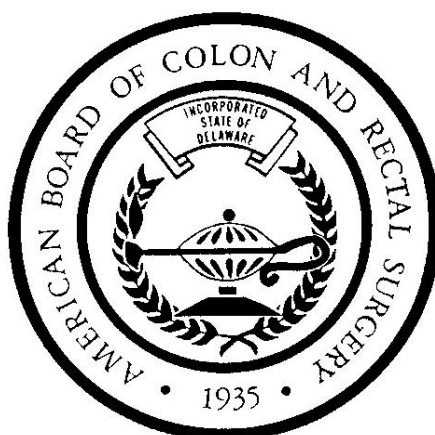


# **American Board of Colon & Rectal Surgery**



**November 2009**

**Instructions  
for  
Question Writers**

# American Board of Colon and Rectal Surgery

## Instructions for Question Writers

Guidelines for Submitting Items.....	2
Instructions for Entering Assigned Questions on Website.....	3
Writing Effective Items.....	4
Application of Knowledge.....	5
Writing A-Type Items – Basic Rules.....	6
Avoiding Item Flaws.....	7
Writing Stems and Lead-ins.....	8
Commonly Used Lead-ins .....	9
Writing Options .....	10
Item Examples .....	11
Categories/Subcategories.....	14

## **Guidelines for Submitting Items**

1. Review this entire booklet before beginning your assignment.
2. The items you are writing and reviewing are secure materials and should not be discussed with, or shown to, others. Please keep your items in a secure place, such as a locked file cabinet, when you are not working with them.

If you have any questions, please contact:

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## Instructions for Entering Assigned Question on Website

1. Go to [www.abcrs.org](http://www.abcrs.org)
2. Click on **“Login Services”**
3. Enter your Username and Password
4. Click on the **“Write/Edit/View Exam Questions”** link in the upper left corner
5. You will see the question template and the topics that have been assigned to you. All new questions numbers are designated **“Temp”**
6. Click on the question number to create your question
  - Enter the stem in the **“Question”** box
  - Enter at least two references in the **“References”** box
  - Enter the correct answers and three distracters
  - Click on the correct answer to highlight
  - Enter the Key Concept in the **“Key Concept”** box
7. If images are included, click **“Browse”** to add the image
8. If you have not completed your question and wish to make additional revisions at a later time, click on **“Save Only”**. This will allow you to re-enter the question.
9. To return to the **“Manage Questions”** page, click **“Close Window”**
10. After you entered and reviewed all the information, click **“Submit for Review.”** **Please note: Once you’ve officially submitted your question, you will no longer be able to edit it.**
11. To view the number of assignments you received/submitted, click on the **“My Assignments”** button in the upper left hand corner of the **“Manage Assignments”** window.
12. **\*\*Important\*\*** Please remember to update your information listed on your **“Profile Tab”**. This information must be current in order for us to communicate with you in a timely manner.

## Writing Effective Items

As an item writer for a medical specialty board, your goal should be to provide the highest-quality test material possible to ensure that all examinees that become certified are knowledgeable in their field, not just test-wise. Well-written and appropriately edited examination material is critical for all examinees to demonstrate the depth and breadth of their knowledge.

Writing high-quality, effective test item is difficult for most people. In fact, many test items we have been exposed to are NOT well-written. This can include items that appear on elementary school tests, as well as on recent continuing medical education examinations. When basic item writing principles are not used, test items may be confusing or otherwise unclear, verbose, esoteric, or not as effective as they could be. These instructions can help you avoid these problems when writing items for your assignment.

This Item Writing Guide provides instruction in effective item writing. It gives samples of items that are well-constructed as well as those that are not. Because most flawed items are not accepted by the Examination Committee, the time you spend writing them is wasted. Therefore, the extra effort you put toward well-constructed items not only expedites the review process, but also improves the quality of the examination and helps ensure the qualifications of the candidates who pass.

# Application of Knowledge

## What is application of knowledge?

Test items can be written in two basic ways. By requiring:

- (1) **Application of knowledge to answer the question, or**
- (2) **Mere recall of facts.**

Items requiring application of knowledge provide a specific scenario and ask the examinees to apply their knowledge in interpreting this information and recalling appropriate facts to determine the correct answer. In contrast, recall items simply require knowledge of isolated facts to determine the correct answer. **A certification examination should require application of knowledge.**

## How do you write items that require application of knowledge?

One of the most common approaches to writing this type of item involves composing a clinical vignette. The vignette should provide some or all of the following information: initial symptoms, underlying conditions, other clinical findings, and appropriate laboratory studies. The lead-in for this type of item would ask a question pertaining to diagnosis, management, related findings, or other information. This type of item requires an examinee to apply his or her knowledge, as would be done in a clinical situation.

Items that test application of knowledge should be structured to ask for a specific piece of information. Lead-ins can be structured to ask for:

- ▶ A common factor
- ▶ The implications of a decision
- ▶ The effect or result related to the given findings
- ▶ A comparison or contrast
- ▶ Related consequences
- ▶ An explanation of the noted changes
- ▶ The application of a principle

## Writing A-Type Items

An A-type item utilizes the multiple-choice format, which involves a single best answer. Four options should be provided, with **only one being the best answer**. While other options may be partially true, the single best answer must be the most appropriate response. Options should be lettered **A, B, C, and D**.

### *Basic Rules*

1. **Use an important concept, such as a common clinical issue or question.** Most items should involve situations that would be encountered in a typical practice. Avoid trivial, tricky, or unnecessarily complex items.
2. **Focus the item on testing application of knowledge, not an isolated fact.** Using a clinical vignette provides a good background for testing application of knowledge.
3. **Write an item that is focused, with the stem posing a clear question.** The examinee should be able to answer the question without looking at the options. If the examinee must read every option to gather additional information before being able to answer the question, the item is not well-focused and should be rewritten.
4. **Write options that are homogeneous, with all options falling into the same category as the correct answer** (e.g., all diagnoses, treatments, associated conditions, etc.). All distractors should be viable; they should all be grammatically consistent, logically compatible, and approximately the same length.
5. **Write the stem to contain all the information needed to answer the question.** Options should be relatively short and should not contain additional background information, only the completion of the statement or question posed in the stem. The examinees should be able to answer the question without looking at the options.
6. **List options in logical or alphabetical order.** For example, questions asking for procedures should start with least invasive and work down to most invasive procedures. Diagnoses can be listed alphabetically.
7. **Avoid technical item flaws**, including those that help test-wise examinees or that make the item overly difficult.
8. **Do NOT write any items asking "Which of the following is true?" or "Each of the following is true EXCEPT"** these items are almost always unfocused with options that are not homogeneous.

If your items follow all of these rules, they are probably well-phrased and focused on an appropriate subject.

## *Avoiding Item Flaws*

A number of item flaws can benefit test-wise examinees. People who are not candidates for this examination should not be able to answer the questions correctly on the basis of their construction alone. **Typical item flaws include:**

- ✓ ***Absolute terms*** in options, such as *always, never, or only*
  
- ✓ ***Subjective and nonspecific terms*** such as *may, might, can, could, common(ly), frequent(ly), usually, sometimes, and rarely*; these terms are too vague to be used for items with one best answer and have different meanings to different people. **Adding the term “most” to frequent or likely (e.g., The most likely diagnosis...) actually helps focus and clarify the item.**
  
- ✓ ***Logical clues***, or giving a subset of options that allows the examinee to rule out the distractors
  
- ✓ ***Repetition of words or phrases*** in the stem and options
  
- ✓ ***Making the correct option the longest one.*** The most detailed option is usually the correct answer.
  
- ✓ ***Grammatical clues.*** An option that does not grammatically fit the stem is usually not the correct answer.
  
- ✓ ***Convergence.*** The correct answer includes elements that are common to other options.
  
- ✓ ***Unnecessary difficulty.*** Tricky or complicated stems; long, complicated options
  
- ✓ ***Negative terms*** in stem or options, which require reverse thinking, should not be used. Use of negative terms in options, especially in association with a negatively-phrased question (Each of the following EXCEPT) can be confusing and tricky. In many cases, options with negative terms are not homogeneous.

Use only one term or concept per option. Using “and” or “or” in the stem or some options is either asking more than one question or asking for more than one answer. In options, these terms often clue one option as correct or incorrect. If used in the stem, the question is testing more than one concept.

Avoid instructional information. The examinee should have the background knowledge necessary to answer the item; if the instruction is needed, the item may not be appropriate for the examination.

Do not use multiple true/false items, such as “Each of the following is true EXCEPT” items. In addition to the problems associated with negative items, asking multiple true-false statements is not the best way to test knowledge of examinees. In addition, the negative format requires the candidate to use reverse thinking twice, which makes an item unnecessarily tricky. Options for these items are almost always not focused and not parallel.

Avoid using statistical information or comparisons in options, as neither tests application of knowledge and both usually results in options not being homogeneous.

### ***Writing Stems and Lead-ins***

When composing items using clinical vignettes, use realistic scenarios involving situations likely to develop in a typical practice. The stem should identify a patient and any pertinent information needed to answer the question. This information may include some or all of the following:

- ✓ Patient age
- ✓ Patient gender (use man, woman, boy, girl, infant)
- ✓ Presenting symptom(s) or underlying condition and duration
- ✓ Findings on physical examination
- ✓ Findings on laboratory evaluation
- ✓ Results of other diagnostic testing
- ✓ Issues arising during surgery

***The stem should not include unnecessary information***, which is sometimes referred to as “a red herring.” However, an item may be more readable if it includes patient information, such as “A 45-year-old man” even if age and gender are not important to the question.

The stem should not include information about culture, race, socioeconomics, or sexual preferences unless this information is absolutely necessary to answer the question.

When composing items that do not contain vignettes, keep all information relevant. Some items may be short and not contain a vignette but still test application of knowledge. Some vignettes may be quite brief, while others may be more detailed. Occasionally, recall of information is important to test, as in anatomy questions.

The language used in the stem and options should be clear and concise. Avoid jargon and inflated diction. Test items should be written with the purpose of effectively measuring the examinees’ understanding and ability to apply principles.

## **Commonly used lead-ins are listed below:**

### Basic Science; Mechanisms

Which of the following is the most likely mechanism of action?

Which of the following is the most likely explanation for these findings?

Which of the following is the most likely additional finding?

Which of the following is the most likely site of the lesion?

Which structure is most likely to be involved?

Laboratory evaluation is most likely to show

This agent acts at the receptor for

### Diagnosis

Which of the following is the most likely diagnosis?

These findings are most consistent with

Which of the following is the most likely associated condition?

Which of the following is the most likely site of the lesion?

This patient is at increased risk for (development of)

### Management/Therapy

Which of the following is the most appropriate next step?

Which of the following is the treatment of choice?

Which of the following is the most likely outcome of *[specify treatment]*?

Which of the following is the most likely result of interaction between these drugs?

Which of the following is the most appropriate treatment? *[e.g., pharmacotherapy]*

Which of the following is the most appropriate management? *[e.g., management other than pharmacotherapy or a mix of pharmacologic, surgical, or other types of therapy or observation]*

## ***Writing Options***

Options consist of the correct answer and three distractors, or incorrect answers. Distractors should be plausible, with none standing out as obviously incorrect. In a well-constructed item, each distractor will be chosen by at least a few examinees. Potential sources of distractors include faulty reasoning and common misconceptions and errors. Distractors should not contain information that could give clues to the correct answer.

Well-written distractors should be:

- ✓ ***Homogeneous*** with the correct answer; all should be diagnoses, treatment options, laboratory studies or values, etc.
- ✓ ***Plausible*** to an uninformed examinee
- ✓ ***Incorrect*** or significantly inferior to the correct answer
- ✓ ***Similar*** to the correct answer in length and construction

Distractors affect the difficulty of the item. For example, review the following option sets that accompany the same question:

1. Which of the following companies manufactures sildenafil citrate (Viagra)?
  - A. General Mills
  - B. General Motors
  - C. IBM
  - D. Pfizer
  
2. Which of the following companies manufactures sildenafil citrate (Viagra)?
  - A. Eli-Lilly
  - B. Glaxo-Wellcome
  - C. Novartis
  - D. Pfizer

In the first example, the options are quite different, with only one pharmaceutical company listed. Someone who knows very little about this subject could easily answer this correctly.

In the second example, the question becomes more difficult because of the homogeneity of the options. Someone with limited knowledge would find all of the options to be plausible.

## Item Examples

### Well-Written A-Type Items

Examples of well-written A-type items are given below:

1. Levatoroplasty is indicated for management of anal incontinence associated with
  - A. imperforate anus
  - B. rectal procidentia
  - C. radiation therapy
  - D. solitary rectal ulcer

Answer: B

*This item involves recall of information, but it is well-constructed and is an appropriate way to ask for the condition that is effectively managed by this procedure.*

2. A 30-year-old woman has an anovaginal fistula with incontinence of liquid stool following an injury during childbirth. Endoanal ultrasonography indicates a sphincter defect. Which of the following is the most appropriate management?
  - A. Endorectal advancement flap repair
  - B. Overlapping sphincteroplasty
  - C. Biofeedback followed by endorectal advancement flap repair
  - D. Inversion of the fistula with layered closure transvaginally

Answer: B

*This item follows suggested item writing guidelines. An improvement would include putting options in either alphabetical or logical (least to most invasive) order.*

3. A 31-year-old man has poorly localized pain at the base of the spine with radiation to the buttocks. Digital rectal examination reveals a palpable presacral mass. Radiographs show scimitar sacral deformity. Which of the following is the most likely diagnosis?
  - A. Anterior sacral meningocele
  - B. Chordoma
  - C. Neurofibroma
  - D. Osteogenic sarcoma

Answer: A

*This item sample is ideal: The stem contains a vignette and a focused lead-in; the options are homogeneous and similar in length.*

## Flawed A-Type Items

Examples of flawed A-type items with suggested revisions are given below:

1. Each of the following statements about pudendal nerve injury during childbirth is true **EXCEPT**
  - A. it **may be** associated with a third degree tear **during childbirth**
  - B. it is **more common in** multiparous women **than** primigravid women
  - C. forceps delivery **decreases** the likelihood of injury
  - D. epidural anesthesia, superficial episiotomy, **and** caesarian section do **not** cause injury

Answer: C

*While this item appears to test knowledge of several different points, it has a number of flaws. The stem is not focused; the examinee cannot answer the question without looking at the options. The stem asks a multiple true-false question. A negative term is used in the stem. There is no indication of what the question seeks to test – risk factors, associated findings, sequelae, comparisons, etc. Options are not homogeneous. Use of nonspecific terms in options (may, almost, more common) makes the option ambiguous and subject to individual interpretation. Comparisons (than) should not be used in options. Negative terms should not be used in options and are particularly confusing when combined with a negatively-phrased question. D is not parallel to others as multiple options are given. To revise, this item should focus on one aspect, such as associated findings or causes of injury.*

### Suggested Revision:

The most appropriate *management/procedure for repair* of pudendal nerve injury is

- *Revise options to be viable managements*

**Or,**

Pudendal nerve injury primarily manifests as

- *Revise options to be presenting symptoms*

**Or, for application of knowledge:**

A \_\_\_-year-old woman has \_\_\_\_\_ [*symptoms of pudendal nerve injury*]. Which of the following is the most likely associated feature/condition? [*Or as for the most likely diagnosis, unless this would be too easy with the symptoms listed*]

- *Revise options to fit new stem (associated features, conditions, or symptoms; or, viable diagnoses)*

2. When evaluating anorectal function after low anterior resection

- A. resting and squeeze pressures are markedly lower in patients with tensesmus and soiling
- B. the rectoanal inhibitory reflex may be preserved
- C. radiation therapy significantly affects resting and squeeze pressures
- D. the capacity and compliance of the neorectum are not affected by radiation therapy

Answer: B

*Once again, this item appears to test several points of knowledge, but by doing so it becomes unfocused; items should test only one concept. The stem is not focused; the examinee cannot answer the question without looking at the options. Options are not homogeneous and are longer and more detailed than the stem. Options contain nonspecific terms, comparisons, multiple answers within the same option, and negative terms. To revise, this item should focus on one aspect, such as most likely sequela.*

Suggested Revision:

Which of the following is the most likely adverse finding following low anterior resection of the rectum?

- *Revise options to fit stem*

***Or, use a patient vignette, e.g.,***

A \_\_\_-year-old patient is undergoing low anterior resection of the rectum. Which of the following is the most likely postoperative complication [*or, finding*]?

- *Revise options to fit stem*

# Categories/SubCategories

## 1. Basic science

- 1.1 Anatomy (colon, rectum, anus)
- 1.2 Embryology (colon, rectum, anus)
- 1.3 Physiology (small bowel, colon, rectum, anus)
  - 1.3.1 Fluid electrolyte absorption, secretion
  - 1.3.2 Digestion
  - 1.3.3 Motility and storage
  - 1.3.4 Continence mechanism
  - 1.3.5 Defecation
- 1.4 Immunology
  - 1.4.1 Tumor cell markers
  - 1.4.2 Immunosuppression
- 1.5 Molecular biology
  - 1.5.1 Carcinogenesis
  - 1.5.2 Inflammatory bowel disease

## 2. Preop/postop patient care

- 2.2 Prophylaxis (cardiac, venous thromboembolism, surgical site infection)
- 2.3 Bowel preparation
- 2.5 Pharmacology
  - 2.5.1 Antibiotics
  - 2.5.2 Local anesthetics
  - 2.5.3 Conscious sedation
  - 2.5.4 Pain control (epidural, patient controlled analgesia)
  - 2.5.5 Ileus
  - 2.5.6 Other (NSAIDs, Steroids)
- 2.6 Complications (general)
  - 2.6.3 Anastomotic leak, abscess, fistula
  - 2.6.4 Bowel obstruction
  - 2.6.6 Urinary complications (ureter and bladder injury)
  - 2.6.7 Intraoperative complications (hypotension, hypoventilation, bleeding)
- 2.8 Ostomy
  - 2.8.1 Construction
  - 2.8.2 Complications (skin, prolapse/hernia, retraction)
  - 2.8.3 Continent (Koch)

## 3. Anorectal

- 3.1 Hemorrhoids
  - 3.1.1 Etiology, pathogenesis
  - 3.1.2 Nonoperative treatment (banding, sclerotherapy, infrared)
  - 3.1.3 Operative treatment and complications (hemorrhoidectomy, PPH)
  - 3.1.4 Special situations (pregnancy, varices, IBD, leukemia)
- 3.2 Fissure/stenosis
  - 3.2.1 Etiology, pathogenesis
  - 3.2.2 Nonoperative treatment
  - 3.2.3 Operative treatment (acute, chronic)
  - 3.2.4 Special situations (IBD, Hematologic, suppurative)
- 3.3 Abscess/fistula

- 3.3.1 Perianal/ischiorectal
- 3.3.2 Fistula-in-ano (simple, complex)
- 3.3.3 Rectovaginal fistula
- 3.3.4 Rectourethral fistula
- 3.3.5 Fournier's gangrene
- 3.4 Pilonidal/hidradenitis/pruritus ani
- 3.5 Sexually transmitted disease
  - 3.5.1 Bacterial (Chlamydia, T. Pallidum, N. gonorrhoea)
  - 3.5.2 Viral (HPV, HIV, LGV, HSV)
  - 3.5.3 Parasitic
- 3.6 Fecal incontinence
  - 3.6.1 Investigation (anorectal physiology)
  - 3.6.2 Treatment
- 3.7 Pelvic floor abnormalities
  - 3.7.1 Prolapse, Solitary rectal ulcer
  - 3.7.2 Rectocele, enterocele
  - 3.7.3 Levator ani syndrome
  - 3.7.4 Obstructed defecation
- 3.8 Anorectal trauma/Foreign body
- 3.9 Dermatitis

#### **4. Neoplasms – Colon, Rectum, Anus and Small Bowel**

- 4.1 Colon cancer
  - 4.1.1 Incidence, etiology, epidemiology
  - 4.1.2 Screening
  - 4.1.3 Diagnosis/staging
  - 4.1.4 Surgical treatment
  - 4.1.5 Adjuvant therapy (Chemotherapy, etc)
  - 4.1.6 Complications
  - 4.1.7 Surveillance
  - 4.1.8 Locally advanced cancer
- 4.2 Rectal cancer
  - 4.2.1 Diagnosis/staging
  - 4.2.2 Surgical treatment
  - 4.2.3 Adjuvant therapy (radiotherapy, chemotherapy)
  - 4.2.4 Complications
  - 4.2.5 Locally advanced and recurrent
  - 4.2.6 Outcomes of therapy
- 4.3 Metastatic colorectal cancer
  - 4.3.1 Liver and lung resection
  - 4.3.2 Palliative therapy
- 4.4 Hereditary colorectal cancer/genetic testing
  - 4.4.1 FAP/MYH
  - 4.4.2 Lynch Syndrome/HNPCC
  - 4.4.3 Peutz-Jeghers
  - 4.4.4 Other

- 4.5 Colonoscopy
  - 4.5.1 Polyps
  - 4.5.2 Screening
  - 4.5.3 Bowel prep
  - 4.5.4 Complications
- 4.6 Anal neoplasms
  - 4.6.1 Anal intraepithelial neoplasia (AIN)
  - 4.6.2 Epidermoid carcinoma
  - 4.6.3 Melanoma
  - 4.6.4 Adenocarcinoma in situ (Paget's)
- 4.7 Presacral tumors
  - 4.7.1 Benign (cysts, meningoceles)
  - 4.7.2 Malignant (chordoma, teratomas)
- 4.8 Desmoid
- 4.9 Other neoplasms, including small bowel
  - 4.9.1 Gastrointestinal stromal tumor (GIST), leiomyomas
  - 4.9.2 Lymphoma
  - 4.9.3 Carcinoid
  - 4.9.4 Misc. neoplasia

## **5. Colon/Rectal/Small Bowel Non-neoplastic**

- 5.1 Crohn's disease
  - 5.1.1 Epidemiology, etiology, pathology
  - 5.1.2 Medical management
  - 5.1.3 Surgical management
  - 5.1.4 Anal Crohn's
  - 5.1.5 Other (duodenal, esophageal)
  - 5.1.6 Extraintestinal manifestations
- 5.2 Ulcerative colitis
  - 5.2.1 Epidemiology, etiology, pathology
  - 5.2.2 Medical management
  - 5.2.3 Surgical management: general
  - 5.2.4 Surgical management: Ileal-pouch anal anastomosis
  - 5.2.5 Surveillance, cancer risk
  - 5.2.6 Extraintestinal manifestations
  - 5.2.7 Pouchitis
  - 5.2.8 Indeterminate colitis
- 5.3 Other Colitides
  - 5.3.1 Infectious (*Shigella*, amoeba, *E. Coli 0157*, *C. difficile*, CMV, *Salmonella*, typhus, TB, *Campylobacter*, *Yersinia*)
  - 5.3.2 Ischemic
  - 5.3.3 Radiation (colitis, proctitis and enteritis)
  - 5.3.4 Neutropenic
  - 5.3.5 Misc (collagenous, microscopic, diversion, lymphocytic)
- 5.4 Diverticular disease
  - 5.4.1 Diverticulitis, uncomplicated (resection, age)
  - 5.4.2 Diverticulitis, complicated (perforation, abscess, fistula)
  - 5.4.3 Diverticulosis

- 5.5 Obstruction
  - 5.5.1 Mechanical (intussusception, volvulus)
  - 5.5.2 Colonic pseudoobstruction (Ogilvie's syndrome)
- 5.6 Endometriosis
- 5.7 Lower GI bleeding
  - 5.7.1 Diagnosis
  - 5.7.2 Treatment
- 5.8 Mesentery
  - 5.8.1 Mass
  - 5.8.2 Vascular disease
- 5.9 Appendiceal disease
  - 5.9.1 Appendicitis
  - 5.9.2 Appendiceal malignancy
- 5.10 Colonic inertia
- 5.11 Trauma
- 5.12 Pediatric (Hirschsprung's, anorectal malformations)
- 5.13 Enteric fistulae
- 5.14 Ostomy
  - 5.14.1 Construction
  - 5.14.2 Complications (skin, prolapse, hernia, retraction)
  - 5.14.3 Continent stoma (Koch pouch)

## **6. Miscellaneous**

- 6.1 Statistics
- 6.2 Clinical trials
- 6.3 Incidental surgery
- 6.4 New technology
- 6.5 Quality and cost
- 6.6 Ethics
- 6.7 Patient safety