

بجانب

# Respiratory System

## Test bank

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## Microbiology Test bank

### Lecture 1:

1. A 3-month-old infant presents with severe coughing fits followed by a “whooping” sound during inspiration. The mother reports nasal congestion and mild fever two weeks prior. Examination reveals petechiae on the face and signs of fatigue. What is the most likely diagnosis?

- A) Bronchiolitis
- B) Croup
- C) Pertussis
- D) Asthma

• **Answer:** C) Pertussis

2. A 45-year-old smoker presents with sudden onset fever, pleuritic chest pain, and productive “rusty-colored” sputum. Examination reveals decreased chest expansion, dull percussion on the right upper lobe, and crackles. Chest X-ray shows lobar consolidation. What is the most likely causative agent?

- A) *Klebsiella pneumoniae*
- B) *Streptococcus pneumoniae*
- C) *Mycoplasma pneumoniae*
- D) *Haemophilus influenzae*

• **Answer:** B) *Streptococcus pneumoniae*

2. A 20-year-old college student presents with low-grade fever and persistent dry cough for the past week. Chest X-ray shows diffuse interstitial infiltrates. What is the likely causative agent?

- A) *Legionella pneumophila*
- B) Viral pneumonia
- C) *Klebsiella pneumoniae*
- D) *Haemophilus influenzae*

• **Answer:** B) Viral pneumonia

3. A hospitalized 65-year-old patient on a ventilator develops pneumonia with “currant jelly” sputum. What is the most likely causative organism?

- A) *Pseudomonas aeruginosa*
- B) *Legionella pneumophila*
- C) *Klebsiella pneumoniae*
- D) *Staphylococcus aureus*

• **Answer:** C) *Klebsiella pneumoniae*

5. A 55-year-old man presents with high fever, myalgia, and diarrhea after staying at a hotel with a cooling tower system. Chest X-ray shows patchy consolidation. What is the most likely diagnosis?

- A) Tuberculosis
- B) Legionnaires' Disease
- C) Atypical pneumonia
- D) Viral pneumonia

• **Answer:** B) Legionnaires' Disease

6. A neonate presents with pneumonia. History reveals the mother had untreated chlamydia during pregnancy. What is the most likely causative agent?

- A) *Mycoplasma pneumoniae*
- B) *Chlamydia psittaci* (parrot fever)
- C) *Chlamydia trachomatis*
- D) *Chlamydia pneumoniae*

• **Answer:** C) *Chlamydia trachomatis*

7. A 30-year-old bird owner develops pneumonia with fever and dry cough. The causative agent is identified as an obligate intracellular pathogen. What is the most likely diagnosis?

- A) Legionnaires' Disease
- B) *Klebsiella pneumoniae*
- C) Psittacosis
- D) *Chlamydia trachomatis*

• **Answer:** C) Psittacosis

8. A patient presents with atypical pneumonia symptoms and is found to have positive PCR for intracellular bacteria. What is the most appropriate antibiotic treatment?

- A)  $\beta$ -lactams
- B) Macrolides
- C) Aminoglycosides
- D) Cephalosporins

• **Answer:** B) Macrolides

9. A 6-month-old infant presents with cyanosis and apnea during coughing fits. History reveals incomplete vaccination. What is the most likely condition and management?

- A) Tuberculosis; Rifampin
- B) Pertussis; Supportive care and macrolides
- C) Viral bronchiolitis; Antiviral therapy
- D) Pneumonia; Amoxicillin

• **Answer:** B) Pertussis; Supportive care and macrolides

10. Which toxin of *Bordetella pertussis* inhibits T-cell migration?

- A) Tracheal cytotoxin
- B) Adenylate cyclase toxin
- C) Pertussis toxin
- D) Lethal toxin

• **Answer:** C) Pertussis toxin

11. What is the preferred antibiotic class for treating *Bordetella pertussis* in its early stages?

- A)  $\beta$ -lactams
- B) Macrolides
- C) Fluoroquinolones
- D) Aminoglycosides

• **Answer:** B) Macrolides

12. What is the primary method of prevention against *Bordetella pertussis*?

- A) Isolation of infected individuals
- B) Administration of macrolides
- C) Vaccination (DTP)
- D) Prophylactic corticosteroids

• **Answer:** C) Vaccination (DTP)

13. What distinguishes bacterial pneumonia from viral pneumonia?

- A) Absence of consolidation in bacterial pneumonia
- B) Productive cough in viral pneumonia
- C) Abrupt onset in bacterial pneumonia
- D) High lymphocyte count in bacterial pneumonia

• **Answer:** C) Abrupt onset in bacterial pneumonia

14. Which pathogen is most commonly associated with “walking pneumonia”?

- A) *Legionella pneumophila*
- B) *Mycoplasma pneumoniae*
- C) *Streptococcus pneumoniae*
- D) *Klebsiella pneumoniae*

• **Answer:** B) *Mycoplasma pneumoniae*

15. Which antibiotic class is effective in treating Legionnaires' Disease?

- A)  $\beta$ -lactams

- B) Aminoglycosides
- C) Macrolides
- D) Rifampin

• **Answer: C) Macrolides**

16. What is the main causative agent of community-acquired pneumonia?

- A) *Klebsiella pneumoniae*
- B) *Mycoplasma pneumoniae*
- C) *Streptococcus pneumoniae*
- D) *Haemophilus influenzae*

• **Answer: C) *Streptococcus pneumoniae***

17. 45-year-old man, a chronic smoker, presents with a sudden onset of high fever, chills, productive cough with rusty-colored sputum, and pleuritic chest pain. Examination reveals tachypnea, decreased chest expansion on the right, dullness to percussion, and decreased air entry. Chest X-ray shows consolidation in the right upper lobe. Laboratory results indicate a WBC count of 16,000/mm<sup>3</sup> with neutrophil predominance. Which of the following is the most likely diagnosis?

- A. Viral pneumonia
- B. Bacterial pneumonia caused by *Haemophilus influenzae*
- C. Bacterial pneumonia caused by *Streptococcus pneumoniae*
- D. Tuberculosis

**Answer: C**

18. 50-year-old woman presents with a persistent cough, high fever, and shortness of breath. Her symptoms started abruptly, and she complains of sharp chest pain that worsens with inspiration. Examination reveals asymmetric chest movement and decreased air entry on the left side. Chest X-ray reveals left lower lobe consolidation. Which of the following is most likely to be seen in this patient?

- A. Lymphocytosis on CBC
- B. Low-grade fever with no pleuritic chest pain
- C. Physical signs of consolidation such as crackles and dull percussion
- D. Interstitial infiltrates on chest X-ray

**Answer: C**

19. 12-year-old boy presents with a wet cough, fever, chills, and difficulty breathing. Examination reveals tachypnea, asymmetric chest expansion, and crackles on auscultation. Chest X-ray shows segmental opacity in the right lower lobe. Laboratory findings reveal increased WBC count with neutrophilia. Which of the following pathogens is the most likely cause of this condition?

- A. *Haemophilus influenzae* (non-encapsulated)
- B. *Mycoplasma pneumoniae*
- C. *Streptococcus pneumoniae*
- D. *Staphylococcus aureus*

**Answer: C**

**20. 40-year-old patient is admitted with dyspnea, fever, pleuritic chest pain, and hemoptysis. Chest X-ray reveals lobar consolidation. Blood culture grows alpha-hemolytic, lancet-shaped, gram-positive diplococci that are optochin-sensitive. What is the most likely complication of this condition if left untreated?**

- A. Meningitis
- B. Epiglottitis
- C. Myocardial infarction
- D. Tuberculosis

**Answer: A**

**21. A 24-year-old college student presents with a low-grade fever, persistent dry cough, and mild fatigue for two weeks. On auscultation, lung crackles are noted. A chest X-ray reveals interstitial infiltrates. Which of the following is the most likely causative organism?**

- A) *Streptococcus pneumoniae*
- B) *Klebsiella pneumoniae*
- C) *Mycoplasma pneumoniae*
- D) *Legionella pneumophila*

**Answer: C) *Mycoplasma pneumoniae***

**22. A 50-year-old patient with severe pneumonia has no history of direct contact with infected individuals, but exposure to aerosols from a water fountain is noted. Symptoms include high fever, confusion, and gastrointestinal complaints. Which finding on a chest X-ray is most expected?**

- A) Lobar consolidation
- B) Interstitial infiltrates
- C) Pleural effusion
- D) Cavitory lesions

**Answer: B) Interstitial infiltrates**

## **Lecture 2:**

1. **Which fungal infection is commonly seen in patients with HIV/AIDS and premature infants?**

- a) Aspergillosis
- b) Pneumocystis pneumonia (PCP)
- c) Blastomycosis
- d) Histoplasmosis

**Answer: b) Pneumocystis pneumonia (PCP)**

2. **Which fungi are dimorphic and share similar pathophysiology with tuberculosis?**

- a) Aspergillus and Blastomyces
- b) Histoplasma and Coccidioides
- c) Pneumocystis and Blastomyces
- d) Coccidioides and Aspergillus

**Answer: b) Histoplasma and Coccidioides**

3. **Which mycosis can form granulomatous lesions in the lungs?**

- a) Aspergillosis
- b) Histoplasmosis
- c) Blastomycosis
- d) Pneumocystis pneumonia

**Answer: b) Histoplasmosis**

4. **Which fungal disease can lead to subcutaneous warty lesions on the face and hands?**

- a) Histoplasmosis
- b) Blastomycosis
- c) Aspergillosis
- d) Coccidioidomycosis

**Answer: b) Blastomycosis**

**5. A 35-year-old farmer presents with fever, cough, and fatigue after working in a bird-infested barn. Chest X-ray reveals calcified granulomas. What is the most likely diagnosis?**

- a) Aspergillosis
- b) Histoplasmosis
- c) Blastomycosis
- d) Coccidioidomycosis

**Answer: b) Histoplasmosis**

**6. A patient with asthma develops wheezing and recurrent cough after exposure to dust. Testing reveals a hypersensitivity reaction to fungal antigens. What is the most likely diagnosis?**

- a) Pneumocystis pneumonia
- b) Allergic bronchopulmonary aspergillosis
- c) Histoplasmosis
- d) Blastomycosis

**Answer: b) Allergic bronchopulmonary aspergillosis**

**7. A patient with a history of tuberculosis presents with a chronic cough and hemoptysis. Imaging reveals a fungal ball in the lung. What is the most likely causative organism?**

- a) Pneumocystis jirovecii
- b) Aspergillus species
- c) Blastomyces dermatitidis
- d) Histoplasma capsulatum

**Answer: b) Aspergillus species**

**8. A patient with untreated HIV presents with severe shortness of breath and hypoxia. Sputum analysis shows jirovecii. What is the best treatment?**

- a) Itraconazole



- b) Voriconazole
- c) Trimethoprim-sulfamethoxazole
- d) Amphotericin B

**Answer: c) Trimethoprim-sulfamethoxazole**

**9. A young male presents with crusty, warty lesions on his face and hands after returning from a camping trip. Skin biopsy confirms fungal infection. What is the likely diagnosis?**

- a) Blastomycosis
- b) Coccidioidomycosis
- c) Histoplasmosis
- d) Aspergillosis

**Answer: a) Blastomycosis**

**10. A 25-year-old man presents with headache, nasal congestion, and facial pain after sinus surgery. Culture grows Aspergillus species. What is the best treatment plan?**

- a) Corticosteroids only
- b) Antifungals and surgical debridement
- c) Trimethoprim-sulfamethoxazole
- d) Observation

**Answer: b) Antifungals and surgical debridement**

**11. A 32-year-old woman presents with a persistent cough lasting over two weeks, fever, night sweats, and unintentional weight loss. She is a healthcare worker and tested positive on a Mantoux skin test. Chest X-ray shows enlarged hilar lymph nodes. What is the most likely diagnosis?**

- a) Sarcoidosis
- b) Pulmonary tuberculosis
- c) Fungal pneumonia
- d) Bronchitis

**Answer: b) Pulmonary tuberculosis**

**12. Which of the following is the primary method of**

**transmission for tuberculosis?**

- a) Inhalation of fungal spores
- b) Inhalation of respiratory droplets
- c) Contact with contaminated water
- d) Ingestion of contaminated food

**Answer: b) Inhalation of respiratory droplets**

**13. In severe cases of aspergillosis, what are the most common causes of death?**

- a) Heart failure and liver failure
- b) Pneumonia and brain hemorrhages
- c) Kidney failure and septic shock
- d) Respiratory failure and gastrointestinal bleeding

**Answer: b) Pneumonia and brain hemorrhages**

**14. 45-year-old man presents to the clinic with fever, cough, chest pain, and fatigue. He recently returned from a trip to a rural area where he participated in farming activities. Chest X-ray reveals calcified granulomatous lesions resembling those seen in tuberculosis. Which of the following is the most likely causative organism?**

- A. Blastomyces dermatitidis
- B. Coccidioides immitis
- C. Histoplasma capsulatum
- D. Pneumocystis jirovecii
- E. Aspergillus species

**Answer: C. Histoplasma capsulatum**

**15. A 34-year-old immunocompromised woman presents with persistent nasal congestion, facial pain, and headaches. Physical examination reveals swollen sinuses, and a biopsy confirms fungal infection. What is the most likely diagnosis?**

- A. Sinus Aspergillosis
- B. Allergic Bronchopulmonary Aspergillosis
- C. Pneumocystis Pneumonia (PCP)
- D. Blastomycosis
- E. Chronic Pulmonary Aspergillosis

**Answer: A. Sinus Aspergillosis**

**16. A 30-year-old woman with a history of asthma presents with worsening wheezing, fever, and mucus plugging on imaging. Which of the following is the most likely diagnosis?**

- A. Invasive Aspergillosis
- B. Allergic Bronchopulmonary Aspergillosis
- C. Pneumocystis Pneumonia (PCP)
- D. Histoplasmosis
- E. Coccidioidomycosis

**Answer: B. Allergic Bronchopulmonary Aspergillosis**

**17. 55-year-old man with uncontrolled diabetes and prolonged neutropenia develops fever, altered mental status, and kidney dysfunction. Imaging reveals lung infiltrates and fungal lesions in the brain and kidneys. Which of the following is the most likely diagnosis?**

- A. Chronic Pulmonary Aspergillosis
- B. Invasive Aspergillosis
- C. Histoplasmosis
- D. Pneumocystis Pneumonia (PCP)
- E. Blastomycosis

**Answer: B. Invasive Aspergillosis**

## **Lecture 3:**

**1. A 35-year-old diabetic patient presents with severe ear pain, otorrhea, and cranial nerve involvement. Examination reveals granulation tissue in the ear canal. What is the most likely diagnosis?**

- A) Swimmer's ear
- B) Malignant otitis externa
- C) Acute otitis media
- D) Cholesteatoma

**Answer: B) Malignant otitis externa**

**2. A cystic fibrosis patient presents with worsening pulmonary symptoms. Sputum culture reveals non-lactose fermenting, oxidase-positive, Gram-negative rods. What virulence factor is most associated with the Antibiotics resistance of the infection ?**

- A) Exotoxin A
- B) Biofilm formation by alginate
- C) Elastase
- D) Pyocyanin

**Answer: B) Biofilm formation by alginate**

3. **A burn patient develops a bluish-green wound with a fruity odor. What is the likely pathogen?**

- A) Staphylococcus aureus
- B) lactose fermenting, oxidase-positive, Gram-negative rods
- C) non-lactose fermenting, oxidase-positive, Gram-negative rods
- D) non-lactose fermenting, oxidase-negative, Gram-negative rods

**Answer: C) non-lactose fermenting, oxidase-positive, Gram-negative rods**

4. **A contact lens wearer develops a painful red eye with a corneal ulcer. What is the most probable organism?**

- A) Pseudomonas aeruginosa
- B) Staphylococcus epidermidis
- C) Streptococcus pneumoniae
- D) Haemophilus influenzae

**Answer: A) Pseudomonas aeruginosa**

5. **An ICU patient on a ventilator develops pneumonia. Sputum culture grows Gram-negative rods producing a metallic sheen and green pigment on nutrient agar. What is the appropriate initial therapy?**

- A) Vancomycin
- B) Piperacillin-tazobactam and tobramycin
- C) Ceftriaxone
- D) Linezolid

**Answer: B) Piperacillin-tazobactam and tobramycin**

6. **Which of the following media would you use to isolate non-lactose fermenting colonies of Pseudomonas aeruginosa?**

- A) Blood agar
- B) Nutrient agar
- C) MacConkey agar
- D) Chocolate agar

**Answer: C) MacConkey agar**

7. **Which virulence factor of Pseudomonas aeruginosa inhibits protein synthesis by targeting EF-2?**

- A) Elastase
- B) Exotoxin A
- C) Pyocyanin
- D) Lipopolysaccharide

**Answer: B) Exotoxin A**

8. **What is the typical appearance of Pseudomonas aeruginosa colonies on blood agar?**

- A) Mucoid with metallic sheen
- B) Small and translucent
- C) Beta-hemolytic
- D) Yellow and slimy

**Answer:** A) Mucooid with metallic sheen

**9. What is the key role of alginate in Pseudomonas aeruginosa?**

- A) Enabling motility
- B) Promoting tissue necrosis
- C) Protecting bacteria within a biofilm
- D) Enhancing toxin production

**Answer:** C) Protecting bacteria within a biofilm

**10. Which clinical condition is a hallmark manifestation of severe Pseudomonas aeruginosa infection?**

- A) Ecthyma gangrenosum
- B) Cellulitis
- C) Scarlet fever
- D) Necrotizing fasciitis

**Answer:** A) Ecthyma gangrenosum

**11. Which of the following is NOT a recommended prevention method for Pseudomonas infections in hospitals?**

- A) Strict hand hygiene
- B) Isolating cystic fibrosis patients
- C) Using sterile water for equipment
- D) Frequent use of broad-spectrum antibiotics

**Answer:** D) Frequent use of broad-spectrum antibiotics

**12. Which pathogen predominantly infects adult cystic fibrosis patients (>18 years old)?**

- A. Haemophilus influenzae
- B. Pseudomonas aeruginosa
- C. Staphylococcus aureus
- D. Escherichia coli

**Answer:** B

**13. What is the characteristic pigment produced by Pseudomonas aeruginosa that gives it a greenish color?**

- A. Pyoverdin
- B. Pyocyanin
- C. Phospholipase C
- D. Elastase

**Answer:** B

**14. A 12-year-old patient presents with pain and swelling in the external ear canal after swimming in a public pool. Examination reveals erythema and purulent discharge. What is the most likely causative organism?**

- A. Staphylococcus aureus
- B. Escherichia coli
- C. Pseudomonas aeruginosa
- D. Klebsiella pneumoniae

**Answer: C**

**15. 45-year-old diabetic patient presents with a rapidly progressing black necrotic ulcer on the lower limb. The lesion emits a fruity odor and shows a greenish hue. Which of the following is the most likely diagnosis?**

- A. Cellulitis caused by Staphylococcus aureus
- B. Ecthyma gangrenosum caused by Pseudomonas aeruginosa
- C. Necrotizing fasciitis caused by Clostridium perfringens
- D. Impetigo caused by Streptococcus pyogenes

**Answer: B**

### **Micro lab: (past papers)**

**1. Which of the following is an appropriate media for all fungi?**

- A) SDA
- B) Chrome Agar

**ANSWER : A**

**2. Which of the following is sensitive for bacitracin?**

- A) Enterococcus
- B) Strep agalactiae
- C) Strep pneumonia
- D) strep pyogenes

**ANSWER: D**

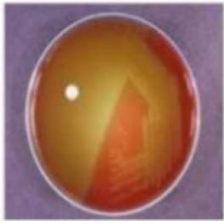


**3. The following media is:**

- A) chrome agar
- B) Lowenstein-Jensen
- C) Sabouraud dextrose agar

**ANSWER : A**

**Optochin test**



4. **The test shows:**

- A) Strep. Pneumonia
- B) Strep. Viridans
- C) Strep. Pyogenes
- D) Strep. Agalactiae

**ANSWER: B**

**5. The microorganism which is catalase Negative and sensitive to Optochin is :**

- A) Beta hemolytic streptococcus group A
- B) Streptococcus Pneumoniae
- C) Enterococcus group D
- D) Staphylococcus aureus
- E) Neisseria Spp

**ANSWER: B**

**6. The type of fungus that produce the Blue color on chrom agar media:**

- A) Candida tropicalis
- B) Candida glabrata
- C) None of the mentioned
- D) Candida krusei
- E) Candida albican

**ANSWER: A**

**7. Streptococcus pneumoniae, one is incorrect:**

- A) Diplococci
- B) have capsules
- C) lysed by bile
- D) Resistant to optochin
- E) Produce a-hemolysis

**ANSWER: D**

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