PCR

Indications [10]

- All patients with suspected or documented influenza and ≥ 1 of the following:
 - Severe or progressive illness
 - Hospitalization required
 - High risk for complications of influenza
- Consider treating patients with suspected or confirmed influenza and ≥ 1 of the following:
 - Onset ≤ 48 hours prior to presentation
 - Close contact with high-risk patients

Individuals at high risk for complications of influenza [19][20]

- Adults ≥ 50 years of age, especially those ≥ 65 years of age [19]
- Children < 5 years of age, especially those < 2 years of age [19]
- Children aged 6 months–18 years on long-term salicylate therapy [19]
- Individuals who are or will be pregnant or ≤ 2 weeks postpartum during influenza season [19][21]
- Individuals with chronic medical conditions (e.g., asthma, heart disease, CKD, diabetes mellitus)
- Immunocompromised individuals
- Individuals with a BMI ≥ 40 kg/m²
- Nursing home residents
- American Indian, Alaska Native, Black, and Hispanic individuals [22][23]

Neuraminidase inhibitors

- Mechanism of action: inhibits the release of viruses from the host cell
- Greatest benefit if started within the first 48 hours of symptom onset [17]
- Commonly used agents
 - Oral oseltamivir
 - Inhaled zanamivir
 - Intravenous peramivir

Postexposure prophylaxis: not routinely recommended

- Agents
 - Oseltamivir
 - Zanamivir
 - Baloxavir

Postexposure prophylaxis may be offered in conjunction with influenza vaccination in unvaccinated individuals at very high risk for complications of influenza and unvaccinated close contacts of these individuals.

Answer: A

56) Man went to India and now has bloody diarrhea; all of these are possible etiologies EXCEPT:

- A) Shigella
- B) Salmonella
- C) Cholera
- D) Campylobacter

The stool is of almost liquid consistency and resembles water with a white, opaque appearance, hence the term “rice-water” stools. These stools may occur up to 20–30 times per day.

Answer: C

57) Which of the following antibiotics causes tendinitis in the rotator cuff muscles?

- A) Ciprofloxacin
- B) Doxycycline
- C) Sulfatrim
- D) Ampicillin

fluoroquinolone

Levofloxacin : teratogenic , only > 18 y , arthralgia and alteration the bone growth , tendon tearing , joint swelling

Ciprofloxacin : tendinitis

Answer: A

58) Common variable immune deficiency, which is true?

- A) Recurrent infections in childhood
- B) Low IgA and IgG
- C) Decreased B lymphocytes

Common variable immune deficiency

Common variable immune deficiency (CVID) is characterised by low serum IgG levels and failure to make antibody responses to exogenous pathogens. It is a heterogeneous adult-onset primary immune deficiency, the underlying cause is unknown in most cases, although genetic mutations have been identified in a minority of patients. The presentation is with recurrent infections, and bronchiectasis is a recognised complication. Paradoxically, antibody-mediated autoimmune diseases, such as idiopathic thrombocytopenic purpura and autoimmune haemolytic anaemia, are common in CVID. It is also associated with an increased risk of malignancy, particularly lymphoproliferative disease.

Answer: B

59) Most common cause of viral encephalitis:

- A) HSV
- B) CMV
- C) VZV
- D) EBV
- E) West Nile virus

Primary HSV-2 can cause meningitis or transverse myelitis. HSV is the leading cause of sporadic viral encephalitis; this follows either primary or secondary disease, usually with HSV-1. A haemorrhagic necrotising temporal lobe cerebritis produces temporal lobe epilepsy and altered consciousness/coma. Without treatment, mortality is 80%. HSV is also implicated in the pathogenesis of Bell's palsy with a lower motor neuron 7th nerve palsy, although antivirals have not been demonstrated to improve outcome.

Answer: A

60) Which of the following is an AIDS-defining disease?

- A) CD4 less than 300
- B) Viral load more than 10000
- C) TB
- D) VZV

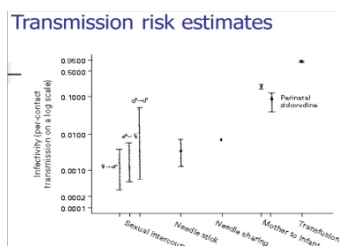
CDC AIDS defining diseases
(CD4 < 200 cells/ml)

1) Candidiasis	11) Lymphoma
2) Cervical cancer	12) PCP
3) Coccidioidomycosis	13) Recurrent pneumonia
4) Cryptococcosis	14) MAC
5) CMV	15) PML
6) Encephalopathy	16) Salmonellosis
7) HSV	17) Brain Toxoplasmosis
8) Histoplasmosis	18) Wasting
9) TB	19) Kaposi's sarcoma
10) Cryptosporidiosis	20) Isosporiasis

Answer: C

61) What is the risk of being infected with HIV after needle stick injury?

- A) 0.3 %
- B) 3%
- C) 30%



Healthcare workers

- Low risk
- 0.3%
- Universal precautions *****
 - Hand washing
 - Gloves, gowns, masks
 - Sharps
 - Open lesions...

Answer: A

62) Not a side effect of vancomycin:

- A Red man
- B) Phlebitis
- C) Renal toxicity
- D) Seizures

Vancomycin
red man syndrome , nephrotoxicity 🧠 , bone marrow suppression , neutropenia , allergic reaction leading to hypotension , itching , erythema , and sometimes leads to sepsis , phlebitis

Answer: D

63) A case of infective endocarditis, patient 45 y/o, healthy, she did a root extraction at dentist clinic, started to have new murmur, which is the most likely organism:

- A) Staph aureus
- B) Alpha hemolytic strep
- C) E. coli
- D) Bacteroides
- E) Staph epidermidis

64) A patient with VZV shingles, which is wrong?

- A) Observe
- B) Give ganciclovir
- C) Give acyclovir
- D) Give levofloxacin
- E) Do HIV test if it was bilateral

→ Antibiotic!

→ in immunocompromised pt.

Answer: D

65) About amoeba histolytica found in feces, which of the following is NOT true?

- A) Treatment for 7-10 days
- B) Elevated alkaline phosphatase means liver abscess
- C) Blood comes from colon ulcers
- D) Metronidazole is the treatment of choice

Management

Intestinal and early hepatic amoebiasis responds quickly to oral metronidazole (800mg 3 times daily for 5–10 days) or other long-acting nitroimidazoles like tinidazole or ornidazole (both in doses of 2g daily for 3 days). Nitazoxanide (500mg twice daily for 3 days) is an alternative drug. Either diiozanide furoate or paromomycin, in doses of 500mg orally 3 times daily for 10 days after treatment, should be given to eliminate luminal cysts.

Pathology

Cysts of *E. histolytica* are ingested in water or uncooked foods contaminated by human faeces. Infection may also be acquired through anal/oral sexual practices. Trophozoites emerge from the cysts in the small bowel and enter the large bowel. The parasite invades the mucous membrane of the large bowel, producing lesions that are maximal in the caecum but extend to the anal canal. These are flask-shaped ulcers, varying greatly in size and surrounded by healthy mucosa. A rare complication is amoeboma, a localised granuloma that may present as a palpable abdominal mass (usually in the right iliac fossa), a rectal mass (rarely) or a filling defect on colonic radiography. This has to be distinguished from other causes of colonic mass (e.g. cancer). Amoebic ulcers may cause severe haemorrhage but rarely perforate the bowel wall.

An amoebic abscess of the liver is suspected on clinical grounds; there is often a neutrophil leucocytosis and a raised right hemidiaphragm on chest X-ray. Confirmation is by ultrasonic scanning. Aspirated pus from an amoebic abscess has the characteristic chocolate-brown appearance but rarely contains free amoebae (Fig. 13.49E).

Answer: D

66) All of the following indicate SIRS EXCEPT:

- A) RR 23
- B) WBC 10000
- C) Temp 39
- D) Bands 13%

○ SIRS is diagnosed if ≥ 2 of the following 4 criteria are fulfilled:

- Temperature: $> 38^{\circ}\text{C}$ or $< 36^{\circ}\text{C}$
- Heart rate: $> 90/\text{min}$
- Respiratory rate: $> 20/\text{min}$ or $\text{PaCO}_2 < 32 \text{ mm Hg}$
- White blood cell count: $> 12,000/\text{mm}^3$, $< 4000/\text{mm}^3$, and/or $> 10\%$ band cells

Answer: B

67) All true about *C. difficile* EXCEPT:

- A) Most antibiotic-induced diarrhea are not caused by CD
- B) Most cases of pseudo membranous colitis are caused by CD
- C) May be found in healthy people
- D) Immune complex mediated
- E) Metronidazole is DOC

Management

The precipitating antibiotic should be stopped and the patient should be isolated. Supportive therapy includes intravenous fluids and bowel rest. First-line antimicrobial therapy is usually vancomycin (125mg orally 4 times daily for 7–10 days), which has replaced the use of metronidazole. Fidaxomicin is associated with a lower relapse rate than vancomycin but is more expensive. Intravenous immunoglobulin and/or glucocorticoids are sometimes given in the most severe or refractory cases, and faecal transplantation from a healthy donor is increasingly used to manage relapses by restoring a more advantageous gut microbiome profile. Bezlotoxumab is a monoclonal antibody against toxin B designed to prevent recurrence but its current role is uncertain. Surgical intervention needs to be considered early in severe cases.

Antimicrobial-associated diarrhoea

Antimicrobial-associated diarrhoea (AAD) is a common complication of antimicrobial therapy, especially with broad-spectrum agents. It is most common in older people but can occur at all ages. Although the specific mechanism is unknown in most cases of AAD, *C. difficile* is implicated in 20%–25% of cases and is the most common cause among patients with evidence of colitis. *C. difficile* perfringens is a rare cause that usually remains undiagnosed, and *Klebsiella* cytotoxa may also cause antibiotic-associated haemorrhagic colitis.

Clostridioides difficile infection

Clostridioides (formerly *Clostridium*) *difficile* is the most common cause of antibiotic-associated diarrhoea, and is an occasional constituent of the gut microbiome. *C. difficile* can produce two toxins (A and B). *C. difficile* infection (CDI) usually follows antimicrobial therapy, which alters the composition of the gastrointestinal flora and may facilitate colonisation with toxigenic *C. difficile*, if the patient is exposed to *C. difficile* spores. The combination of toxin production and the ability to produce environmentally stable spores accounts for the clinical features and transmissibility of CDI. A hypervirulent strain of *C. difficile*, ribotype 027, has emerged, which produces more toxin and more severe disease than other *C. difficile* strains.

Clinical features

Disease manifestations range from diarrhoea to life-threatening pseudomembranous colitis. Around 80% of cases occur in people over 65 years of age, many of whom are frail with comorbid diseases. Symptoms usually begin in the first week of antibiotic therapy but can occur up to 6 weeks after treatment has finished. The onset is often insidious, with lower abdominal pain and diarrhoea that may become profuse and watery. The presentation may resemble acute ulcerative colitis with bloody diarrhoea, fever and even toxic dilatation and perforation. Ileus is also seen in pseudomembranous colitis.

???

Answer: D

68) All true about staph. Aureus food poisoning EXCEPT:

- A) Fever
- B) Nausea and vomiting
- C) Diarrhea in less than 24 Hours
- D) Abdominal cramping

- Onset after ingestion: typically has a short latency period of 1–6 hours [25]
- Duration: 24–48 hours [7]
- Clinical features
 - Severe vomiting (often with sudden onset)
 - Abdominal cramping
 - Diarrhea

Staphylococcal food poisoning

Staph. aureus is transmitted via the hands of food handlers to food-stuffs such as dairy products, including cheese, and cooked meats. Inappropriate storage of these foods allows growth of the organism and production of one or more heat-stable enterotoxins.

Nausea and profuse vomiting develop within 1–6 hours. Diarrhoea may not be marked. The toxins that cause the syndrome act as 'super-antigens' and induce a significant neutrophil leucocytosis that may be clinically misleading. Most cases settle rapidly but severe dehydration can occasionally be life-threatening.

Antiemetics and appropriate fluid replacement are the mainstays of treatment. Suspect food should be cultured for staphylococci and demonstration of toxin production. Public health authorities should be notified if food vending is involved.

69) Which of the following may cause lupus?

- A) Isoniazid
- B) Rifampicin
- C) Pyrazinamide
- D) Ethambutol
- E) Streptomycin

Table 3. Common Agents That Cause DIL^a

Drug	Risk
Acebutolol	Low
Carbamazepine	Low
Chlorpromazine	Low
Hydralazine	High
Isoniazid	Low
Methyldopa	Low
Minocycline	Low
Penicillamine	Low
Procainamide	High
Quinidine	Moderate
Sulfasalazine	Low

^a Insufficient data at this time to assess the risk for anti-TNF- α agents.
DIL: drug-induced lupus; TNF: tumor necrosis factor.
Source: References 1, 2, 7, 8, 11.

Answer: A

70) A patient susceptible to parasitic infections, mostly due to:

- A) B cell deficiency
- B) T cell deficiency

Primary antibody deficiencies

Primary antibody deficiencies occur as the result of abnormalities in B-cell function, as summarised in Figure 4.11. They are characterised by recurrent bacterial infections, particularly of the respiratory and gastrointestinal tract. The most common causative organisms are encapsulated bacteria such as *Streptococcus pneumoniae* and *H. influenzae*. These disorders usually present in infancy, when the protective benefit of placental transfer of maternal immunoglobulin has waned. The most important causes are discussed in more detail below.

Primary T-lymphocyte deficiencies

These are a group of diseases characterised by recurrent viral, protozoal and fungal infections (see Box 4.5). Many T-cell deficiencies are also associated with defective antibody production because of the importance of T cells in providing help for B cells. These disorders generally present in childhood. Several causes of T-cell deficiency are recognised. These are summarised in Figure 4.12 and discussed in more detail below.

Answer: B

More questions but with no choices:

1) Patient testing for HIV after 7 days from intercourse with HIV infected patient, best tool:

PCR testing for viral load

2) Most sensitive test for typhoid fever:

In the past paper file, it's blood culture but the true answer is bone marrow culture

3) Immediate action after needle stick injury? – wash your hands with water and soap

4) Needle stick injury with Hep B in an individual not previously vaccinated, what to do? – give the vaccine and Hep B immunoglobulins

5) True about sepsis – Tachypnea can be the first presenting sign (not sure)

6) A case of upper respiratory tract infection, prescribed amoxicillin by a physician, what to do? - May be to stop the antibiotic because it's most probably a viral infection (although guidelines say you should complete the course).

7) Most infectious TB? Cavitating pulmonary TB (also the laryngeal TB is very contagious, and it was the answer in another question (there was not cavitating pulmonary TB in the other choices)

8) Epigastric pain 4 hours after eating custard: *S. aureus*

9) Most common cause of cellulitis – *Staphylococcus aureus* (*Streptococcus pyogenes* is more common but it was not a choice)

10) An antibiotic contraindicated in pregnancy – doxycycline

11) Not in the management of common cold – antibacterial drug administration

12) True about *C. difficile* – diagnosed via stool toxin

- 13) True about sepsis? Hypothermia is a poor prognostic sign
 - 14) Doesn't cause severe diarrhea? *Bacillus cereus*
 - 15) A female who went to a restaurant and presented with vomiting after 5 hours, Dx: Staph (remember: *S. aureus* and *B. cereus* have pre-formed toxins that cause diarrhea in 30 mins to 6 hours)
 - 16) True about Hepatitis B vaccine > protective against hepatitis D
 - 17) Most serious type of malaria; *P. Falciparum*.
 - 18) Disorder of phagocytosis? chronic granulomatous disease
 - 19) PCP pneumonia: CD4 < 200
 - 20) Which is false about sepsis: blood culture is positive in 80% of case
 - 21) Which on the following is true about SIRS Bands more than 10%
 - 22) Enterohemorrhagic *E. coli*: antibiotics are contraindicated (they increase the risk of HUS)
-

** To diagnose AIDS, you need either CD4 less than 200 or an AIDS-defining illness (anyone in the table except the first group as they are not considered AIDS-defining)

Note: Dr. Fares considered Kaposi as an AIDS-defining illness.

PATHOGEN	PRESENTATION	FINDINGS
CD4+ cell count < 500/mm³		
<i>Candida albicans</i>	Oral thrush	Scrapable white plaque, pseudohyphae on microscopy
EBV	Oral hairy leukoplakia	Unscrapable white plaque on lateral tongue
HHV-8	Kaposi sarcoma	Perivascular spindle cells invading and forming vascular tumors on histology
HPV	Squamous cell carcinoma at site(s) of sexual contact (most commonly anus, cervix, oropharynx)	
CD4+ cell count < 200/mm³		
<i>Histoplasma capsulatum</i>	Fever, weight loss, fatigue, cough, dyspnea, nausea, vomiting, diarrhea	Oval yeast cells within macrophages
HIV	Dementia	Cerebral atrophy on neuroimaging
JC virus (reactivation)	Progressive multifocal leukoencephalopathy	Nonenhancing areas of demyelination on MRI
<i>Pneumocystis jirovecii</i>	<i>Pneumocystis</i> pneumonia	"Ground-glass" opacities on chest imaging
CD4+ cell count < 100/mm³		
<i>Aspergillus fumigatus</i>	Hemoptysis, pleuritic pain	Cavitation or infiltrates on chest imaging
<i>Bartonella</i> spp	Bacillary angiomatosis	Multiple red to purple papules or nodules Biopsy with neutrophilic inflammation
<i>Candida albicans</i>	Esophagitis	White plaques on endoscopy; yeast and pseudohyphae on biopsy
CMV	Colitis, Retinitis, Esophagitis, Encephalitis, Pneumonitis (CREEP)	Linear ulcers on endoscopy, cotton-wool spots on fundoscopy Biopsy reveals cells with intranuclear (owl eye) inclusion bodies
<i>Cryptococcus neoformans</i>	Meningitis	Encapsulated yeast on India ink stain or capsular antigen ⊕
<i>Cryptosporidium</i> spp	Chronic, watery diarrhea	Acid-fast oocysts in stool
EBV	B-cell lymphoma (eg, non-Hodgkin lymphoma, CNS lymphoma)	CNS lymphoma—ring enhancing, may be solitary (vs <i>Toxoplasma</i>)
<i>Mycobacterium avium-intracellulare</i> , <i>Mycobacterium avium</i> complex	Nonspecific systemic symptoms (fever, night sweats, weight loss) or focal lymphadenitis	Most common if CD4+ cell count < 50/mm ³
<i>Toxoplasma gondii</i>	Brain abscesses	Multiple ring-enhancing lesions on MRI

**Rule of 3: risk of infection after a needle stick injury: HIV: 0.3%, HCV: 3%, HBV: 30%.

**PPD +ve:

Induration of 5 mm and more is considered positive in:

- Immunosuppressed individuals (For example, long term steroids receiving the equivalent of prednisone ≥ 15 mg/day for ≥ 1 month, immunosuppressant drugs, etc.)
- HIV infected individuals.
- Recent contact with active TB patients.
- Prior tuberculosis signs on chest radiograph such as fibrotic changes.
- Organ transplant patients

An induration of 10 mm or more is considered positive in:

- Immigrants from endemic/high prevalence countries in the last 5 years.
- High-risk area employees and residents. For example, prisons, nursing homes, and homeless shelters.
- Injection drug abusers.
- Mycobacteriology laboratory professional
- Children less than four years of age.
- Chronic medical conditions that increase the risk of tuberculosis include diabetes, kidney failure, malignancy, etc.
- Infants/Children/adolescents exposed to high-risk categories.

An induration of 15 mm or more is considered positive in:

- Always considered positive in any person. Healthy individuals without any risk factors for TB.
- Patients who do not meet any of the above criteria^[8]

وَقَفَّكُمْ اللَّهُ ...