

# USMLE Step 2 Antibiotics and Treatments Practice Exam (Sample)

## Study Guide



**Everything you need from our exam experts!**

**This is a sample study guide. To access the full version with hundreds of questions,**

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# Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

# How to Use This Guide

**This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:**

## 1. Start with a Diagnostic Review

**Skim through the questions to get a sense of what you know and what you need to focus on. Don't worry about getting everything right, your goal is to identify knowledge gaps early.**

## 2. Study in Short, Focused Sessions

**Break your study time into manageable blocks (e.g. 30 - 45 minutes). Review a handful of questions, reflect on the explanations, and take breaks to retain information better.**

## 3. Learn from the Explanations

**After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.**

## 4. Track Your Progress

**Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.**

## 5. Simulate the Real Exam

**Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.**

## 6. Repeat and Review

**Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning.**

## 7. Use Other Tools

**Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.**

**There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly — adapt the tips above to fit your pace and learning style. You've got this!**

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## **Questions**

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- 1. What is the recommended prophylaxis for Pneumocystis pneumonia (PCP) in a patient with a CD4 count less than 200?**
  - A. Bactrim**
  - B. Dapsone**
  - C. Atovaquone**
  - D. Azithromycin**
- 2. What is the recommended treatment for a patient with bacterial conjunctivitis who wears contact lenses?**
  - A. Topical erythromycin**
  - B. Fluoroquinolone drops**
  - C. Topical sulfonamides**
  - D. Oral tetracycline**
- 3. What is the recommended treatment for severe inflammatory acne that has not responded to topical treatments?**
  - A. Oral isoretinoin**
  - B. Topical benzoyl peroxide**
  - C. Oral erythromycin**
  - D. Intralesional corticosteroids**
- 4. What is the treatment for dermatitis herpetiformis?**
  - A. Dapsone and dietary changes**
  - B. Topical corticosteroids**
  - C. Oral acyclovir**
  - D. Systemic steroids**
- 5. Which antibiotic class is often the first line of treatment for community-acquired pneumonia?**
  - A. Macrolides**
  - B. Tetracyclines**
  - C. Beta-lactams**
  - D. Fluoroquinolones**

**6. Which antibiotic is often used to treat anaerobic bacteria?**

- A. Ciprofloxacin
- B. Clindamycin
- C. Doxycycline
- D. Metronidazole

**7. For NSTEMI, which of the following is the best anticoagulant option?**

- A. Coumadin
- B. Heparin with early PCI
- C. Low molecular weight heparin
- D. Rivaroxaban

**8. What is the initial imaging study for a suspected aortic injury in a stable patient?**

- A. CT angiography
- B. Transesophageal echocardiogram
- C. Chest X-ray
- D. MRI of the chest

**9. What is the mechanism of action of rifampin?**

- A. Inhibits bacterial cell wall synthesis
- B. Inhibits bacterial DNA synthesis
- C. Inhibits bacterial RNA synthesis by binding to DNA-dependent RNA polymerase
- D. Inhibits protein synthesis at the 50S ribosomal subunit

**10. Which antibiotic class targets bacterial ribosomes?**

- A. Beta-lactams
- B. Aminoglycosides
- C. Glycopeptides
- D. Fluoroquinolones

## **Answers**

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1. A
2. B
3. A
4. A
5. A
6. D
7. B
8. A
9. C
10. B

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## **Explanations**

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**1. What is the recommended prophylaxis for *Pneumocystis pneumonia* (PCP) in a patient with a CD4 count less than 200?**

- A. Bactrim**
- B. Dapsone**
- C. Atovaquone**
- D. Azithromycin**

For a patient with a CD4 count less than 200 cells/mm<sup>3</sup>, the recommended prophylaxis for *Pneumocystis pneumonia* (PCP) is trimethoprim-sulfamethoxazole, commonly known as Bactrim. This antibiotic combination is highly effective in preventing PCP, which is a significant opportunistic infection in individuals with HIV/AIDS whose immune systems are severely compromised. The use of Bactrim has been well-studied and established as the standard of care in this population. In cases where patients may not tolerate Bactrim due to allergies or adverse effects, alternatives such as dapsone or atovaquone can be considered. However, these alternatives are generally not first-line options and are used in specific situations where Bactrim cannot be given. Azithromycin does not provide effective prophylaxis against PCP and is not appropriate for this indication. The established guidelines prioritize Bactrim for its proven efficacy and safety profile in preventing PCP in high-risk patients.

**2. What is the recommended treatment for a patient with bacterial conjunctivitis who wears contact lenses?**

- A. Topical erythromycin**
- B. Fluoroquinolone drops**
- C. Topical sulfonamides**
- D. Oral tetracycline**

The treatment of choice for a patient with bacterial conjunctivitis who wears contact lenses is fluoroquinolone drops. This is due to the specific infections that are more likely to occur in contact lens wearers, particularly those caused by *Pseudomonas aeruginosa*, which can be more virulent and resistant to common antibiotics. Fluoroquinolones are broad-spectrum antibiotics that are effective against a variety of gram-positive and gram-negative bacteria, including *Pseudomonas*. Using topical erythromycin may not provide adequate coverage for the pathogens commonly involved in contact lens-associated conjunctivitis. Similarly, topical sulfonamides have a limited spectrum and are generally not the first line for this condition, especially considering the risk of resistant organisms. Oral tetracycline is not typically used for conjunctivitis, as it is more effective for systemic infections or specific cases such as chlamydial conjunctivitis, but it is not indicated for acute bacterial conjunctivitis. In summary, fluoroquinolone drops are specifically recommended for patients with contact lens-related bacterial conjunctivitis due to their efficacy against resistant organisms and their broad coverage.

**3. What is the recommended treatment for severe inflammatory acne that has not responded to topical treatments?**

- A. Oral isoretinoin**
- B. Topical benzoyl peroxide**
- C. Oral erythromycin**
- D. Intralesional corticosteroids**

In cases of severe inflammatory acne that have not responded to topical treatments, oral isotretinoin is the recommended treatment. This medication is a powerful retinoid derived from vitamin A and has been shown to significantly reduce sebum production, normalize keratinization, and exhibit anti-inflammatory properties. It works by targeting several pathogenic factors involved in acne development, making it particularly effective in cases where other treatments have failed. Oral isotretinoin is also beneficial in reducing the size and production of sebaceous glands, leading to long-lasting remission for many patients. Its use is typically reserved for moderate to severe acne due to its side effects and the need for close monitoring during treatment, including the risk of teratogenic effects in females. Topical benzoyl peroxide is more suitable for mild to moderate acne and may serve as an adjunct treatment but is not sufficient for severe cases on its own. Oral erythromycin, an antibiotic, may help with acne, but its efficacy is limited, especially when bacteria begin to develop resistance. Intralesional corticosteroids can provide rapid relief for individual cystic lesions but do not address widespread severe inflammatory acne effectively. Hence, for severe inflammatory acne unresponsive to topical options, the best approach is to initiate oral isotretinoin.

**4. What is the treatment for dermatitis herpetiformis?**

- A. Dapsone and dietary changes**
- B. Topical corticosteroids**
- C. Oral acyclovir**
- D. Systemic steroids**

Dermatitis herpetiformis is a chronic skin condition associated with gluten sensitivity, commonly linked to celiac disease. The primary treatment for this condition involves dapsone, which is a sulfone antibiotic that has anti-inflammatory properties. Dapsone works by targeting the immune response that leads to the formation of the characteristic blistering and burning lesions seen in dermatitis herpetiformis. Alongside dapsone, important dietary changes are necessary. A strict gluten-free diet is essential for managing the underlying celiac disease and helps to prevent the recurrence of skin symptoms. This combined approach not only alleviates the symptoms but also addresses the root cause of the disease. Topical corticosteroids, while effective for other inflammatory conditions, are not a first-line treatment for dermatitis herpetiformis and do not address the systemic nature of the condition. Oral acyclovir is an antiviral medication that targets herpes simplex virus infections and does not provide effective treatment for dermatitis herpetiformis, as the condition is not caused by a viral infection. Systemic steroids can reduce inflammation but are not typically used as a primary treatment strategy for dermatitis herpetiformis due to potential side effects and the importance of a targeted approach with dapsone and dietary management. Thus,

**5. Which antibiotic class is often the first line of treatment for community-acquired pneumonia?**

- A. Macrolides**
- B. Tetracyclines**
- C. Beta-lactams**
- D. Fluoroquinolones**

Macrolides are indeed the first-line treatment for community-acquired pneumonia, particularly in otherwise healthy adults who do not have significant comorbidities. This class of antibiotics, which includes drugs like azithromycin and clarithromycin, is effective against common pathogens associated with community-acquired pneumonia, including *Streptococcus pneumoniae* and atypical bacteria such as *Mycoplasma pneumoniae* and *Chlamydophila pneumoniae*. Macrolides are favored due to their ability to provide coverage for these atypical pathogens, which are significant contributors to pneumonia in outpatient settings. They also have a good safety profile and oral bioavailability, making them convenient options for outpatient therapy. In addition, macrolides help reduce the risk of exacerbations in patients with pre-existing respiratory conditions. The other antibiotic classes do have roles in treating pneumonia but are not typically first-line options for uncomplicated community-acquired pneumonia. Tetracyclines, while effective, are often considered second-line options. Beta-lactams, like penicillins, are sometimes used in cases with a strong suspicion of *Streptococcus pneumoniae* but may not provide adequate coverage for atypical pathogens. Fluoroquinolones are generally reserved for more complicated cases or in patients with prior antibiotic

**6. Which antibiotic is often used to treat anaerobic bacteria?**

- A. Ciprofloxacin**
- B. Clindamycin**
- C. Doxycycline**
- D. Metronidazole**

Metronidazole is a highly effective antibiotic used primarily to treat infections caused by anaerobic bacteria. These bacteria thrive in environments with little or no oxygen and are commonly responsible for various infections, especially in the gastrointestinal tract and oral cavity. Metronidazole works by entering anaerobic bacteria and disrupting their DNA synthesis, which leads to cell death. It is particularly useful for treating anaerobic infections such as those caused by *Bacteroides fragilis* and *Clostridium* species. Additionally, metronidazole has a well-established role in the treatment of conditions like anaerobic abscesses, bacterial vaginosis, and certain parasitic infections. Other antibiotics listed may have some degree of effectiveness against anaerobes, but they are not the first-line choices typically used. For example, clindamycin also targets anaerobic bacteria and can be an alternative in some cases, but metronidazole is specifically known for its strong efficacy against a broader range of anaerobes and is often preferred for these infections.

**7. For NSTEMI, which of the following is the best anticoagulant option?**

- A. Coumadin**
- B. Heparin with early PCI**
- C. Low molecular weight heparin**
- D. Rivaroxaban**

In the management of non-ST elevation myocardial infarction (NSTEMI), the use of heparin, particularly when implemented with early percutaneous coronary intervention (PCI), is considered a standard approach for anticoagulation. This strategy helps to prevent additional thrombus formation in the coronary arteries, which is crucial since NSTEMI is often due to unstable plaques that can lead to further ischemic events. Heparin, including both unfractionated heparin and low molecular weight heparin (LMWH), is favored in the acute setting because of its rapid onset, reversibility, and established effectiveness in reducing complications during the initial management of acute coronary syndromes. However, using heparin in conjunction with early PCI has shown particular benefits in facilitating revascularization, improving outcomes in terms of reducing morbidity and mortality from cardiovascular events. While low molecular weight heparin is also a viable option for NSTEMI treatment and is commonly used due to its convenience and dosing schedule, the specific combination of heparin with early PCI maximizes antithrombotic efficacy and produces favorable clinical outcomes in acute presentations. This is why the administration of heparin in this context is viewed as the best anticoagulant option for NSTEMI management.

**8. What is the initial imaging study for a suspected aortic injury in a stable patient?**

- A. CT angiography**
- B. Transesophageal echocardiogram**
- C. Chest X-ray**
- D. MRI of the chest**

The initial imaging study for a suspected aortic injury in a stable patient is CT angiography. This choice is preferred because CT angiography provides rapid and detailed visualization of the aorta and surrounding structures, allowing for the assessment of potential trauma, dissection, or rupture in a non-invasive manner. In stable patients, it is essential to obtain an accurate and swift diagnosis to facilitate timely management, and CT angiography meets these needs effectively. It can assess the aortic arch, thoracic aorta, and descending aorta, making it a comprehensive tool in evaluating suspected aortic pathologies. Other imaging modalities, while useful in certain circumstances, are not the first-line option in this scenario. For instance, a transesophageal echocardiogram is typically used for evaluating heart conditions rather than direct assessment of aortic injuries. Chest X-ray can indicate potential issues like widened mediastinum but lacks the specificity and sensitivity needed to confirm an aortic injury. MRI of the chest, while detailed, is less accessible and slower to perform compared to CT angiography, making it less practical in urgent situations where time is of the essence. The choice of CT angiography reflects the need for efficiency and accuracy in diagnosing aortic injuries.

## 9. What is the mechanism of action of rifampin?

- A. Inhibits bacterial cell wall synthesis
- B. Inhibits bacterial DNA synthesis
- C. Inhibits bacterial RNA synthesis by binding to DNA-dependent RNA polymerase**
- D. Inhibits protein synthesis at the 50S ribosomal subunit

Rifampin exerts its therapeutic effects primarily through the inhibition of bacterial RNA synthesis. This occurs when rifampin binds to DNA-dependent RNA polymerase, the enzyme responsible for synthesizing RNA from a DNA template. By binding to this enzyme, rifampin prevents the transcription process from proceeding, ultimately hindering the production of essential proteins necessary for bacterial survival and replication. This mechanism is particularly effective against a variety of bacteria, including those causing tuberculosis and other infections. The drug's ability to directly target the RNA polymerase of bacteria underscores its role as a key agent in the treatment of mycobacterial infections and confirms its classification as an essential medication in certain antibiotic regimens. In understanding the mechanisms of antibiotics, recognizing how rifampin uniquely interacts with bacterial transcription machinery can aid in distinguishing its application from other antibiotics that may target cell wall synthesis, DNA synthesis, or protein synthesis.

## 10. Which antibiotic class targets bacterial ribosomes?

- A. Beta-lactams
- B. Aminoglycosides**
- C. Glycopeptides
- D. Fluoroquinolones

Aminoglycosides are a class of antibiotics that specifically target bacterial ribosomes, leading to an inhibition of protein synthesis. They bind to the 30S subunit of the bacterial ribosome, causing misreading of the mRNA and ultimately impairing the synthesis of proteins that are essential for bacterial growth and replication. This action is distinct from other antibiotic classes like beta-lactams, which target the bacterial cell wall synthesis, glycopeptides, which also inhibit cell wall synthesis but through different mechanisms, and fluoroquinolones, which interfere with DNA replication by targeting bacterial topoisomerases. The unique targeting of ribosomal subunits by aminoglycosides makes them effective in treating certain infections, particularly those caused by aerobic Gram-negative bacteria.

# Next Steps

**Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.**

**As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.**

**If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at [hello@examzify.com](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://usmlestep2antibioticstreatments.examzify.com>**

**We wish you the very best on your exam journey. You've got this!**

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