

Critical Appraisal Paper (CAP)

Examination Guidance for Candidates

The Officers of the Board of Examiners

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What this Guidance Covers

- What the CAP examination is designed to assess
- Common question types
- Examples of good answers for different question types
- A structured approach to the CAP
- Common pitfalls
- Tips from successful candidates

What is the CAP Examination Testing?

- **The CAP examination assesses your ability to:**

- Understand a scientific publication
- Interpret data
- Critically appraise strengths and weaknesses
- Consider implications of findings
- Suggest appropriate next steps

- **Examiners are looking for:**

- Relevant answers
- Evidence of understanding
- Sound judgement
- Clear reasoning
- Appropriate interpretation of data

Top Tip

- You are not expected to be an expert in the therapy area. The CAP assesses your ability to critically appraise the paper and interpret the evidence presented.

Examination Format

- 2.5 hours to read the scientific paper and write your responses
- Typically 14-16 questions, some with sub-parts
- Total number of marks = 50

Top Tip 1

- The scientific paper is a publication that could encompass any part of the syllabus, including clinical trials, non-interventional studies, meta-analyses, systematic reviews and economic evaluations – it will not always be a randomised control trial!

Top Tip 2

- Make sure you read the whole paper, but do leave enough time to attempt all the questions.

Top Tip 3

- Do not be alarmed if some sections of the scientific paper are redacted – this will usually be because they give the answers away, but will sometimes be to save you reading time if there are details that are not relevant to the questions.

Types of CAP Question

- Questions generally fall into one of three categories:

Descriptive – require you to summarise information from the paper

Critique – require you to provide your assessment and reasoning

Next Steps – require you to explain the implications of the paper findings and suggest future work

- Approximately one-third of the total marks are assigned to descriptive questions and two-thirds are assigned to critique/next steps questions

Top Tip 1

- Maximise marks on descriptive questions by giving concise, complete answers that directly address the question asked.

Top Tip 2

- Critique questions can test knowledge from across the syllabus, so ensure you understand the statistical methods and principles underpinning study design, analysis and interpretation.

Common Terms used in the CAP Examination

- **List, Give, or State**
 - Requires a few words or a short sentence for each item
 - It is the ‘what?’
 - Giving extensive answers will not score extra marks
- **Describe**
 - Requires a few sentences addressing the key features for each item
 - It is the ‘what? where? why? when? and how?’
 - Single word answers will not score marks
- **Define**
 - Requires a few sentences to explain a concept or term
 - Simply rearranging the words in the question will not score marks
- **Compare**
 - Requires a few words or short sentences giving the similarities and differences of one thing versus another
 - It may help to use the sub-headings of ‘similarities’ and ‘differences’ when writing your answer
- **Explain**
 - Requires reasons and significance
 - Providing a description only will not score marks
 - If asked to explain something in lay language, use language that a member of the public would understand – do not use complex scientific, medical, or statistical language (technical jargon)

Top Tip

- When asked to comment, candidates frequently provide the ‘what?’ (the issue) but leave out the ‘so what?’ (the implications) – ask yourself ‘why is this important?’ and include it in your answer.

Example of a 'Lay Language' Question – CAP Question

- **Results in a study:** p -value < 0.001 in a placebo-controlled randomised control trial of an antihypertensive, where the anti-hypertensive demonstrated benefit.
- **Question:** Explain this p -value to a patient using lay language (2 marks)

Poor answer: The results for this study were statistically significant.

This is jargon and doesn't help a patient to understand what the p -value is or why it is important. It will score zero.

Partial answer: The results for this study showed $p < 0.001$. A p -value helps us to understand whether the results of the study were likely to be due to chance or indicate that there was a real effect. A p -value of < 0.001 is considered to be meaningful (important), as the result is very unlikely to have happened by chance.

This is a partial answer and will help the patient to understand what the p -value is, but not what it means to the patient, the language is also still not good lay-language as it still contains jargon and is not in plain English. it will score no more than 1 mark.

Exam technique

- Always check the number of marks available.
- Ensure your answer contains enough distinct, relevant points to justify the marks on offer.
- For a 2-mark question, one valid point is unlikely to be sufficient for full marks.

Good answer:

- A p -value helps us understand whether the results from this trial have happened by luck or that the drug has a real effect compared to taking a sugar pill, which has no effect on blood pressure.
- In this study, the p -value of < 0.001 means the benefit of the blood pressure treatment seen in the trial is very unlikely to have happened by chance, so this medicine will reduce your blood pressure more than if you take no medicine.

This is a complete answer, explaining what the p -value is and why it is important, and will score full marks. It is also written clearly using bullets to separate ideas, making it easier for examiners to allocate the marks

Questions on Limitations

- You may be asked to give limitations of the study
- Your answer should address genuine shortfalls in the study, e.g., gaps in the data, generalisability
- A follow-on question may ask you how you would address these limitations in a future study

Top Tip

- You may find that the authors have identified some limitations in the discussion, but do not be surprised if this information is redacted!

Questions on Next Steps

- The final question on the examination paper often asks you to suggest the next steps or a future study
- A good proposal should:
 - Address a genuine limitation or unanswered question
 - Be scientifically valid
 - Be ethically justified
 - Be legal
 - Be relevant to the findings of the paper
- Avoid proposing unrealistic studies

Top Tip 1

- You may find that the authors have identified future work in the discussion, but do not be surprised if this information is redacted!

Top Tip 2

- This question is not meant to address gaps in the publication, e.g., if a power calculation is not specified in the paper, proposing an identical study with a power calculation will not score any marks.

Suggested Approach to the CAP Examination (1)

1. Read the entire paper first – do not just hunt for answers
2. As you read, consider:
 - a) Aims and objectives of the study
 - b) The study population
 - c) Inclusion/exclusion criteria
 - d) Participant disposition (CONSORT diagram), if applicable
 - e) Randomisation and blinding, if applicable
 - f) Comparators
 - g) Endpoints
 - h) Statistical methods used
 - i) Results
 - j) Generalisability of findings
 - k) Clinical relevance
 - l) Limitations of the study
 - m) Potential future work

Suggested Approach to the CAP Examination (2)

3. Consider the importance and impact of all of these on the study conclusions
4. Read the questions carefully and make sure you understand what is being asked – there are no marks for answering a question that has not been asked!
5. Answer questions in the order presented, as questions are usually designed to flow logically through the paper
6. Keep answers concise and structured. For longer responses, use bullet points, with each bullet covering one distinct piece of information.
7. Move on if you are stuck on a question and return later, if you have time

Top Tip

- The number of marks allocated usually indicates the number of separate pieces of information required - in some cases, half a mark will be allocated per piece of information - this will be made clear in the question (where the number of responses will be stated) and the mark allocation.

Common Mistakes

- Spending too long reading the paper
- Answering a different question to the one being asked
- Stating facts without explaining the implications (forgetting the 'so what?')
- Critiquing only weaknesses and overlooking strengths
- Not knowing the common definitions especially for statistical principles
- Not being able to critique statistical methodology
- Spending too much time writing overly detailed answers to low-mark questions.
- Not attempting all questions
- Running out of time

Tips from Successful Candidates

- Start preparation early
- Work in study groups
- Learn common CAP question styles
- Develop a systematic appraisal framework
- Appraise publications from respected journals, such as *The Lancet*, *NEJM* and *BMJ*
- Discuss publications with colleagues – they don't need to be preparing for a CAP examination themselves to be able to help
- Remember common definitions from your wider revision and statistical methodology and how to critique
- Take a paper of interest and consider what questions you would write for a CAP

Top Tip

- Practising helps to identify blind spots and improve technique.

Summary

- Success comes from:
 - Using a structured appraisal approach
 - Understanding the question types
 - Explaining the ‘so what?’
 - Using mark allocation to guide answer length
 - Being concise – quality, not quantity
 - Managing time effectively
 - Focusing on relevance and judgement
 - Practising – practice makes perfect

Top Tip

- Practice – Timing – Technique
- **Useful supplementary reading:** The [CASP website](#) contains short articles on critical appraisal, research methods and evidence synthesis that may help reinforce key concepts relevant to critique questions.