

# Advanced Care Paramedic Examination

## **Study Guide and Sample Questions**

January 2003

Version 2.0

Emergency Health Services Branch  
Ministry of Health and Long-Term Care

*Making healthcare work for you.*



Ontario

# Advanced Care Paramedic Theory Examination

## Study Guide and Sample Questions

### Overview

The Advanced Care Paramedic (ACP) theory examination is offered four (4) times per year (every January, April, July and October) by the Ontario Ministry of Health and Long-Term Care. Successful completion of this exam (minimum score 70%) is required to be eligible for employment as an Advanced Care paramedic in Ontario.

The ACP exam is based upon the knowledge and skills outlined in the Ontario Ministry of Health BLS and ALS Standards of Care documents and the Canadian National Occupational Competencies for Advanced Care paramedics. The exam incorporates both primary care and advanced care knowledge and skills. The exam is three (3) hours in length. It is composed of multiple choice questions, which pertain to various case studies based on actual ambulance calls. Also included in the exam are some multiple choice questions, which stand alone and are not related to any specific case study.

No single text provides the range of information necessary for a comprehensive review of the 8 categories and 52 subcategories covered in the exam. This is why training facilities utilize a wide range of resource materials during the educational process. However, approved ACP program faculty can provide candidates with lists of reading materials relevant to the ACP scope of practice.

### Subject Categories

The ACP exam measures knowledge and skills in the following categories and subcategories:

Categories:

- anatomy and physiology
- assessment
- documentation
- medical/legal/ethical
- pathophysiology
- patient and scene management
- psychology/sociology
- reporting

Subcategories:

- Acts of Right & Freedoms/Consent
- allergies
- Ambulance Act & Regulations
- Ambulance Call Report (ACR)
- cardiovascular
- communicable disease
- communications/psychosocial
- Coroner's Act
- endocrine
- environmental
- equipment
- ethics
- multi-systems
- musculoskeletal
- neonatal
- nervous
- obstetrics
- oncology
- pediatric
- pharmacology
- primary survey
- psychiatric
- psychosocial
- radio communications/patches

Subcategories:  
(continued)

- gastrointestinal
- geriatric
- gynecology
- Highway Traffic Act
- history taking
- intravenous therapy
- legal
- Mental Health Act
- metabolism
- respiratory
- renal system
- reproductive system
- secondary survey
- scene
- shock
- toxicology
- triage
- urinary system
- verbal report

Advanced Life Support Subcategories:

- Symptom Relief
- Pharmacology
- Cardiac Monitoring
- Cardioversion
- Defibrillation
- Cardiac Pacing
- Airway management
- IV Therapy
- IO Infusions

## Question Types

Within each category you may be asked several types of questions corresponding to cognitive levels. Cognition level refers to the degree of complexity of thinking required to answer a question or solve a specific problem. The types of questions, in increasing order of difficulty, are:

1. **Factual** questions measure your ability to recall facts pertaining to a specific category of content.
2. **Application** questions require you to apply your knowledge of concepts to a particular patient situation or content area.
3. **Judgement** questions measure your ability to decide the best course of action or most appropriate approach in a provided situation.
4. **Interpretative** questions require you to determine the inferences of a given situation (e.g. patient assessment findings; presenting manifestation or given condition; legal and/or environmental conditions)
5. **Rationale** questions measure your ability to explain the reason for assessment findings; management decisions; patient clinical presentations and safety and legal precautions.
6. **Prioritization** questions measure your ability to sequence assessment based on what is best to perform or expected according to a given protocol. It also measures your ability to select the most appropriate action or measure when managing a situation.

## Scoring Process

The ACP exam is comprised of questions developed by experts in the field of pre-hospital care. The exam is subject to rigorous statistical analysis before scores are reported to candidates. This analysis determines whether each question yielded the expected statistical results. If this analysis suggests that particular questions were ambiguous, required knowledge beyond the scope of the exam or were otherwise inappropriate, then the results of these questions are not used in computing the candidates' score.

## Strategies

- All questions on the exam are of equal value; do not waste excessive time pondering an individual question.
- Scores are based upon the number of correctly answered questions; wrong answers do not count against your score. Therefore, to maximize your score, it is better to guess at an answer than not to respond at all.
- Record all your answers on your computer answer sheet. This sheet is the only document that will be scored.
- If you decide to change an answer on your answer sheet, ensure you completely erase the pencil mark you do not wish to be scanned by the computer.
- Do not wait until the last few minutes of the exam to record your answers on your answer sheet; extra time will not be granted for this purpose.
- Check frequently to ensure you are marking your answers in the appropriate row on your answer sheet.
- If you are stuck on a difficult question, eliminate as many answer choices as possible and then select the answer you think is best from the choices remaining.

## Sample Exam Question

The following is an example of the type and format of questions you will see on the ACP exam. Following each question is an explanation of the question type and the correct answer.

You are dispatched priority 4 to a working fire, where there is an injured firefighter on scene.

You arrive at the scene and as you are unloading your equipment a firefighter rushes up to you and tells you that one of his crew had a problem with his tank and ran out of air while he was in the burning house. The firefighter was dragged out of the structure and is now lying on the front lawn of the house.

You approach your patient and observe him to be approximately 50 years old, weighing approximately 80 kilograms. He is lying on his side, coughing and gasping for air. You observe that in addition to his dyspnea, he is flushed and diaphoretic. He tells you that his name is Gord and he is experiencing chest pain. He confirms that he has a previous history of angina.

1. Your priority at this time is to:
  1. Administer O<sub>2</sub> to Gord via a non-rebreather mask at 15 L/min.
  2. Move Gord to your vehicle in order to give him humidified oxygen.
  3. Attempt to insert a nasopharyngeal airway.
  4. Attach Gord to your cardiac monitor.
  5. Question Gord further about his heart condition.
  - A. 1, 3 and 4
  - B. 1, 4 and 5
  - C. 2, 3 and 4
  - D. 2, 3 and 5

*This is a prioritization question. Gord is in severe respiratory distress and therefore requires immediate oxygen therapy. Although humidified oxygen is preferable for a smoke inhalation patient, you should not take the time to move Gord to your vehicle without further assessing his condition. Choice 2 is incorrect. Oxygen via a non-rebreather mask is your best choice at this time. Choice 1 is correct. Gord has told you he has chest pain and a history of angina. Gord's speech indicates to you that his airway is patent at this time. The insertion of a nasopharyngeal airway will only serve to irritate his condition. Choice 3 is incorrect. Due to Gord's current complaint of chest pain and his history of angina you should begin cardiac monitoring as soon as possible and find out more about his heart condition. Choices 4 and 5 are correct. The correct answer is B.*

2. In addition to dyspnea, which of the following manifestations might you expect to find in a patient suffering from smoke inhalation?
  1. Hemoptysis
  2. Muffled heart sounds
  3. Mediastinal shift
  4. Tachycardia
  5. Carbon rings around nares
  - A. 1, 3 and 4
  - B. 1, 4 and 5
  - C. 2, 3 and 5
  - D. 3, 4 and 5

*This is a factual question. Smoke inhalation causes an irritation of the bronchial tree and alveoli. The resulting histamine response allows leakage of some red blood cells from the capillary bed. This leads to blood in the sputum. Choice 1 is correct. Muffled heart sounds and a mediastinal shift are found in a variety of chest trauma situations but are not congruent with smoke inhalation. Choices 2 and 3 are incorrect. Smoke inhalation causes hypoxia in the body. This in turn causes a sympathetic nervous response resulting in tachycardia. Choice 4 is correct. The inhalation of smoke often leaves residual black carbon rings around the opening of the nostrils. Choice 5 is correct. The correct answer is B.*

3. You have initiated an IV and Gord's SaO<sub>2</sub> is 95%. Auscultation reveals bilateral crackles in his bases. He continues to complain of retrosternal chest pain. Which of the following questions are most important to ask Gord at this time?
1. "Are you burned anywhere?"
  2. "Is the chest pain worse on inspiration?"
  3. "When did your chest pain begin?"
  4. "Have you taken any nitroglycerine?"
  5. "How long were you in the fire without air?"
- A. 1, 2 and 4  
B. 2, 4 and 5  
C. 3, 4 and 5  
D. 2, 3 and 5

*This is a judgement question. At this time it is important to determine whether Gord meets the nitroglycerine or ASA protocol under the symptom relief guidelines. The two key questions which help you to determine which, if any, medication to administer to Gord are questions 3 and 4, these are correct choices. Gord is in distress and may not be able to determine if he is burned anywhere. A proper secondary assessment of Gord will be required to determine if he has suffered any burns. Choice 1 is incorrect. Chest pain which is worse on inspiration corresponds to a number of conditions, however, none of these conditions are suspected given this scenario. Choice 2 is incorrect. The length of time Gord was in the fire without air may impact your decision to intubate early, as an O<sub>2</sub> sat of 95% may be compatible with ongoing hypoxia falsely elevated by CO. Therefore, choice 5 is correct. The correct answer is C.*

4. Which of the following statements are true of a myocardial infarction?
- A. As the myocardium fails there is a resultant decrease in cardiac output. This drop in cardiac output causes a state of sepsis throughout the body.
  - B. Histamine is released in the heart causing a leakage of fluid from the capillary bed in the myocardium. This results in fluid accumulating in the pericardial sac and a subsequent cardiac tamponade.
  - C. During a myocardial infarction all cells of the myocardium become ischemic. This ischemia is reversible throughout the heart provided there is adequate collateral circulation in the myocardium.
  - D. There is a decrease in the firing threshold of the myocardial cells as they become hypoxic. This causes the myocardium to become more susceptible to cardiac arrhythmias such as ventricular fibrillation.

*This is an application of theory question. Myocardial infarction results in a decreased cardiac output which may lead to cardiogenic shock. It does not cause septic shock in the body. Answer A is incorrect. Histamine is released during an infarct, however there is not enough fluid to cause a cardiac tamponade. Answer B is incorrect. A myocardial infarction occurs when there is irreversible necrosis to a selected region of myocardial cells. Reversible ischemia to the cells of the myocardium is classified as angina. Answer C is incorrect. Injured myocardial cells become more irritable and are prone to arrhythmias. The most life threatening arrhythmia is ventricular fibrillation. The correct answer is D.*

Further questioning of Gord reveals that his chest pain began about 20 minutes ago. He is prescribed nitroglycerine spray but he left it back at the station. His chest pain is still present, although it has improved since he has been on the oxygen. He is still short of breath. An assessment of Gord's vital signs reveal his pulse to be 92, full and regular, blood pressure of 160/90, respirations are 24 shallow and regular and his skin is warm, moist and flushed.

5. Your best course of action at this time is to:
- A. Administer one spray of nitroglycerine under Gord's tongue and repeat if necessary in 5 minutes.
  - B. After shaking the Nitrospray canister, administer one spray under Gord's tongue and repeat if necessary in 5 minutes.
  - C. Administer two 80 mg. ASA tablets to Gord and instruct him to chew them before he swallows them.
  - D. Refrain from administering any medications to Gord at this time as the oxygen is improving his condition. Re-evaluate this decision in 5 minutes.

*This is an interpretation question. Gord meets the protocol for the administration of nitroglycerine at this time. Answer A is correct. The Nitrospray canister is not to be shaken at any time. Answer B is incorrect. Gord should not be administered ASA prior to nitroglycerine in this situation. Answer C is incorrect. To reduce the injury to Gord's myocardium, nitroglycerine should be given as soon as possible to rapidly relieve his condition. Waiting to see if the oxygen will continue to help is a time-consuming management which may not be effective. Answer D is incorrect.*

Your assessment of Gord reveals that he has not suffered any burns. You place him on your stretcher and load him into your ambulance. In the back of the ambulance Gord suddenly becomes unresponsive and his oxygen saturation drops to 86%. You repeat the primary survey, and find that Gord is breathing on his own, and does have a carotid pulse.

6. While all of the following are important, which priorities should be performed first?
- 1. Reauscultate Gord's lungs.
  - 2. Reassess Gord's vital signs.
  - 3. Assess Gord's LOC to determine a GCS score.
  - 4. Prepare to intubate Gord.
- A. 1 and 2
  - B. 1 and 4
  - C. 2 and 3
  - D. 3 and 4

*This is a prioritization question. It is important to auscultate Gord's lungs to determine the cause of his dropping oxygen saturation and decreased LOC. Choice 1 is a priority. Assessing Gord's vital signs and GCS, while important can wait or can be performed by your partner, choices 2 and 3 are incorrect. Gord has most likely suffered smoke inhalation and requires immediate and aggressive airway management. Choice 4 is a priority. The correct answer is B.*

You and your partner are performing all of the above priorities. Your partner tells you that Gord's blood pressure remains unchanged, his pulse is 120 weak and regular, respirations are 28 and shallow and his GCS is 7. Auscultation reveals bilateral crackles to his mid-lobes.

7. In considering intubation of Gord, which of the following equipment should you select? A(n):
- A. nasal endotracheal tube.
  - B. oral endotracheal tube uncut.
  - C. oral endotracheal tube cut to 26 cm.
  - D. Combitube.

*This is a judgement question. A nasal endotracheal tube or a Combitube are incorrect choices for Gord. An oral endotracheal tube which has been cut is incorrect as Gord may be developing severe airway and facial edema and longer, uncut tubes are the standard in this situation to prevent loss of the tube in the expanding airway and tissue. Answer B is correct.*