Antibacterials (ABX) Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

Table of Contents

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. 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.

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. 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!

Questions

1. **If a patient has a non-severe penicillin allergy (no anaphylaxis), what is the guidance regarding cephalosporin use?**

   A. Cephalosporins should always be avoided in any penicillin allergy.

   B. Some cephalosporins may be used if the allergy is not severe.

   C. Penicillin should be used instead if possible.

   D. Vancomycin is the only option.

2. **What is the drug of choice for Stenotrophomonas maltophilia infections?**

   A. Levofloxacin

   B. Bactrim

   C. Imipenem

   D. Vancomycin

3. **What is the route of administration for vancomycin when treating Clostridioides difficile infections?**

   A. Intravenous.

   B. Oral.

   C. Subcutaneous.

   D. Topical.

4. **What is the standard antibiotic prophylaxis for dental procedures in high-risk patients?**

   A. Penicillin V 1 g PO before the procedure.

   B. Azithromycin 500 mg PO before the procedure.

   C. Amoxicillin 2 g PO before the procedure.

   D. Doxycycline 100 mg PO before the procedure.

5. **What is the only fourth-generation cephalosporin?**

   A. Cefuroxime

   B. Cefixime

   C. Cefepime

   D. Cefotetan

6. Which cephalosporin has strong anaerobic coverage and is often used in mixed intra-abdominal infections?

- **A. Cefoxitin**
- **B. Cefazolin**
- **C. Ceftriaxone**
- **D. Ceftazidime**

7. Linezolid has activity against which resistant organisms?

- **A. Pseudomonas aeruginosa**
- **B. MRSA and VRE**
- **C. CRE**
- **D. ESBL-producing Enterobacteriaceae**

8. Which statement about penicillins and MRSA is true?

- **A. Penicillins commonly cover MRSA**
- **B. Penicillins do not cover MRSA**
- **C. Penicillins cover MRSA when used with beta-lactamase inhibitors**
- **D. Penicillins cover MRSA in high dose**

9. What is the mechanism of action of rifamycins (such as rifampin)?

- **A. Inhibition of cell wall synthesis.**
- **B. Inhibition of bacterial DNA-dependent RNA polymerase, blocking RNA synthesis.**
- **C. Inhibition of protein synthesis at the 50S ribosomal subunit.**
- **D. Disruption of folate synthesis.**

10. What is the primary mechanism of action of macrolide antibiotics?

- **A. They bind the 50S ribosomal subunit and inhibit protein synthesis (usually bacteriostatic; can be bactericidal for some organisms at high concentrations)**
- **B. They inhibit DNA gyrase**
- **C. They disrupt cell membrane integrity**
- **D. They inhibit folate synthesis**

Answers

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

Explanations

1. If a patient has a non-severe penicillin allergy (no anaphylaxis), what is the guidance regarding cephalosporin use?

A. Cephalosporins should always be avoided in any penicillin allergy.

B. Some cephalosporins may be used if the allergy is not severe.

C. Penicillin should be used instead if possible.

D. Vancomycin is the only option.

Cross-reactivity between penicillins and cephalosporins is limited when the penicillin allergy is non-severe and there was no anaphylaxis. Because the reaction history is not severe, many cephalosporins can be used safely, especially if you choose a cephalosporin with a different side chain from the penicillin that triggered the allergy and monitor the patient for any signs of a reaction. If the patient had a life-threatening IgE-mediated reaction, the risk-benefit would shift toward avoiding cephalosporins, but for non-severe allergies, proceeding with a cephalosporin is an acceptable option. The other statements are too absolute or ignore the nuance of reaction severity.

2. What is the drug of choice for Stenotrophomonas maltophilia infections?

A. Levofloxacin

B. Bactrim

C. Imipenem

D. Vancomycin

Stenotrophomonas maltophilia has intrinsic resistance to many common antibiotics, so choosing an agent with reliable activity is essential. Trimethoprim-sulfamethoxazole is the drug of choice because most S. maltophilia isolates are susceptible to it, and clinical experience shows solid effectiveness across various infections. It also offers good tissue penetration and manageable monitoring. If TMP-SMX cannot be used (due to allergy, hyperkalemia, renal dysfunction, or intolerance), alternatives like a fluoroquinolone or a tetracycline (minocycline or doxycycline) can be considered, but susceptibility testing is important because not all strains respond. Drugs such as imipenem or vancomycin are not reliable against S. maltophilia and are not preferred options.

3. What is the route of administration for vancomycin when treating Clostridioides difficile infections?

A. Intravenous.

B. Oral.

C. Subcutaneous.

D. Topical.

Delivering the antibiotic directly to the colon where C. difficile resides is the key idea. Vancomycin is poorly absorbed from the gastrointestinal tract, so when you take it orally it stays in the gut, achieving high concentrations in the colon to wipe out the infection while minimizing systemic exposure. That makes oral administration the preferred route for CDI. Intravenous vancomycin, in contrast, circulates systemically and does not deliver enough drug to the colon to be effective against C. difficile. Subcutaneous or topical forms don't reach the colonic lumen at therapeutic levels, so they aren't appropriate for treating CDI.

4. What is the standard antibiotic prophylaxis for dental procedures in high-risk patients?

A. Penicillin V 1 g PO before the procedure.

B. Azithromycin 500 mg PO before the procedure.

C. Amoxicillin 2 g PO before the procedure.

D. Doxycycline 100 mg PO before the procedure.

In dental prophylaxis for high-risk patients, the aim is to prevent infective endocarditis by having sufficient antibiotic levels at the moment bacteria from the mouth enter the bloodstream. Amoxicillin given as a 2-gram oral dose about 30 to 60 minutes before the procedure is the standard choice because it is well absorbed and quickly achieves protective serum and tissue concentrations that effectively suppress viridans group streptococci, the typical culprits in dental bacteremia. The 2 g dose provides reliable coverage with a convenient single-dose regimen, making it the preferred first-line option. If penicillin cannot be used due to allergy, there are alternatives such as clindamycin or certain macrolides, but they are considered secondary options and may have different efficacy or tolerability profiles. The other choices aren't the standard first-line because they either use a lower penicillin dose, which may not ensure adequate levels, or are reserved for penicillin-allergic patients rather than as the default prophylaxis.

5. What is the only fourth-generation cephalosporin?

A. Cefuroxime

B. Cefixime

C. Cefepime

D. Cefotetan

The concept tested is how cephalosporins are categorized by generation, which tracks changes in antimicrobial spectrum and beta-lactamase stability. Fourth-generation cephalosporins expand activity notably against Gram-negative pathogens, including Pseudomonas, while maintaining good Gram-positive activity and improved stability to beta-lactamases. Cefepime is the only fourth-generation agent here, giving it broad Gram-negative coverage that includes Pseudomonas and solid activity against many Enterobacterales, with good stability to beta-lactamases. The other drugs represent earlier generations: cefuroxime is second-generation with enhanced activity against HNPEK and some Gram-positives; cefixime is third-generation (oral) with strong Gram-negative activity but less Pseudomonas coverage; cefotetan is a second-generation cephalosporin with anaerobic activity and a side chain that can cause disulfiram-like reactions and affect vitamin K. Therefore, cefepime is the best answer.

6. Which cephalosporin has strong anaerobic coverage and is often used in mixed intra-abdominal infections?

A. Cefoxitin

B. Cefazolin

C. Ceftriaxone

D. Ceftazidime

Understanding which cephalosporin covers anaerobes helps explain why cefoxitin fits mixed intra-abdominal infections best. Cefoxitin is a second-generation cephalosporin with reliable activity against anaerobic bacteria (notably Bacteroides species) in addition to many common Gram-negative rods. That combination makes it well suited for infections where both aerobic and anaerobic organisms are involved, such as mixed intra-abdominal infections. The other drugs listed lack strong anaerobic activity: some provide broad Gram-negative or Gram-positive coverage but do not reliably cover anaerobes, while one has excellent Gram-negative activity but little to no anaerobic coverage. So cefoxitin stands out because its spectrum includes anaerobes, aligning with the needs of mixed intra-abdominal infections.

7. Linezolid has activity against which resistant organisms?

A. Pseudomonas aeruginosa

B. MRSA and VRE

C. CRE

D. ESBL-producing Enterobacteriaceae

Linezolid is an oxazolidinone that inhibits bacterial protein synthesis by binding to the 50S ribosomal subunit, preventing formation of the initiation complex. This gives strong activity against Gram-positive cocci, including MRSA and vancomycin-resistant Enterococcus (VRE). It does not reliably cover Gram-negative bacteria, which is why organisms like Pseudomonas aeruginosa are not susceptible. Carbapenem-resistant Enterobacteriaceae (CRE) and ESBL-producing Enterobacteriaceae are Gram-negative and generally not susceptible to linezolid. Therefore, MRSA and VRE are the resistant organisms against which linezolid has activity.

8. Which statement about penicillins and MRSA is true?

A. Penicillins commonly cover MRSA

B. Penicillins do not cover MRSA

C. Penicillins cover MRSA when used with beta-lactamase inhibitors

D. Penicillins cover MRSA in high dose

The key idea is that MRSA resists penicillins because of an altered target, not because of enzyme destruction. MRSA carries the mecA gene, which produces PBP2a, a penicillin-binding protein with very low affinity for beta-lactams. Since the drug can't effectively bind its target, it cannot reliably block cell wall synthesis, so bacterial growth isn't stopped. Adding beta-lactamase inhibitors won't fix this, because the resistance isn't due to beta-lactamase activity but to the target itself. Raising the dose doesn't help either, because even high concentrations won't overcome the very weak binding to PBP2a. Therefore, penicillins do not cover MRSA. For MRSA, other antibiotic classes—or newer agents with activity against PBP2a (not standard penicillins)—are needed.

9. What is the mechanism of action of rifamycins (such as rifampin)?

A. Inhibition of cell wall synthesis.

B. Inhibition of bacterial DNA-dependent RNA polymerase, blocking RNA synthesis.

C. Inhibition of protein synthesis at the 50S ribosomal subunit.

D. Disruption of folate synthesis.

Rifamycins work by binding to the bacterial DNA-dependent RNA polymerase, specifically the beta subunit, and blocking transcription. This prevents RNA synthesis from starting and halts the production of mRNA, effectively stopping gene expression and bacterial growth. The enzyme targeted is distinct in bacteria, so the drug is selectively toxic to bacteria rather than human cells. Resistance typically develops through mutations in the rpoB gene that change the rifampin binding site on the polymerase. Clinically, this class is important for treating Mycobacterium infections (like TB) and other bacteria, but they can cause drug interactions due to enzyme induction and have a risk of resistance if used alone.

10. What is the primary mechanism of action of macrolide antibiotics?

A. They bind the 50S ribosomal subunit and inhibit protein synthesis (usually bacteriostatic; can be bactericidal for some organisms at high concentrations)

B. They inhibit DNA gyrase

C. They disrupt cell membrane integrity

D. They inhibit folate synthesis

Macrolides exert their effect by binding to the 50S ribosomal subunit, specifically near the nascent peptide exit tunnel formed by the 23S rRNA. This binding blocks the translocation step of protein synthesis, preventing the ribosome from moving along the mRNA and halting elongation. As a result, protein production slows or stops in susceptible bacteria, giving a predominantly bacteriostatic effect (though at high concentrations they can be bactericidal for some species). This mechanism is distinct from other antibiotic classes that target DNA replication (such as DNA gyrase inhibitors), disrupt cell membranes, or inhibit folate synthesis.

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.

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

https://antibacterials.examzify.com

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