COHORT STUDIES PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED 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.

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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!

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Questions

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1. What are key sample size considerations for a cohort study?

A. The number of researchers and budget.

B. Expected incidence, expected effect size, desired power, alpha level, follow-up duration, and anticipated loss to follow-up.

C. Only expected effect size and p-value.

D. The number of exposures measured concurrently.

2. Why distinguish specific drug vs drug class in exposure measurement?

A. To simplify data

B. To reduce confounding by indication

C. To increase sample size

D. To capture heterogeneity in effect

3. In time-to-event analysis using Cox regression, what is the role of censoring?

A. It allows inclusion of individuals without events by accounting for partial follow-up

B. It biases estimates and should be avoided

C. It indicates that all individuals eventually have the event

D. It is only applicable to randomized trials

4. Which method is used to control confounding in the design phase of a cohort study?

A. Randomization is the only method.

B. Restriction, stratification, matching, and, if possible, randomization.

C. Increasing sample size alone.

D. Ignoring confounders.

5. When effect modification is present, how is it typically reported?

A. As a single pooled estimate only

B. As stratum-specific estimates or an interaction p-value

C. Only in descriptive analyses

D. Only when there is no confounding

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6. Which statement best describes non-differential misclassification of exposure?

A. It biases results toward the null for binary exposure.

B. It biases results away from the null for binary exposure.

C. It has no effect on effect estimates.

D. It only affects continuous exposures.

7. How should missing data be handled in cohort studies?

A. Use methods like multiple imputation, maximum likelihood, or sensitivity analyses; assess baseline characteristics and potential bias from missingness.

B. Ignore missing data.

C. Exclude any individual with missing data.

D. Use last observation carried forward.

8. What is a nested cohort (nested case-control) study?

A. A cohort drawn from an existing cohort; cases and controls selected from within the cohort

B. A separate cohort studied in parallel

C. A cross-sectional snapshot within a cohort

D. A randomized trial within a cohort

9. What is the primary interpretation of a hazard ratio of 2.0 in a survival comparison?

A. The event rate at any time is twice as high in the exposed group compared with the unexposed

B. The cumulative incidence is twice as high

C. The odds of the event are twice as high

D. The relative risk over the entire study is twice as high

10. Which statement correctly defines incidence rate?

A. Incidence rate is the probability of developing the outcome over a fixed period.

B. Incidence rate is the number of new cases per person-time at risk.

C. Incidence rate is the total number of existing cases in the population.

D. Incidence rate equals relative risk.

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Answers

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

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Explanations

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1. What are key sample size considerations for a cohort study?

A. The number of researchers and budget.

B. Expected incidence, expected effect size, desired power, alpha level, follow-up duration, and anticipated loss to follow-up.

C. Only expected effect size and p-value.

D. The number of exposures measured concurrently.

Planning the sample size for a cohort study hinges on how many outcome events you need to detect an association with enough precision, over the time you will follow participants, while accounting for people who drop out. The expected incidence tells you how often the outcome occurs in your population, which affects how many people you must enroll to observe enough events, especially if the outcome is rare. The expected effect size is the magnitude of the association you want to be able to detect (for example, a specific relative risk or hazard ratio); smaller effects require a larger sample to have enough power. The desired power is the probability of detecting a true effect if it exists (commonly 80% or 90%), and the alpha level is the probability of a false-positive finding you're willing to accept (often 0.05); higher power or stricter alpha increases the needed sample size. The follow-up duration matters because longer follow-up usually yields more events, boosting power, but it can also increase loss to follow-up. Anticipated loss to follow-up must be considered to ensure you still have enough participants and events after attrition. The other options don't fit these planning needs as directly. Feasibility aspects like budget and the number of researchers affect how large a study can practically be, but they aren't the statistical inputs used to calculate the necessary sample size. Relying only on the expected effect size and a p-value ignores the role of power and the significance threshold in study planning. The number of exposures measured concurrently is about design complexity and data collection, not the statistical size needed to detect an association.

2. Why distinguish specific drug vs drug class in exposure measurement?

A. To simplify data

B. To reduce confounding by indication

C. To increase sample size

D. To capture heterogeneity in effect

Distinguishing a specific drug from its class is about capturing heterogeneity in effect. Different drugs within the same class can have distinct pharmacologic properties, dosing patterns, or indications, leading to varying risks and benefits. If you only use the class as the exposure, you're assuming every drug in that class has the same impact on the outcome, which can mask important differences. By measuring exposure at the individual drug level, you can identify which drugs are driving any observed association and estimate drug-specific effects, rather than averaging across drugs. For example, some NSAIDs or anticoagulants may carry higher or lower risks than others, so detailing the exact drug helps reveal true variation in effect. The other options don't fit as well: distinguishing drugs does not simplify data or increase sample size (it often adds complexity or reduces per-drug counts), and while it can aid interpretation of differential effects, it's not primarily a method for reducing confounding by indication.

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3. In time-to-event analysis using Cox regression, what is the role of censoring?

A. It allows inclusion of individuals without events by accounting for partial follow-up

B. It biases estimates and should be avoided

C. It indicates that all individuals eventually have the event

D. It is only applicable to randomized trials

Censoring in time-to-event analysis represents incomplete information about a participant's time to the event. In Cox regression, right-censoring occurs when a person's follow-up ends before the event happens (due to study finish, loss to follow-up, or withdrawal). Rather than discarding these individuals, Cox regression uses the information available up to the point of censoring. They contribute to the risk set up to their censoring time, which allows us to estimate hazard ratios while properly accounting for those who did not experience the event during the study. This approach enables inclusion of individuals without events and avoids bias from ignoring those with partial follow-up, provided censoring is non-informative (the reason for censoring is not related to the risk of the event after accounting for covariates). The other statements misstate the role: censoring does not bias estimates when handled correctly, it does not imply everyone will eventually have the event, and it applies to both observational studies and trials, not just randomized ones.

4. Which method is used to control confounding in the design phase of a cohort study?

A. Randomization is the only method.

B. Restriction, stratification, matching, and, if possible, randomization.

C. Increasing sample size alone.

D. Ignoring confounders.

Controlling confounding in the design phase means implementing study procedures that prevent or minimize differences in confounders between the exposed and unexposed groups before outcomes are measured. The best approach uses a combination of restriction, stratification, matching, and, when feasible, randomization. Restriction limits participants to specific values of a potential confounder (for example, only non-smokers), which removes the confounding influence entirely within that restricted group. Matching pairs or groups subjects who share similar confounding characteristics with their comparison group, making the groups more comparable. Stratification plans for analyzing or sampling within strata of the confounder, so comparisons are made within more homogeneous subgroups. If exposure can be randomized, random assignment balances both known and unknown confounders across groups, effectively eliminating confounding bias by design. Increasing sample size alone improves precision but does not remove bias from confounding. Ignoring confounders is unacceptable because it leaves bias in the estimated association.

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5. When effect modification is present, how is it typically reported?

A. As a single pooled estimate only

B. As stratum-specific estimates or an interaction p-value

C. Only in descriptive analyses

D. Only when there is no confounding

Effect modification means the effect of the exposure on the outcome changes across levels of another variable. When this happens, results are typically reported by showing the effect separately within each stratum of the modifier and by testing for interaction. In practice you'd present stratum-specific estimates (for example, separate relative risks or odds ratios for men and women) and/or provide a p-value for the interaction term from a regression model to show whether the differences between strata are statistically significant. This highlights how the association varies across groups, rather than masking it with a single pooled estimate. A pooled overall estimate can be misleading when there is genuine variation by the modifier. An interaction p-value helps quantify whether the variation is unlikely to be due to chance. It's not required that there be no confounding, and effect modification is a separate consideration from confounding.

6. Which statement best describes non-differential misclassification of exposure?

A. It biases results toward the null for binary exposure.

B. It biases results away from the null for binary exposure.

C. It has no effect on effect estimates.

D. It only affects continuous exposures.

Non-differential misclassification of exposure means the error in classifying someone as exposed or unexposed is similar regardless of whether they developed the outcome. When the exposure is binary, this type of error tends to blur the difference between the exposed and unexposed groups, pulling the observed measure of association toward the null (a relative risk or odds ratio closer to 1). In other words, the true effect is diluted because misclassification affects both groups equally, making them look more alike than they really are. If misclassification were differential—varying by outcome status—the bias could go in either direction, not predictably toward the null. Since the question specifically asks about non-differential misclassification of a binary exposure, bias toward the null is the correct characterization.

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7. How should missing data be handled in cohort studies?

A. Use methods like multiple imputation, maximum likelihood, or sensitivity analyses; assess baseline characteristics and potential bias from missingness.

B. Ignore missing data.

C. Exclude any individual with missing data.

D. Use last observation carried forward.

Handling missing data properly in cohort studies involves using approaches that use all available information and assess how missingness might bias the results. The best practice is to use methods like multiple imputation, maximum likelihood, and sensitivity analyses, along with checking baseline characteristics to understand potential bias from missingness. Multiple imputation fills in missing values by modeling the relationships among observed data, creating several complete datasets, analyzing each one, and then combining the results to reflect the uncertainty due to missing data. This helps preserve sample size and reduce bias when data are missing at random or under plausible assumptions. Maximum likelihood uses the observed data to estimate model parameters directly, leveraging all available information without imputing missing values. This approach is efficient and can produce unbiased estimates under reasonable missing-data assumptions (often MAR). Sensitivity analyses explore how conclusions change under different assumptions about the missing data mechanism, such as best- or worst-case scenarios or using alternative models. This is crucial because the truth about why data are missing is usually uncertain; showing that results are robust to a range of possibilities strengthens the findings. Additionally, assess baseline characteristics and potential bias from missingness by comparing those with complete data to those with missing data. If missingness relates to key variables (like exposure or outcome), it can bias estimates, signaling the need for adjustment through modeling choices or weighting. Why other common approaches are less appropriate: ignoring missing data or excluding individuals with missing data can introduce bias and reduce power when data are not missing completely at random. Last observation carried forward makes strong, often invalid assumptions about stability over time and can distort both results and uncertainty. In short, use principled methods to handle missing data and verify the robustness of your conclusions with sensitivity analyses and thorough assessment of how missingness relates to key study variables.

8. What is a nested cohort (nested case-control) study?

A. A cohort drawn from an existing cohort; cases and controls selected from within the cohort

B. A separate cohort studied in parallel

C. A cross-sectional snapshot within a cohort

D. A randomized trial within a cohort

A nested case-control study is a case-control study conducted within an existing cohort, with both cases and controls drawn from that same cohort. In this design, you start with a defined group that has been followed over time, identify the individuals who develop the outcome (cases), and then select controls from those cohort members who have not yet developed the outcome at the time each case occurs. This preserves the temporal sequence between exposure and outcome and is efficient for exposure assessment because you only measure or use detailed exposure data for the cases and a subset of controls drawn from the same population. The nested approach keeps everything inside the original cohort, rather than using a separate, external control group.

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9. What is the primary interpretation of a hazard ratio of 2.0 in a survival comparison?

A. The event rate at any time is twice as high in the exposed group compared with the unexposed

B. The cumulative incidence is twice as high

C. The odds of the event are twice as high

D. The relative risk over the entire study is twice as high

In survival analysis, the hazard is the instantaneous rate at which the event occurs at a given moment, given that it has not yet happened. A hazard ratio of 2.0 means that, at any moment in time (assuming the hazards are proportional over time), the exposed group experiences twice the event rate as the unexposed group. So the comparison is about instantaneous risk, not about the total number who have had the event by a certain time. This interpretation is different from the cumulative incidence, which is the probability of having experienced the event by a specific time and depends on how risk accumulates over the entire follow-up. It also isn't about odds (that would be an odds ratio from a logistic model), and it isn't the same as the overall risk ratio across the whole study, which aggregates risk over time in a different way.

10. Which statement correctly defines incidence rate?

A. Incidence rate is the probability of developing the outcome over a fixed period.

B. Incidence rate is the number of new cases per person-time at risk.

C. Incidence rate is the total number of existing cases in the population.

D. Incidence rate equals relative risk.

Incidence rate is about measuring how fast new cases appear in a population, taking into account both how many people are followed and for how long they are followed. It is calculated as the number of new cases divided by the total time that people were at risk, so the units are typically cases per person-time (for example, cases per 1,000 person-years). This differs from simply the probability of developing the outcome over a fixed period, which is called risk or cumulative incidence and does not account for varying follow-up times. It's also not the total number of existing cases in the population (prevalence), and it's not a measure of association like relative risk, which compares incidence between groups. So the statement that defines incidence rate as the number of new cases per person-time at risk is the correct one.

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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://cohortstudies.examzify.com

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

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