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# PEDIATRIC NURSING CERTIFICATION BOARD

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## CPN Item Writer Manual

CPN Exam and CPN Self Assessment Exercise (SAE)

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## INTRODUCTION

The primary mission of the Pediatric Nursing Certification Board (PNCB) certification programs is to foster the delivery of high-quality health care to children and their families. This mission is achieved by providing relevant, rigorous professional certification and maintenance programs for pediatric nurse practitioners and pediatric nurses.

As you write items the Certified Pediatric Nurse Exam or the Self-Assessment Exercise you become an integral part of this crucial mission, for as Robert Thorndike (1967) said many years ago: *test items are the basic building blocks of a good test*. Or, said another way, a test is only as good (or as valid, or as useful) as the items of which it is composed.

You already have the most important requisite skill for helping us maintain our high quality certification exams: an in-depth knowledge of your discipline and a rich history of clinical experience. Because certification examinations are meant to be practice-based and to test the knowledge, skills and abilities needed for practice, your involvement as a practicing nurse is essential to the validity of the examinations.

You are still faced with a relatively difficult task, however, and that is to develop items that will identify those clinicians who deliver the type of high-quality health care that you would demand for children in your family without having the luxury of actually observing this care. What you must do, therefore, is pose questions that state in clear, unequivocal terms **the cognitive tasks** you would require someone who treats pediatric patients to perform correctly. The purpose of this manual, then, is to share with you a distillation of several decades of psychometric advances in the science of item construction.

## IMPORTANT, PRELIMINARY PRINCIPLES OF ITEM WRITING

Fortunately, writing good certification items can be broken down into a relatively small number of steps supported by well-established psychometric rules or principles. More important than any of these individual principles, however, is the necessity of always keeping the ultimate purpose of the examination itself in mind: which is to differentiate between exemplary and less-than-exemplary pediatric nurse practitioners or pediatric nurses.

Since you are writing only a few items, the entire burden of this task obviously does not rest upon your shoulders. This means that your items should be quite specialized and focused. Our job here at the Board is to take items from many different nurses working in many different areas of practice and craft a comprehensive examination that covers all of the important areas of pediatric practice. It is our task to make sure that this examination is reliable (which means that it is an accurate measure) and valid (which means that it does indeed differentiate between exemplary and less-than-exemplary pediatric nurses).

Your role as an author of these items, however, is the most essential job of all. The only way that an examination can be *comprehensive, reliable, and valid* is if the individual items are *comprehensive, reliable, and valid*. The most important strategy for ensuring that your items will meet these criteria is to keep the ultimate purpose of the examination in mind: to validate an individual pediatric nurse's qualifications, knowledge, and practice. Tony LaDuca of the National Board of Medical Examiners states this most eloquently via the following dictum: "**Licensure tests ought to be aimed at behaviors that unimpeachably related to effective practice.**" The acceptance of this principle means that you will want to focus your efforts on writing items that adhere to the following principles.

**The item’s topic should fit the test blueprint or content outline.** This outline defines the content domain of the examination and indicates the knowledge and skills that will be tested.

1. **Items involve the application of knowledge rather than the recall of rote facts.** Someone who takes a child to a clinician is not interested in how many facts are in that clinician’s head. Instead he/she is interested in how well the clinician can apply this knowledge to solving the problem that precipitated the visit.

Memory items require the examinee to recall such things as definitions, terminology, and normal lab values; no understanding or interpretation is required. Application or reasoning items, however, require the examinee to interpret data, predict an outcome, explain why certain actions are recommended or not, etc. **DO NOT write items related to CPR procedures. Pediatric nurses are required to maintain CPR qualification and must pass a written exam where these types of questions appear. Do not write items that test general nursing knowledge typically found on an NCLEX exam. The content should be pediatrics specific.**

The following terms can guide you in assessing whether the item requires memory or application. First think about what the examinee must do mentally to respond to the item and then look at the list to determine whether the cognitive task corresponds to memory or reasoning.

Memory	Reasoning or Application		
Define	Apply	Compare	Differentiate
Describe	Analyze	Contrast	Evaluate
Identify	Anticipate	Decide	Justify
Recall	Assess	Develop	Prioritize

2. **Items involve real life, important, and relatively common clinical problems.** This is not to say that a certification test may not include rare, uncommonly seen conditions or that it may not contain unusual clinical scenarios. In general, however, when infrequently occurring events are tested, they should reflect situations whose mismanagement has the potential to result in *serious* consequences. Ask yourself whether the question being asked is important and relevant to current practices. Good items reflect the selection of realistic content.
3. **Items are not designed to “trick” the examinee.** Your job is to identify exemplary clinicians, not exemplary test takers. You want neither to punish a good clinician who is not adept at taking tests nor allow someone who could not perform a behavior in a clinical situation to answer your item based upon an inadvertent cue. Take special precautions to avoid writing “tricky” items, items in which you have consciously placed something that may cause someone who knows the correct answer to answer the item incorrectly.
4. **All items should be referenced in major medical or nursing textbooks.** Items should be referenced to appropriate generalist nursing texts for the CPN exam. Advanced practice texts should not be used as references for the generalist exam. Items should reflect “evidenced based” practice. While journal articles are often good sources for test items for self-assessment exams and other “take-home” tests, item writers should attempt to use textbooks as primary references for items to be used on national certification exams. Separate lists of frequently used texts for CPNs may be found at the end of the manual.

**References considered acceptable for primary references for Self-Assessment Exercises** are medical and pediatric medical and nursing and nurse practitioner journals. Please avoid the use of subspecialty journals as references. Instead use recognized and available texts as references for subspecialty items.

5. **Items are as clear and as unambiguous as possible.** Said another way, the examinees should be able to use their time demonstrating their clinical expertise, not in attempting to understand the items themselves. Each item, therefore, should ask a complete and well-focused question.
6. **Items center on important principles that could reasonably be answered without access to standard reference materials.** A competent clinician will have such materials available in her/his actual practice; hence it is not reasonable to test content that could easily be checked prior to performing a behavior or making a decision.
7. **Each item focuses on a single behavior.** Avoid the temptation to try to learn as much about the examinee's ability as possible from a single clinical situation, since this will cloud what is being measured. Instead, each item should address a single testing point.
8. **Language used in each item is based on candidate's preparation.** The certified pediatric nurse exercises should be written at a professional nursing level, keeping in mind that the candidates may come from various educational programs from hospital schools of nursing to baccalaureate level. Vocabulary and language used in items should reflect practice, not be "tricky" or confusing to the candidate.

Adhering to these simple principles will greatly facilitate your writing valid items capable of measuring what you are trying to test. It will also help to ensure that you write *relevant* items, which is a synonym for *validity*.

## GETTING STARTED

There are many ways to begin the process of writing a question. A good general rule, however, is to write down:

- the general content area or clinical problem you wish to focus on;
- the specific behavior (e.g. recalling, defining, predicting, evaluating or problem-solving) you are interested in testing; and
- the rationale (in terms of clinical outcomes) for why it is important for a pediatric nurse to understand the specific behavior.

The basic idea for the clinical content or behavior (or testing point) you wish to assess can come from a number of sources. You may have been asked to write items on a specific topic or you may already have some ideas in mind already. Other ideas can come from:

- your personal clinical experience,
- courses you have taken,
- current literature (journals and review articles),
- textbooks,
- common mistakes that you have observed in your practice,
- practice guidelines,
- outdated beliefs,
- recent clinical advances or discoveries, and
- drug side effects and interactions.

## ITEM FORMAT

Once you have an idea for your item, it is a good idea to immediately begin framing it into the actual format you will use to present the cognitive task to the examinee. Although there are many types of excellent item formats that have been developed over the years, the one that we are asking you to use is called “one-best-option” multiple-choice item. It is comprised of the following three components:

1. A clinical stem that involves the presentation of a clinical case or situation,
2. An incomplete statement or a lead-in question that directly follows the stem and presents the actual task required of the examinee, and
3. The options which consist of one correct answer and three (3) plausible but incorrect answers.

Your items therefore will take on the following appearance:

*(Clinical Stem)* What is the “gold standard” diagnostic test for gastroesophageal reflux disease (GERD) in an infant?

*(Options):*

- A. Swallow study
- B. Esophageal biopsy
- C. Video sleep study
- D. 24-hour pH probe

We are asking you to write all of your items in this format for two reasons. In the first place, research has not identified any format superior to this genre of “one-best-option” multiple choice item. Secondly, this format helps to guarantee that your item will measure higher level cognitive processes and applied clinical behavior rather than rote recall of facts. Let us therefore consider each of the three components of this type of item in turn.

### The Clinical Stem

In general the clinical stem should be the longest part of an item, containing all of the essential information required to select the proper option. Examinees should not have to read through all the options to determine the intent of the item. This information often includes the age, gender, medical history, presenting symptoms, and laboratory values/examination results for the patient. As a rule, the stem should not include irrelevant information, however, unless this information is tied to an important misconception regarding the management-treatment decision represented by the options. Examinees should not have to sift through extraneous information or “window dressing.” In addition, it is important to avoid any bias, such as sexual, cultural, ethnic, religious or class in the stem or options. The patient does not need to have a name or gender if this is not pertinent to the response or disease process.

Here are two examples of the types of clinical stem found on our certification examination.

**Example:** A 2-month-old (*age*) presents with bilious vomiting (*symptom*) for 24 hours. Physical examination is unremarkable (*examination result*), and there is no weight loss (*examination result*).

**Example:** A 14-year-old (*age*), mildly obese, otherwise healthy (*examination result*) boy (*gender*) presents with a painful limp and pain in the right knee that has been increasing in intensity for the past few days (*symptom*). There is no history of trauma (*clinical history*). Physical examination is significant for external rotation and limitation in abduction of the left hip and knee (*examination result*).

## The Lead-in Question or Incomplete Statement

The stem can either present an incomplete statement or pose a lead-in question that immediately follows the clinical stem. Each serves as the link to the options. Incomplete statements and lead-in questions should be short and to the point, clearly directing the examinee to the desired cognitive task. For example, using the previous stem:

**(Incomplete Statement)** A 2-month-old presents with bilious vomiting for 24 hours. Physical examination is unremarkable, and there is no weight loss. The diagnostic study of choice to establish the diagnosis of malrotation is:

**(Lead-in Question)** A 2-month-old presents with bilious vomiting for 24 hours. Physical examination is unremarkable, and there is no weight loss. What is the diagnostic study of choice to establish the diagnosis of malrotation?

An additional rule is to **avoid having a blank in the stem** in which to “insert” an option. This requires the examinee to read the stem multiple times and makes taking the test itself more stressful than necessary. The item below, for example, tests identical content to the examples above, but it takes more time to answer.

**(Blank in the Clinical Stem)** - The diagnostic study of choice to establish the diagnosis of malrotation is \_\_\_\_\_ for a 2-month-old who presents with bilious vomiting for 24 hrs. Physical exam is unremarkable, & there is no weight loss.

Here are some examples of lead-in questions that tend to be more likely to assess higher level cognitive processes, that is, to test application/reasoning rather than memory or rote recall.

- a. Which of the following tests should be ordered?
- b. What is the most likely result to be obtained?
- c. Which of the following should be administered?
- d. What should be the first course of action?
- e. Which of the following is the most likely cause?
- f. What is the most appropriate next step?
- g. Which of the following medications would be most appropriate?
- h. Which of the following medications is the most likely cause of this symptom?

Lead-in questions are usually the *least* difficult part of an item to write. However, they **should not** include negatives such as “Which of the following is the *least* likely diagnosis?” Also, take care to ensure grammatically consistent links between the question and the options.

**DO NOT use “EXCEPT” in the lead-in question.** For example, our previous lead-in question “What is the diagnostic study of choice to establish the diagnosis of malrotation?” is superior to “All of the following diagnostic studies could be appropriately used to establish the diagnosis of malrotation except.” There are several reasons for avoiding “except” questions. First, it is more difficult to write options for which there are no exceptions. Second, the use of this type of delimiter places an extra cognitive burden on the examinee that is basically irrelevant to the testing point. Third, there is evidence that these types of items tend to overestimate the examinee’s ability and knowledge.

## Item Shells

An ITEM SHELL is a “hollow” item containing a structure that is useful for writing sets of similar items. Haladyna and Shindoll (1989) suggest that beginning item writers use an item shell. The format for this shell is presented in the following table and an example is:

What is an example of \_\_\_\_\_?

- A. example
- B. plausible non-example
- C. plausible non-example
- D. plausible non-example

Two ways to develop item shells:

1. Follow the example above and identify the fact, concept, principle, or procedure being tested and the type of behavior that is desired (recalling, defining, predicting, evaluating, or problem solving).

Defining: What are the main symptoms of \_\_\_\_\_?

Predicting: What is the most common (cause or symptom) of a (patient problem)? *This tests anticipating consequences or cause-and-effect relationships.*

Evaluating: Patient illness is diagnosed. Which treatment is likely to be most effective? OR Why is treatment XX most effective?

Applying: Information is presented about a patient problem. How should the patient be treated/managed/etc? *This item requires the test taker to identify the diagnosis and to identify the correct treatment (management, education) based on the information given.*

2. Change already existing items into shells using the following steps:
  - a. Identify the stem
  - b. Underline the key words or phrases that indicate the content of the item
  - c. Identify variations for each key word or phrase (i.e., age of person, disease, treatment, complications, type of accident, vital signs)
  - d. Select one (or more) of the variations
  - e. Write the stem with the variation
  - f. Write the correct answer
  - g. Write plausible distractors

For each of the following, identify the key words or phrases that represent the content of the item in the stem. Select a variation for the key word(s) and write a new stem using the variation as well as the new correct answer. (You can add distractors later!)

1. Which of the following conditions would restrict a high school student from participating in wrestling?
  - a. Asthma
  - b. Absence of one testicle
  - c. Facial herpes simplex
  - d. Controlled epileptic seizures

New Stem:

2. Which of the following treatments is most effective in the treatment of localized impetigo?
  - a. Topical Bacitracin
  - b. Oral Penicillin VK
  - c. Oral Amoxicillin/clavulanic acid (Augmentin®)
  - d. Topical Mupirocin (Bactroban®)

New Stem:

3. What is the most appropriate recommendation for a 12-year old girl who has irritable bowel syndrome?
  - a. Adhere to a low-residue diet
  - b. Begin a trial of an antispasmodic drug
  - c. Empty the bowel daily
  - d. Apply cold compresses to the abdomen

New Stem:

(Source: Haladyna, T. M. (1994). Developing and Validating Multiple-Choice Test Items. Hillsdale, N.J.: Lawrence Erlbaum, Inc.)

**Examples of Item Shells** - Adapted from Haladyna & Shindoll (1989).

<b>EXAMINEE TASK</b>	<b>CLINICAL STEM</b>	<b>LEAD-IN QUESTION</b>
Evaluate situation and anticipate consequences	Combination of information about situation	What is the most common (cause, complication, symptom, consequence) of this (procedure, drug therapy, problem)?
Select most effective treatment	Information about disease or injury and suggested diagnosis	Which of the following treatments is appropriate?
Evaluate potential causes and select correct one	Describe symptoms of patient disease or problem	What is the most likely cause of the (disease or problem)?
Evaluate alternative treatments and select step to be implemented	Diagnosis, history, and information about patient management	What is the appropriate drug therapy at the time of treatment? What is the next step in the management of this patient?

Identify symptoms or characteristics of a disease or injury	Information about a specific disease or condition	What set of symptoms can be expected?
Determine unwanted event or complication likely for given problem and/or treatment	Disease or problem and treatment described	What is the most likely complication of this (procedure, treatment, drug therapy)?

### Generic Item Shells Classified by Cognitive Operation

(Source: Haladyna, T. M. (1994). Developing and Validating Multiple-Choice Test Items. Hillsdale, N.J.: Lawrence Erlbaum, Inc.)

#### Defining – Concepts

Which is characteristic of \_\_\_\_\_?

Which is an example of \_\_\_\_\_?

Which distinguishes \_\_\_\_\_?

#### Defining – Principles

Which is the reason for \_\_\_\_\_?

Which is the cause of \_\_\_\_\_?

Which is the relationship between \_\_\_\_\_ and \_\_\_\_\_?

Which is an example of the principle of \_\_\_\_\_?

#### Predicting – Principles

What would happen if \_\_\_\_\_?

What is the consequence of \_\_\_\_\_?

What is the cause of \_\_\_\_\_?

#### Evaluating – Facts and Concepts

Which is the most or least important, significant, effective \_\_\_\_\_?

Which is the most like, least like \_\_\_\_\_?

What is the difference between \_\_\_\_\_ and \_\_\_\_\_?

#### Evaluating – Principles

Which of the following principles best applies to \_\_\_\_\_?

#### Evaluating – Procedures

Which of the following procedures best applies to the problem of \_\_\_\_\_?

#### Applying – Concepts, Principles, Procedures

What is the best way to \_\_\_\_\_?

How should one \_\_\_\_\_?

## Multiple Choice Options

One-best-option multiple-choice items are composed of a single correct answer and three *plausible but incorrect* options. The incorrect options are called distractors or alternative answers to the single correct responses. In many ways, the options are the most difficult to write and are most often fraught with pitfalls capable of invalidating an item or unfairly cueing the test-wise examinee. A number of suggestions follow, adapted from Haladyna (1989). **Please include four options per test item.**

1. Make each of the incorrect options (distractors) plausible, but definitely incorrect (or obviously less correct) than the correct option. Having two correct answers may invalidate an item.
2. Include only distractors that at least some examinees would choose in lieu of the correct response. Presenting options that no one will choose makes the item too easy to discriminate among examinees.
3. Although distractors should be attractive and plausible to the less knowledgeable, do not make them “tricky.”
4. Avoid using “none of the above” or “all of the above” as options because both present problems. For example, examinees only need to know two of the three options are true to know that “all of the above” must be the answer. Similarly, if an examinee can eliminate only one of the three options, then “all of the above” cannot be correct. Neither of these requires the examinee to know about all of the options presented. Also, “none of the above” requires the examinee to consider all possible answers to an item and not just the few presented in the options.
5. Avoid placing cues in a distractor such as the words “always” or “never.” There may be exceptions to such qualifiers. Having words in the correct option that closely parallel the wording of the stem is another way of providing clues.
6. Use relational qualifiers to avoid situations for which technically correct exceptions can be found. For example, the option “Children with this diagnosis die before the age of two” could be technically true for many different diagnoses while “The *majority of* children with this diagnosis die before the age of two” is an option that is either correct or incorrect.
7. Avoid qualifiers such as “usually,” “often,” “rarely,” “seldom,” or “commonly” which do not have a generally agreed upon definition. Instead, use specific qualifiers such as “in the majority of cases” or “in less than 20% of the cases.”
8. Avoid variation in the length, grammatical structure, or level of specificity of your options. Test wise individuals know that the longest or most specific option is most often the correct one. Item writers usually spend more effort on the correct options than the incorrect ones and this level of effort often is apparent to an experienced test taker.
9. Make sure that each option is grammatically and logically consistent with the lead-in question. For example, if the lead-in question uses a plural verb, make sure that all of the options have plural nouns.

10. Make sure that your options represent the same category (e.g., diagnostic tests, treatments) or “class” as the correct answer. For example, an option set such as the following either contains a cue to the correct answer or an unnecessary source of confusion for the examinee.
- (a) Vitamin A
  - (b) Vitamin B-1
  - (c) Vitamin C
  - (d) Calcium
11. Order the options to facilitate the examinee finding the correct one if she/he knows it. For example,
- (a) Vitamin A
  - (b) Vitamin B-1
  - (c) Vitamin C
  - (d) Vitamin E
- Rather than:**
- (a) Vitamin E
  - (b) Vitamin A
  - (c) Vitamin C
  - (d) Vitamin B-1
12. If numerical values (e.g., laboratory results) are employed as options, list them from either high to low or low to high.
13. Options should not overlap (e.g., less than 25%, 20% to 40%, etc.). They should also not be too specific (e.g., “exactly 24%”) nor too general.
14. Using technical phrases, familiar but incorrect responses, or true statements that do not answer the question may increase the appeal of distractors to less knowledgeable examinees. This can improve the validity of the examination if more knowledgeable examinees are not similarly “distracted.”
15. Use as many plausible distractors (up to three) as possible, although it is often difficult to construct more than two good ones.

## DOCUMENTATION OF CORRECT RESPONSES

In order to appropriately validate the correct answer, we are asking that all item writers provide a primary reference source for all correct answers as well as distractors. The following are considered primary references: acceptable medical, pediatric medical, and nursing/nurse practitioner textbooks; nationally recognized pediatric nursing, medical and nurse practitioner journals. Please cite only journals that are currently a part of the National Library of Medicine holdings.

## EDITING ITEMS

Once all three constituents of your items have been constructed it is time to very systematically edit each of them. A good test item, though brief, is one of the most difficult writing tasks any professional is ever asked to undertake. Almost no one, even the most experienced of test constructors, can simply sit down and write a final item capable of the complex type of assessment that we at the Pediatric Nursing Certification Board are mandated to perform. Therefore we strongly suggest that you take the time to follow the following guidelines for editing each of your items. *Systematic editing is not an adjunct to item writing; it is an integral part of the process itself.*

- Step #1: **Review your explicit, written statement of the testing point and rationale for the item to assure that what you have written does indeed assess what you started out to write.** If it does not, either rewrite the item to better reflect this point or rewrite the testing point reflected by your item.
- Step #2: **If you have not run a spell and grammar check, do so at this point.** Then review the entire item for clarity, grammar, mechanics (e.g., abbreviations, capitalization) and style (e.g., the use of active verbs, adherence to the clinical stem-question-options format).
- Step #3: **Make sure that that there is indeed one and only one correct answer to your question, and that it is the one you have keyed.**
- Step #4: **Make sure that the answer is documented in the reference and that the highlighted passage is indeed relevant to the final version of your item.**
- Step #5: **Provide at least two knowledgeable colleagues with your explicit statement of the testing point and its rationale and the highlighted clinical reference supporting the item. Ask them to review the item’s relevance.** It is a good idea to ask your reviewers to mark unclear issues, look for exceptions to your correct option, and make suggestions for improvement.
- Step #6: **Have two or more students or entry-level practitioners actually answer the edited question.** If feasible, have them orally report the thought processes they use to arrive at the answer. Encourage anyone who missed the item to challenge the correct answer or explain why he/she selected an incorrect option.
- Step #7: **Fill out the following checklist by simply circling the indicated options. Correct any deficiencies indicated by a “no” response.**

Yes	No	Is the item written in a clear, concise format, at the reading level of the proposed candidate?
Yes	No	Does the item begin with a clinical stem?
Yes	No	Does the stem contain all relevant information (e.g., patient characteristics, symptoms, examination results)?
Yes	No	Is the stem focused?
Yes	No	Does the stem contain <u>only</u> necessary wording (i.e., no “window dressing”)?
Yes	No	Is there any indication of bias (i.e., gender, sexual, cultural, ethnic, religious or class)
Yes	No	Does a lead-in question or incomplete statement follow the clinical stem?
Yes	No	Does the lead-in question or incomplete statement avoid words such as “except,” “none of the above”, “all of the above”?
Yes	No	Does the lead-in question end with a question mark?
Yes	No	Does one and only one incontrovertibly correct option follow the lead-in question?
Yes	No	Are there two or three incorrect options?

Yes	No	Do the options avoid cues? Examples include: Words such as “always,” “never,” “usually,” “seldom,” commonly”—Grammatical or structure differences among the different options
Yes	No	Do all of the distractors possess a degree of plausibility (at least to an uninformed examinee)?
Yes	No	If numerical values are employed, are the options ordered numerically and are they mutually exclusive?
Yes	No	Do the options represent the same category or classification?
Yes	No	Did you consciously or unconsciously try to make the item “tricky?”
Yes	No	Does the item test clinical practice behavior rather than rote knowledge?
Yes	No	If the nurse was not able to correctly perform the behavior targeted by the item would it result in an unacceptable patient outcome?
Yes	No	Did you carefully proof read the item?

#### References for Item Writer Manual

Case, S.M., & Swanson, D.B. (1998). *Constructing written test questions for the basic and clinical sciences (2<sup>nd</sup> Edition)*. Philadelphia: National Board of Medical Examiners.

Haladyna, T.M. (1994). *Developing and validating multiple-choice test items*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Haladyna, T.M., & Shindoll, R.R. (1989). Items shells: A method for writing effective multiple-choice test items. *Evaluation & the Health Professions*, 12, 97-104.

LaDuca, A. (1994). Validation of professional licensure examinations: Professions theory, test design, and construct validity. *Evaluation & the Health Professions*, 17, 178-197.

Thorndike, R.L. (1967). The analysis and selection of test items. In S. Messick & D. Jackson (Eds.), *Problems in human assessment*. New York: McGraw-Hill.

## **Item Writer Referencing Information**

All **certification exam items** should be referenced in major medical or nursing textbooks. Items should be referenced to appropriate generalist nursing texts for CPN exam. Advanced practice texts should not be used as references for the generalist exam. Items should reflect “evidenced based” practice. While journal articles are often good sources for test items for self-assessment exams and other “take-home” tests, item writers should attempt to use textbooks as primary references for items to be used on national certification exams.

For **SAE item writing**, in order to validate the correct answer, item writers are asked to provide a primary and additional (secondary) reference source for all correct answers as well as distractors. **The primary reference is to be an acceptable pediatric medical or general pediatric nursing journal** which is commonly available to the pediatric nurse practitioner or pediatric nurse. Major medical or nursing textbooks may be used as a secondary reference. Please avoid the use of subspecialty journals as references. Instead use recognized and available texts as references for subspecialty items.

**Primary references should be no more than 3-5 years old. Please identify at least two references for each item: a primary reference and an additional (secondary) reference.**

**A list of frequently used textbooks for CPN Exams and acceptable general pediatric nursing journals for SAE item writing can be found on the following pages.**

## CPN Exam Reference List

The PNCB recommends that you use ONE pediatric nursing textbook that you are familiar with to review for the exam. This text should also focus on the subject areas covered by the [CPN Exam Content Outline](#). You do not need to study all the references listed below. Other candidates have found the most current edition of the following references useful for their review. The PNCB does not endorse nor have any proprietary relationship with any of the following textbooks.

### **For Basic Pediatric Nursing Content:**

*Wong's Essentials of Pediatric Nursing*, 7th Edition (2005).  
By Marilyn J. Hockenberry, David Wilson and Marilyn L. Winkelstein  
Publisher: Elsevier  
ISBN: 0-323-02593-5 (8th edition to be published 2007)

*Child Health Nursing: Partnering with Children and Families* (2006).  
By J. W. Ball and R. C. Binder  
Publisher: Prentice Hall  
ISBN: 0-131-13320-9

*Pediatric Nursing, Caring for Children and Their Families*, 2nd Edition (2006).  
By Nicki L. Potts and Barbara L. Mandleco  
Publisher: Thomson Delmar Learning  
ISBN: 1-401-89711-8

*Mosby's Pediatric Nursing Reference*, 5th Edition (2004).  
By C. L. Betz and L. A. Sowden  
Publisher: Mosby, Inc.  
ISBN: 0-323-01979-X

### **For Structuring a CPN Review Course/Independent Study:**

*Core Curriculum for the Nursing Care of Children and Their Families* (2006).  
Edited by Marion E. Broome and Judy A. Rollins  
Publisher: Jannetti Publications, Inc. ([www.ajj.com](http://www.ajj.com))  
ISBN: 0-965-33792-8

*Lippincott's Review Series: Pediatric Nursing*, 4th Edition (2004).  
By Mary E. Muscari  
Publisher: Lippincott Williams & Wilkins  
ISBN: 1-582-55341-9

*Pediatric Nursing Certification Review* (2006).  
By Janice Selekman and Louise Jakubik  
Publisher: Society of Pediatric Nurses ([www.pedsnurses.org](http://www.pedsnurses.org))

*Straight A's in Pediatric Nursing* (2003).  
By Springhouse  
Publisher: Lippincott Williams & Wilkins  
ISBN-10: 1-58255-287-8  
ISBN-13: 978-1-58255-287-3

**For Pediatric Nursing Procedures:**

*Pediatric Nursing Procedures* (2003).

By Vicky R. Bowden and Cindy Smith Greenberg

Publisher: Lippincott Williams & Wilkins

ISBN: 0-7817-3921-3 (2nd edition to be published March 2007)

**For Pediatric Medications:**

*Pediatric Dosage Handbook*, 13th Edition.

By Carol K. Taketomo, Jane Hurlburt Hodding and Donna M. Kraus

Publisher: Lexi-Comp

ISBN: 1-59195-092-9

**For Anticipatory Guidance/Developmental Focus:**

*Bright Futures: Guidelines for Health Supervision of Infants, Children in Maternal & Child Health and Adolescents*, 2nd edition, rev. (2002).

Edited by M. Green

Publisher: National Center for Education in Maternal and Child Health

ISBN: 1-57285-070-1

## CPN SAE Reference List

In order to validate the correct answer item writers are asked to provide a primary and additional reference source for all correct answers as well as distractors. **The references are considered to be acceptable medical and pediatric medical and nursing textbooks as well as nationally recognized pediatric nursing journals.** Please avoid the use of subspecialty journals as references. Instead use recognized and available texts as references for subspecialty items.

Primary references should be no more than 3-5 years old. Please identify at least two references for each item: a primary reference and an additional (secondary) reference. Textbooks may be used for secondary references only.

### CPN Pediatric Nursing SAE

- |   |                                   |
|---|-----------------------------------|
| • American Journal of Nursing                     | <i>Am J Nurs</i>                  |
| • Contemporary Pediatrics                         | <i>Contemp Pediatr</i>            |
| • Journal of Pediatric Health Care                | <i>J Pediatr Health Care</i>      |
| • Journal of Pediatric Nursing                    | <i>J Pediatric Nurs</i>           |
| • MCN, American Journal of Maternal Child Nursing | <i>MCN Am J Matern Child Nurs</i> |
| • Nursing 2005                                    | <i>Nursing</i>                    |
| • Pediatric Annals                                | <i>Pediatr Ann.</i>               |
| • Pediatric Nursing                               | <i>Pediatr Nurs.</i>              |
| • Pediatrics in Review                            | <i>Pediatr Rev.</i>               |
| • RN  | <i>RN</i>                         |

## ITEM SUBMISSION TO PNCB

### Guidelines

When you are completely satisfied with your items, prepare them according to the reference and item submission formats provided by the PNCB in this manual and return your items on a Microsoft Word document sent as an E-mail attachment to [pharrison@pncb.org](mailto:pharrison@pncb.org). This format should be used to write and record the items and items responses as well as the primary reference and critiques and secondary references as needed.

### Format for References

#### Examples

(Using the AMA style)

#### One Author, Journal Article

Jarvis JN. Juvenile rheumatoid arthritis: A guide for pediatricians. *Pediatr Ann.* 2002;31(7):437-443.

#### Two or more Authors, Journal Article

Morash D, Fowler K. An evidence-based approach to changing practice: using sucrose for infant analgesia. *J Pediatr Nurs.* 2004;19(5):366-370.

#### More than Six Authors, Journal Article

Mangurten J, Scott SH, Guzzetta CE, Sperry JS, Vinson LA, Hicks BA, et al. Family presence: Making room. *Am J Nurs.* 2005;105(5):40-48.

#### Group as an Author, Journal Article

American Academy of Pediatrics. Subcommittee on Management of Sinusitis and Committee on Quality Improvement. Clinical practice guidelines: Management of sinusitis. *Pediatrics.* 2001;108:798-808.

#### Author(s) of Book

Swischuck LE. *Imaging of the Newborn, Infant and Very Young Child.* 4<sup>th</sup> ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2003.

#### Group Author of Book

Pickering LK, Baker CJ, Long SS, McMillan JA, eds. *Red Book: 2006 Report of the Committee on Infectious Diseases.* 27<sup>th</sup> ed. Elk Grove Village, Ill: American Academy of Pediatrics; 2006.

#### Editor(s) of Book

Hockenberry MJ, Wilson D, Winkelstein ML, Kline NE, eds. *Wong's Nursing Care of Infants and Children.* 7<sup>th</sup> ed. St. Louis: Mosby; 2003.

### World Wide Web

Centers for Disease Control. Lead: Guidelines and recommendations. Available at: <http://www.cdc.gov/lead/guidelines.htm>. Accessed July 24, 2005.

Luo F, Leckman JF, Katsovich L., et al. Prospective longitudinal study of children with tic disorders and/or obsessive-compulsive disorder: Relationship of symptom exacerbation and newly acquired streptococcal infection. *Pediatrics* [serial online]. 2004;113:e578-e585 Available at <http://pediatrics.aappublications.org>. Accessed July 24, 2005.

Kim DE. Varicocele. [eMedicine Web site]. July 20, 2004. Available at: [www.emedicine.com/med/topic2757.htm](http://www.emedicine.com/med/topic2757.htm). Accessed July 19, 2005.

## CPN Exam Item Submission

### Format

Exam items should be submitted in the following format and returned on a Microsoft Word document sent as an E-mail attachment to [pharrison@pncb.org](mailto:pharrison@pncb.org).

**AUTHOR:** (item writer's name)

**TOPIC:** (from outline)

**STEM and LEAD-IN QUESTION:** (Sequence number with period, followed by question.)

1.

**OPTIONS:** (Includes labels A., B., C. and D. followed by choices.)

A.

B.

C.

D.

**CORRECT ANSWER:** (Answer: followed by letter of choice.)

Answer: B

**REFERENCE:**

## CPN Exam Item Submission

This is how each item submission would look when completed.

### Formatted Example

Jane Doe

Physiology/Pathophysiology: Gastrointestinal

1. What is the “gold standard” diagnostic test for gastroesophageal reflux disease (GERD) in an infant?
  - A. Swallow study
  - B. Esophageal biopsy
  - C. Video sleep study
  - D. 24-hour pH probe

Answer: B

#### REFERENCE:

Hockenberry MJ, Wilson D, Winkelstein ML, Kline NE, eds. *Wong's Nursing Care of Infants and Children*. 7<sup>th</sup> ed. St. Louis: Mosby; 2003.

## CPN SAE Item Submission

### Format

SAE items should be submitted in the following format and returned on a Microsoft Word document sent as an E-mail attachment to [pharrison@pncb.org](mailto:pharrison@pncb.org).

**WRITER'S NAME (item writer's name)**

**BEHAVIORAL: TOBACCO USE (Topic)**

**STEM AND LEAD-IN QUESTION** (Sequence number with period, followed by question.)

1. Of the following, the most effective means of deterring adolescents from beginning to smoke cigarettes has been shown to be:

**OPTIONS:** (Includes labels A., B., C. and D. followed by choices. Multiple choice questions only, 3-4 options.)

- A. emphasizing the negative social consequences of smoking
- B. reviewing the long-term hazards of smoking
- C. stressing the potential for addiction to nicotine
- D. discussing the falseness of cigarette advertising

**CORRECT ANSWER:** (Answer: followed by letter of correct option.)

Answer: A

**CRITIQUE:** (fill in your critique in this area addressing both the correct and incorrect options.)

The risk of starting to smoke climbs steadily between age 12-16 years and then declines. The early adolescent years are a critical time to educate children in a manner suited to their developmental status.

Stressing the long-term health hazards of tobacco use (e.g., cancer, emphysema, and nicotine addiction) may be effective among young children but is less beneficial among adolescents who are usually aware of the risks. Of far greater benefit is a reminder of the adverse social consequences that may result from bad breath and finger stains caused by smoking.

It is difficult to convince adolescents of the duplicity of cigarette advertisements that tout a glamorous lifestyle. It is more useful to refer them to peer-modeling programs featuring an actor or sport's star that does not smoke. Enlisting the aid of parents in providing a nonsmoking environment may be helpful; however, the admonitions of parents rarely dissuade adolescents.

**PRIMARY REFERENCE:**

Gold AO, Fisburn PT. Relationships between high school students smoking and cigarette advertisements. *J Pediatr Health Care*. 2003;110(4):488-491.

**SECONDARY REFERENCE:**

O'Leary GL, Kerry DD. Understanding tobacco use amongst adolescents. *Pediatr Clin North Am*. 2001;34(5):363-379.

## CPN Self-Assessment Exercise (SAE) Item

This is how each item submission would look when completed.

### Formatted Example

**Jane Doe**

#### **BEHAVIORAL: TOBACCO USE**

1. Of the following, the most effective means of deterring adolescents from beginning to smoke cigarettes has been shown to be:

- A. emphasizing the negative social consequences of smoking
- B. reviewing the long-term hazards of smoking
- C. stressing the potential for addiction to nicotine
- D. discussing the falseness of cigarette advertising

Answer: A

The risk of starting to smoke climbs steadily between age 12-16 years and then declines. The early adolescent years are a critical time to educate children in a manner suited to their developmental status.

Stressing the long-term health hazards of tobacco use (e.g., cancer, emphysema, and nicotine addiction) may be effective among young children but is less beneficial among adolescents who are usually aware of the risks. Of far greater benefit is a reminder of the adverse social consequences that may result from bad breath and finger stains caused by smoking.

It is difficult to convince adolescents of the duplicity of cigarette advertisements that tout a glamorous lifestyle. It is more useful to refer them to peer-modeling programs featuring an actor or sport's star that does not smoke. Enlisting the aid of parents in providing a nonsmoking environment may be helpful; however, the admonitions of parents rarely dissuade adolescents.

#### **PRIMARY REFERENCE:**

Gold AO, Fisburn PT. Relationships between high school students smoking and cigarette advertisements. *J Pediatr Health Care*. 2003;110(4):488-491.

#### **SECONDARY REFERENCE:**

O'Leary GL, Kerry DD. Understanding tobacco use amongst adolescents. *Pediatr Clin North Am*. 2001;34(5):363-379.



## Certified Pediatric Nurse (CPN™) Exam

### Content Outline

**General pediatric nurses provide care to children and their families across the health care continuum, including health promotion, illness management and health restoration. Pediatric nurses may practice in a variety of settings and roles, including: direct caregiver, educator, counselor, consultant, advocate, care coordinator, or health systems manager. Pediatric nurses have the ability to assess, plan and implement nursing interventions, and evaluate nursing care, incorporating research findings.**

**I. Developmental:** *Biologic and cognitive development and growth parameters used to determine how the child is functioning. Implementation of appropriate counseling/education and anticipatory guidance for the child and family. (22% of the examination)*

**A. Assessment:** *Collection of data about/from the child and family. It is a continuous on-going process.*

1. Assess child and family using various growth and developmental theories and other cognitive screening procedures
2. Interpret developmental history and influencing environmental variables as a part of a comprehensive age-specific assessment
3. Identify the usual progression of growth and development throughout the early stages of the life cycle, including adolescence
4. Assess growth parameters (e.g., growth chart, height, weight, FOC)
5. Assess child's understanding of the health/disease process
6. Assess child's barriers to learning

**B. Planning:** *Clearly defined plan of action developed with the child/family.*

1. Develop an individualized plan of care that addresses developmental needs
2. Formulate individualized teaching plan based on child/family assessment
3. Determine age and developmentally appropriate equipment and supplies

**C. Implementation:** *Actions taken by the nurse to put into effect the care plan developed during the planning phase.*

1. Implement developmentally appropriate creative teaching strategies to meet child/family needs
2. Implement communication strategies appropriate to child's age and cognitive development
3. Encourage age-appropriate play
4. Implement appropriate counseling/education to prevent accidents and injuries
5. Implement appropriate counseling/education to facilitate life choices for youth
6. Provide anticipatory guidance for the child and family (e.g., regarding speech/language development, peers, school, socialization, multi-media, transition of care, procedures, and treatment)
7. Modify nursing interventions for a child with special needs

**D. Evaluation:** *Determining the effectiveness of the care plan in solving identified problems or meeting the child/family needs. It is a continuous on-going process.*

1. Analyze the outcomes of age and developmentally appropriate interventions.

**II. Psychosocial/Behavioral:** *Social, environmental and cultural influences on mental health and quality of life.* (15% of the examination)

**A. Assessment**

1. Utilize appropriate interview techniques to gather psychosocial data from the child
2. Assess behavioral reaction to stressful events
3. Identify the emotions and/or temperament of the child and how they are affected by parenting styles
4. Identify physical, psychological and environmental influences that lead to unhealthy behaviors (e.g., violence, addictive behaviors)
5. Determine patient needs pertaining to discharge planning.
6. Assess for abuse and neglect
7. Differentiate between normal and abnormal psychosocial findings and communicate to appropriate health care professionals
8. Analyze situations to anticipate potential psychosocial problems and detect changes in patient status

**B. Planning**

1. Partner/collaborate in development of the plan of care for children and youth with abnormal psychosocial findings
2. Develop an individualized plan of care that addresses psychosocial needs

**C. Implementation**

1. Serve as a child advocate
2. Facilitate the incorporation of self-care strategies to promote health
3. Foster independence through capacity building - self-esteem & positive decision making
4. Facilitate child and /family adjustment to hospitalization/illness
5. Implement appropriate counseling strategies based on child and family health needs
6. Maintain privacy and confidentiality in the nurse/child relationship within legal constraints
7. Provide supportive care for child and family during grief and loss

**D. Evaluation**

1. Identify child and family behavioral responses when managing complicated therapies
2. Assess for adherence with therapeutic regimen (e.g., medication)
3. Identify barriers to full participation in health restoration plan

**III. Family Centered Care:** *Family and professional partnerships related to family and child needs.* (15% of the examination)

**A. Assessment**

1. Identify cultural/spiritual factors that influence child and family health care practices
2. Identify the major factors that determine the type of relationship children and youth have with their parents
3. Identify educational needs for parenting
4. Recognize aspects of patient status, family integrity, family role functions and coping that vary from normal development
5. Identify child & family responses to living with a chronic condition or special need(s)
6. Identify factors affecting parent-child attachment

**B. Planning**

1. Formulate family needs based on the existing family situation
2. Incorporate cultural, social, political, economic, demographic & ecological variables that affect delivery of nursing care to children & families
3. Involve child and family in decision making related to the plan of care

**C. Implementation**

1. Assist child and family in implementing their role in the plan or care
2. Advocate for the child and family during interdisciplinary rounds and/or patient-care conferences
3. Teach child and family about community resources
4. Facilitate change in family dynamics to promote child's health
5. Facilitate the transition (flow) of child and family through the care continuum
6. Promote parent-child attachment
7. Communicate concerns regarding negative parenting to appropriate resources
8. Provide supportive care for child and family during end of life \*

**D. Evaluation**

1. Alter nursing interventions based upon the patient/family responses and health needs
2. Identify changes in parent-child interaction and attachment

**IV. Health Promotion and Maintenance:** *Wellness management of child and family.* (20% of the examination)

**A. Assessment**

1. Identify nutritional requirements and dietary patterns and perform nutritional screening
2. Identify unique behavioral characteristics of the child and implications for care
3. Assess for immunization status and adverse reactions
4. Assess for health maintenance and promotion needs of the child

**B. Planning**

1. Determine patient needs pertaining to nutritional counseling
2. Develop plan to meet the child's health maintenance and health promotional needs to maximize positive self-care

**C. Implementation**

1. Teach families infectious disease prevention principles
2. Provide anticipatory guidance regarding health issues for the child and family
3. Facilitate feeding practices, including breast feeding to support optimal development of the child
4. Provide anticipatory guidance for the child and family regarding immunizations

**D. Evaluation**

1. Evaluate adherence to health maintenance and promotion practices
2. Identify barriers to full participation in health maintenance and promotion practices.

**V. Physiology/Pathophysiology:** *Normal and abnormal physiological principles and processes.*  
(28% of the examination)

**A. Assessment**

1. Identify the unique physiological and/or pathophysiological characteristics of the child and implications for care
2. Assess for nursing procedures/interventions using age appropriate guidelines
3. Assess the development of the nervous system by the presence or absence of reflexes (newborn)
4. Interpret observations, history data, physical examination results and cultural and genetic influences as a part of a comprehensive age – specific assessment
5. Assess immunologic status
6. Identify changes in signs and symptoms in emergent situations
7. Analyze results of diagnostic testing
8. Differentiate between normal and abnormal physical findings

**B. Planning**

1. Develop plan of care based on child's functional status
2. Develop plan of care based on analysis of symptoms
3. Develop plan of care based on needs pertaining to pain management \*
4. Select appropriate monitoring technology as an adjunct to child assessment (e.g. ECG, pulse oximetry, apnea monitor)
5. Prioritize and delegate interventions and therapies
6. Plan for the following health care interventions:
  - a. Feeding adjuncts
  - b. specimen collection
  - c. skin care
  - d. medication administration, including oxygen \*
  - e. mobility and positioning
  - f. phototherapy
  - g. neutral thermal environments (thermal regulation)
  - h. conscious sedation
  - i. suctioning
  - j. line maintenance (e.g., vascular, drainage, feeding)
  - k. blood administration
  - l. fluid and electrolytes
  - m. infection control
7. Develop an individualized plan of care that addresses physical needs
8. Plan for consistent safe environment utilizing alternatives and/or least restrictive measures
9. Anticipate potential pathophysiological problems and detect changes in child's status

**C. Implementation**

1. Intervene in emergent situations
2. Implement interdisciplinary discharge/transfer plan
3. Manage the nursing care of children receiving the following procedures/interventions using age appropriate guidelines:
  - a. Feeding adjuncts
  - b. specimen collection
  - c. skin care

- d. medication administration, including oxygen \*
  - e. mobility and positioning
  - f. phototherapy
  - g. neutral thermal environments (thermal regulation)
  - h. conscious sedation
  - i. suctioning
  - j. line maintenance (e.g., vascular, drainage, feeding, oxygen)
  - k. blood administration
  - l. fluid and electrolytes
  - m. infection control/transmission of communicable pathogens
4. Provide interventions to prevent transmission of communicable disease
  5. Communicate abnormal physical findings to appropriate health care professionals
  6. Participate in activities to manage child's pain \*

**D. Evaluation**

1. Differentiate between normal and abnormal physical findings and communicate findings to appropriate health care professionals
2. Evaluate the following nursing procedures/interventions using age appropriate guidelines:
  - a. nutrition support
  - b. specimen collection
  - c. skin care
  - d. medication administration, including oxygen \*
  - e. restraints
  - f. phototherapy
  - g. neutral thermal environments (thermal regulation)
  - h. conscious sedation
  - i. suctioning
  - j. line maintenance (e.g., vascular, drainage, feeding, oxygen)
  - k. blood administration
  - l. fluid and electrolytes
3. Adapt the plan of care based on child and family needs while managing complicated therapies
4. Modify plan of care to accommodate a child's sensory and motor deficits
5. Evaluate for variance in the interdisciplinary plan of care
6. Evaluate the effectiveness of pharmacological and nonpharmacological pain management interventions \*

\* Required element