

CERTIFICATION EXAMINATION FOR NUTRITION SUPPORT CLINICIANS

Handbook for Candidates

EXAMINATION DATES	
Fall 2018	
Application Deadline	Testing Window
August 30, 2018	Begins: September 22, 2018 Ends: October 6, 2018
Winter 2018 – Conference Testing	
Application Deadline	Testing Window
February 15, 2019	Sunday, March 24, 2019 ASPEN19 Conference, Phoenix, AZ (International Candidates Only)
Spring 2019	
Application Deadline	Testing Window
March 30, 2019	Begins: April 27, 2019 Ends: May 11, 2019
Fall 2019	
Application Deadline	Testing Window
August 15, 2019	Begins: September 21, 2019 Ends: October 5, 2019



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TABLE OF CONTENTS

TABLE OF CONTENTS.....	1
CERTIFICATION	2
OBJECTIVES OF CERTIFICATION	2
ELIGIBILITY REQUIREMENTS (US & CANADA)	2
ELIGIBILITY REQUIREMENTS (INTERNATIONAL CANDIDATES).....	3
ADMINISTRATION.....	4
ATTAINMENT OF CERTIFICATION AND RECERTIFICATION.....	4
REVOCAION OF CERTIFICATION.....	4
APPLICATION PROCEDURE	4
COMPLETION OF APPLICATION	5
FEES	5
RESCHEDULING & REFUNDS.....	5
EXAMINATION ADMINISTRATION	6
TESTING SOFTWARE DEMO	6
SCHEDULING YOUR EXAMINATION APPOINTMENT	6
SPECIAL NEEDS	7
CHANGING YOUR EXAMINATION APPOINTMENT	7
RULES FOR THE EXAMINATION	7
REPORT OF RESULTS	8
REEXAMINATION	8
CONFIDENTIALITY	8
CONTENT OF EXAMINATION	8
SCORING PROCEDURE	9
ONLINE PRACTICE TEST FOR NUTRITION SUPPORT CLINICIANS	9
CONTENT DOMAINS AND TASK STATEMENTS.....	10
SAMPLE EXAMINATION QUESTIONS.....	12
REFERENCES.....	14

This handbook contains necessary information about the Certification Examination for Nutrition Support Clinicians (CNSC®). Please retain it for future reference. Candidates are responsible for reading these instructions carefully. This handbook is subject to change.

CERTIFICATION

The National Board of Nutrition Support Certification, Inc. (NBNSC) endorses the concept of voluntary, periodic certification by examination for all nutrition support clinicians. Board certification for nutrition support clinicians is highly valued and provides formal recognition of nutrition support knowledge.

OBJECTIVES OF CERTIFICATION

TO PROMOTE ENHANCED DELIVERY OF SAFE AND EFFECTIVE CARE THROUGH THE CERTIFICATION OF QUALIFIED CLINICIANS IN NUTRITION SUPPORT BY:

1. Recognizing formally those individuals who meet eligibility requirements of the National Board of Nutrition Support Certification, Inc. and pass the Certification Examination for Nutrition Support Clinicians.
2. Encouraging continued professional growth in the practice of nutrition support.
3. Establishing and measuring the level of knowledge required for certification by a nutrition support clinician.
4. Providing a standard of minimum knowledge deemed appropriate for clinicians practicing nutrition support, thereby assisting the employer, public, and health care professionals in the assessment of nutrition support clinicians.

ELIGIBILITY REQUIREMENTS (US & CANADA)

Candidates are recommended to have at least two years of experience in nutrition support practice after obtaining professional certification and/or licensure.

1. Candidates must meet one of the following eligibility requirements:

Dietitians

Currently is a Registered Dietitian (RD/RDN) with the Commission on Dietetic Registration (CDR) or the Canadian equivalent.

Registered Nurses/Nurse Practitioners

Currently is licensed as a Registered Nurse (RN), including Nurse Practitioners (NP) in the United States or Canada. A copy of current license must accompany application.

Pharmacists

Currently is registered/licensed as a Pharmacist in the United States or Canada. A copy of current license must accompany application.

Physicians

Currently is licensed as a Doctor of Medicine (MD) or Doctor of Osteopathy (DO) in the United States or Canada. A copy of current license must accompany application.

Physician Assistants

Currently is registered/licensed as a Physician Assistant in the United States or Canada. A copy of current license must accompany application.

2. Completion and filing of an Application for the Certification Examination for Nutrition Support Clinicians.
3. Payment of required fee.

ELIGIBILITY REQUIREMENTS (INTERNATIONAL)

Candidates outside of the US and Canada are able to apply and sit for the Certification Examination for Nutrition Support Clinicians. International candidates must meet the following requirements. **Please note: all documentation MUST be in English.**

Candidates are recommended to have at least two years of experience in nutrition support practice after obtaining professional certification and/or licensure.

1. Candidates must meet one of the following eligibility requirements:

Dietitians

Currently registered/licensed or the equivalent in their country*.

Registered Nurses/Nurse Practitioners

Currently is licensed or the equivalent in their country as a nurse or nurse practitioner. A copy of current license must accompany application*.

Pharmacists

Currently is registered/licensed or the equivalent in their country as a Pharmacist. A copy of current license must accompany application*.

Physicians

Currently is licensed or the equivalent in their country as a Doctor of Medicine (MD) or Doctor of Osteopathy (DO). A copy of current license must accompany application*.

Physician Assistants

Currently is registered/licensed or the equivalent in their country as a Physician Assistant. A copy of current license must accompany application*.

*If your country does not issue licenses, etc. a letter, in English and on letterhead, from your employer confirming your work history and current job description can be submitted.

2. All international candidates must submit a credential evaluation in English¹.
3. Completion and filing of an Application for the Certification Examination for Nutrition Support Clinicians.
4. Payment of required fee².

Please note: International individuals who have previously sat for and successfully passed the Nutrition Support Certification Examination will be eligible to retake the examination without providing the above-mentioned documentation as long as there is no lapse in certification. Should a lapse in certification occur for any reason, then that individual must adhere to the above requirements.

For more information regarding NBNSC's International Candidate Policies please go to:

http://www.nutritioncare.org/NBNSC/Certification/Certification_Policy_For_International_Candidates/.

¹ Credentials must be evaluated by an outside agency. The evaluation must be submitted with the application and must be an original document, not a photocopy. The cost of the evaluation is the responsibility of the individual and is separate from any other fee listed in the Fees section of this handbook. International applications will be reviewed by NBNSC Board members for approval of eligibility. Please see http://www.nutritioncare.org/NBNSC/Certification/Certification_Policy_For_International_Candidates/ for more information.

² Candidates testing outside of the United States and Canada must complete and submit the Request for Special Testing Center Form found on the www.ptcny.com homepage. This form must be uploaded to your application no later than 8 weeks prior to the start of the chosen testing period. Fees for testing at an international computer test center (outside of the United States and Canada) are \$100.00 in addition to the examination fee. PTC will arrange a computer-based examination at an international test center for you.

ADMINISTRATION

The Certification Program is sponsored by the National Board of Nutrition Support Certification, Inc. (NBNSC). The Certification Examination for Nutrition Support Clinicians is administered for the NBNSC by the Professional Testing Corporation (PTC), 1350 Broadway - 17th Floor, New York, New York 10018, (212) 356-0660, www.ptcny.com. Questions concerning the examination should be referred to PTC.

ATTAINMENT OF CERTIFICATION AND RECERTIFICATION

Eligible candidates who pass the Certification Examination for Nutrition Support Clinicians are entitled to use the registered designation CNSC® after their names and will receive certificates from the NBNSC. A registry of Certified Nutrition Support Clinicians will be maintained by the NBNSC and may be reported in publications.

Nutrition support clinician certification is recognized for a period of five years at which time the candidate must retake and pass the Certification Examination for Nutrition Support Clinicians in order to retain certification.

The purpose of requiring recertification renewal is to measure continued competent and knowledgeable nutrition support practice. Certification demonstrates to your patients, colleagues, and employers that you have the skills necessary to provide the best care possible.

Should an individual with a current CNSC® credential opt to take the certification examination early, all maintenance of the CNSC® credential will be based upon when the individual took the certification examination.

- Scenario 1: Certificant A is currently certified as a CNSC® from October 2011 – October 2016. Certificant A wants to become recertified and opts to take the certification examination in April 2016 instead of October 2016. Certificant A successfully passes the certification examination, then the certification period is April 2016 – April 2021.
- Scenario 2: Certificant A is currently credentialed as a CNSC® from October 2011 – October 2016. Certificant A wants to become recertified and opts to take the certification examination in April 2016 instead of October 2016. Certificant A is unsuccessful in passing the certification examination. Upon receiving the exam results Certificant A is no longer a CNSC® and cannot use the credential until the certification examination is again taken and successfully passed. In summary anytime the certification examination is taken and not passed, certification lapses.

REVOCATION OF CERTIFICATION

Certification may be revoked for any of the following reasons:

1. Falsification of the Application.
2. Revocation of current health care credential for a reason indicative to the NBNSC of insufficient knowledge.
3. Misrepresentation of certification status.

The Appeals Committee of the NBNSC provides the appeal mechanism for challenging revocation of Board Certification. It is the responsibility of the individual to initiate this process.

APPLICATION PROCEDURE

1. Read and follow the directions on the application and in this handbook. All applications must be completed online. The application can be found on Professional Testing Corporation's website <https://secure.ptcny.com/apply/>.
2. The online application and appropriate fees for the examination must be received on or before the appropriate deadline listed in this handbook.

COMPLETION OF APPLICATION

Candidates must complete the examination application in full, using your name exactly as it appears on your current government issued photo ID such as a driver’s license or a passport. The completed application, with all documentation (if required), can be submitted and paid for online at <https://secure.ptcny.com/apply/>.

FEES

Application fees for the Certification Examination for Nutrition Support Clinicians:

ASPEN Members	\$315.00
Non-ASPEN Members	\$415.00

The reduced registration fee for ASPEN members is non-transferable between individuals or within departments/institutions and is available only to those individuals whose dues are paid in full at the time of exam registration.

MAKE CHECK OR MONEY ORDER PAYABLE TO: PROFESSIONAL TESTING CORPORATION

Visa, MasterCard, and American Express are accepted. Please complete the credit card payment form at the end of the online application. If paying by check, follow the instructions on the online application.

NOVA Members

Active members of the Nurses Organization of Veterans Affairs (NOVA) may sit for the Certification Examination for Nutrition Support Clinicians at a rate that is \$50 less than the non-ASPEN member rate.

Active NOVA members, at the time of application submission should submit documentation of active NOVA membership with their application. Active NOVA members who are also ASPEN members may not combine the discounts, only one discounted application fee may be used, either the ASPEN member fee or the discount for NOVA members.

RESCHEDULING & REFUNDS

There will be no refund of fees. Please be advised: PSI does not have the authority to grant transfers or refunds. All requests must be made through PTC.

Candidates unable to take the examination during their scheduled testing period may request a **ONE-TIME** transfer to a future testing period. **There is a transfer fee of \$225.00.** After you have transferred once by paying the \$225.00 fee, you will need to pay the full examination fee in order to transfer a second time; so, ***please plan carefully.***

Please note: requests to transfer to a new testing period must be received within 1 month of your originally scheduled testing period.

Candidates wishing to transfer to a new testing period need to follow the steps below.

1. Go to <http://secure.ptcny.com/apply/>.
2. Click “Start New Application.”
3. Choose NBNSC in the first drop down menu; then choose the new examination period in the second drop down menu and fill out the rest of the information on the page.
4. Fill out the application making sure you answer yes to the question asking if you are rescheduling; you will also need your current PTC ID/Candidate number found on your scheduling authorization email.

5. Click “Submit Request for Rescheduling Verification” in the Examination and Certification Information section of the application.
6. PTC Support will send you an email letting you know your new application was approved and that you can log back into your application and pay the \$225.00 transfer fee.
 - **Call 212-356-0660 if you have any questions regarding the transferring process.**
 - **If candidates are unable to attend the examination on the date for which they registered and elect not to transfer to another testing period, the application will be closed and all fees will be forfeited. There will be no refund of fees.**
 - **The transfer fee is based on cost and is not punitive in nature. The transfer fee must be paid at the time the request for rescheduling is approved. The candidate is responsible for contacting PSI and canceling the original examination appointment, if one was made.**
 - **Exams may only be transferred to a new testing period once; please plan carefully.**
 - **Transferring your Examination only refers to instances when a candidate is unable to take their exam during a testing period for which they have already applied. Candidates who did not pass their examination and are retaking the examination need to pay the full Examination Fee.**
 - **If you need to reschedule within the same testing period please see “Changing Your Examination Appointment” on page 7.**

EXAMINATION ADMINISTRATION

The Certification Examination for Nutrition Support Clinicians is administered during an established two-week testing period, at computer-based testing facilities managed by PSI. PSI has several hundred testing sites in the United States as well as Canada. **Please note: Hours and days of availability vary at different centers.** Scheduling is done on a first-come, first-serve basis. To find a testing center near you, visit www.ptcny.com/cbt/sites.htm or call PSI at (800) 733-9267. You will not be able to schedule your examination appointment until you have received a Scheduling Authorization from PTC.

TESTING SOFTWARE DEMO

A Testing Software Demo can be viewed online. Go to <http://www.ptcny.com/cbt/demo>. This online Testing Software Demo can give you an idea about the features of the testing software.

SCHEDULING YOUR EXAMINATION APPOINTMENT

Once your application has been received and processed and your eligibility verified, you will be sent an email from PTC confirming receipt of payment and acceptance of application. Within six weeks prior to the first day of the testing period, you will be sent a Scheduling Authorization via email from notices@ptcny.com. Please ensure you enter your correct email address on the application and add the ‘ptcny.com’ domain to your email safe list. If you do not receive a Scheduling Authorization at least three weeks before the beginning of the testing period, contact the Professional Testing Corporation at (212) 356-0660.

The Scheduling Authorization will indicate how to schedule your examination appointment as well as the dates during which testing is available. Appointment times are first-come, first-serve, so schedule your appointment as soon as you receive your Scheduling Authorization in order to maximize your chance of testing at your preferred location and on your preferred date.

You will not be able to schedule your examination appointment until you have received a Scheduling Authorization from notices@ptcny.com.

You MUST present your current driver's license, passport, or U.S. military ID at the test center. Temporary, paper driver's licenses are not accepted. The name on your Scheduling Authorization must exactly match the name on your photo I.D. Call PTC at 212-356-0660 if you need a duplicate Scheduling Authorization or if your name is not correct

After you make your test appointment, PSI will send you a confirmation email with the date, time and location of your exam. Please check this confirmation carefully for the correct date, time and location. Contact PSI at (800) 733-9267 if you do not receive this email confirmation or if there is a mistake with your appointment.

- It is your responsibility as the candidate to call PSI to schedule the examination appointment.
- It is highly recommended that you become familiar with the testing site.
- Arrival at the testing site at the appointed time is the responsibility of the candidate. Please plan for weather, traffic, parking, and any security requirements that are specific to the testing location. Late arrival may prevent you from testing.

SPECIAL NEEDS

Special testing arrangements will be made for individuals with special needs. Submit the Application, Examination Fee, and a completed and signed Request for Special Accommodations Form, available from www.ptcny.com or by calling PTC at (212) 356-0660. Requests for special testing for individuals with special needs must be received at least EIGHT weeks before the testing period begins. **Only those requests made and received on the official Request for Special Needs Accommodations Form (found at www.ptcny.com) will be reviewed. Letters from doctors and other healthcare professionals must be accompanied by the official Form and will not be accepted without the Form.**

Please notify PTC at least two weeks prior to your examination appointment if you need to bring a service dog, medicine, food, or beverages necessary for a medical condition with you to the test center.

CHANGING YOUR EXAMINATION APPOINTMENT

If you need to cancel your examination appointment or reschedule to a different date within the two-week testing period, you must contact PSI at (800) 733-9267 no later than noon, Eastern Standard Time, of the second business day PRIOR to your scheduled appointment.

If you fail to arrive for your appointment or cancel without giving the required notice, you will forfeit your testing fee.

RULES FOR THE EXAMINATION

1. You must present your current government issued photo ID (such as a driver's license or passport) at the time of your scheduled appointment. Candidates without their valid ID will NOT be permitted to test.
2. All Electronic devices that can be used to record, transmit, receive, or play back audio, photographic, text, or video content, including but not limited to, cell phones, laptop computers, tablets, Bluetooth devices; wearable technology such as smart watches; MP3 players such as iPods; pagers, cameras and voice recorders are not permitted to be used and cannot be taken in the examination room. The test center may have lockers or you may be asked to lock your personal items in your car. For this reason, we suggest that you do not bring personal items with you, other than what is specifically needed for your examination.
3. No papers, books, or reference materials may be taken into or removed from the testing room.
4. Simple, non-programmable calculators are permitted except for calculators included as part of cell phones, or other such devices. A calculator is also available on screen if needed.
5. No questions concerning content of the examination may be asked during the examination session. The candidate should carefully read the directions that are provided on screen at the beginning of the examination session.

6. Candidates are prohibited from leaving the testing room while their examination is in session, with the sole exception of going to the restroom.
7. Bulky clothing, such as sweatshirts (hoodies), jackets, coats and hats, except hats worn for religious reasons, may not be worn while taking the examination.
8. All watches and “Fitbit” type devices cannot be worn during the examination. It is suggested that these items are not brought to the test center.

Violation of any of the rules listed above may lead to forfeiture of fees, dismissal from testing room, and cancellation of your test scores.

REPORT OF RESULTS

Candidates will be notified by PTC via email when their score reports are available online. Score reports will be available approximately four weeks after the close of the testing period. Scores on the major areas of the examination and on the total examination will be reported. Examination scores cannot be provided verbally over the phone. **Score Reports will be available online only for 30 days. Be sure to save a copy of your score report in your permanent files.** Successful candidates will also receive certificates from the NBNSC.

Candidates may request a handscoring of their examination once results are received. A handscore may be performed to verify the accuracy of the computerized grading of the examination as well as confirming that any questions marked as incorrect were not the correct answer. A fee is required by PTC to handscore an exam, this fee is not refundable regardless of the results of the handscoring. All requests for a handscore of the examination should be submitted directly to PTC within 90 days of receiving the results along with the required fee for handscore. The request for handscore can be found on the PTC website – www.ptcny.com in the “For Candidates” section.

REEXAMINATION

The Certification Examination for Nutrition Support Clinicians may be taken as often as desired upon filing of a new Application and fee. There is no limit to the number of times the examination may be repeated.

CONFIDENTIALITY

1. The NBNSC will release the individual test scores ONLY to the individual candidate.
2. Any questions concerning test results should be referred to NBNSC or the Professional Testing Corporation.

CONTENT OF EXAMINATION

1. The Certification Examination for Nutrition Support Clinicians is a computer-based examination composed of a maximum of 250 multiple-choice, objective questions with a total testing time of four (4) hours.
2. The content for the examination is described in the Content Outline starting on page 10.
3. The questions for the examination are obtained from individuals with expertise in specialized nutrition support and are reviewed for construction, accuracy, and appropriateness by the NBNSC.
4. The NBNSC, with the advice and assistance of the Professional Testing Corporation, prepares the examination.
5. The Certification Examination for Nutrition Support Clinicians will be weighted in approximately the following manner:

I. NUTRITION ASSESSMENT	32%
II. CLINICAL MANAGEMENT	55%
III. PROCESS MANAGEMENT	3%
IV. PROFESSIONAL PRACTICE.....	10%

SCORING PROCEDURE

Prior to administration of the examination, representatives from the NBNSC Certification Committee and the Professional Testing Corporation meet to review all test items for accuracy. At this meeting, the passing score for the examination is set using recognized psychometric methods. The passing score represents the number of test items determined necessary for the candidate to answer correctly to be considered as having minimal knowledge for safe practice in specialized nutrition support.

In order to protect the security and integrity of the certification examination, neither NBNSC nor the Professional Testing Corporation will release examination items, completed answer sheets, or keys to any candidate or agency.

ONLINE PRACTICE TEST FOR NUTRITION SUPPORT CLINICIANS

WHAT IS IT: A practice test consisting of 50 questions with a testing time of 2 hours taken over the Internet

WHEN: Available Now

WHY TAKE IT: To experience taking a computerized exam, to review an example of the type of content included in the Certification Examination for Nutrition Support Clinicians and to learn more about question format, style, and level of difficulty

SCORE REPORT: After completing the online practice test, you will receive an instant score report showing test performance in each of the content areas. The score report does not provide correct answers or indicate which questions were answered correctly and incorrectly

NOTE: The online practice test is an optional tool candidates may use as they prepare for the certification examination. While the practice test may help candidates identify areas of strengths and weakness, it should not be used as the only means to determine candidate preparedness or readiness to test. Since the practice test is NOT intended to be a study guide nor the sole source of preparation for the actual certification examination, candidates are NOT provided with the answer key, rationales for each question, nor notification of which specific items were answered correctly or incorrectly.

Though the specific questions that are on the practice test will not appear on the actual certification examination, it allows candidates to become familiar with the style of questions that may be asked. The instant score report received after practice test submission shows overall test performance as well as performance in each of the content areas. Candidates may find this information useful in determining future study needs. Once the practice test is scored, candidates cannot return to the test to review the questions. Performance on the practice test does not guarantee similar performance on the actual certification examination.

The PTC Online Testing System does not demonstrate the testing software used during the certification examinations. Those who purchase the online practice test should be aware that they will use a different testing platform when they take certification examinations at designated proctored testing centers.

The practice test is not a requirement for certification eligibility nor does it contribute in any way to success on the certification examination. There are many ways candidates should prepare for the certification examination. Candidates should use a variety of resources and consider their own education and experiences. Review the content outline and reference materials listed in the handbook for additional exam-related information.

FEE: \$70 by credit card

APPLY: Go to www.ptcny.com and select Online Practice Test for Nutrition Support Clinicians

FURTHER INFO: Visit www.ptcny.com or call Professional Testing Corporation at 212-356-0660

CONTENT DOMAINS AND TASK STATEMENTS

I. Nutrition Assessment
A. Screening
T1. Identify patients with malnutrition.
T2. Identify patients with risk factors for developing malnutrition.
B. Evaluation
T3. Review patient history.
T4. Review patient current clinical status.
T5. Review diet, medication, and supplements for potential impact on nutritional status.
T6. Evaluate anthropometric data.
T7. Identify potential or existing nutrition support access sites.
T8. Perform nutrition-focused physical exam.
T9. Evaluate patient for potential complications of initiating nutrition support therapy.
T10. Determine fluid, nutrient, and electrolyte intake from all sources.
T11. Determine fluid, electrolyte, macronutrient, and micronutrient requirements for nutrition support therapy.
T12. Evaluate psychosocial, economic, developmental, functional, behavioral, and quality of life factors.
T13. Evaluate indication for, timing, and route of administration for nutrition support therapy.
T14. Determine etiology, degree, and type of malnutrition.
T15. Determine nutritional diagnosis.
T16. Assess patient and caregiver capabilities and limitations related to nutrition support therapy.
II. Clinical Management
A. Initiation
T17. Recommend administration route and access for nutrition support therapy.
T18. Recommend formulation, rate, and/or volume of nutrition support therapy.
T19. Recommend use of pharmacologic adjunctive agents.
T20. Recommend cost-effective and safety strategies in the provision of nutrition support therapy.
T21. Recommend short-term nutrition support therapy goals.
T22. Recommend long-term nutrition support therapy goals.
T23. Recommend diagnostic tests, procedures, or consultations that may modify the nutrition support plan.
T24. Recommend laboratory tests that may modify the nutrition support plan.
T25. Recommend regimen for initiation, advancement, and discontinuation for nutrition support therapy.
B. Monitoring
T26. Verify position of nutrition access device.
T27. Evaluate tolerance of nutrition support therapy.
T28. Evaluate fluid status.
T29. Monitor compliance with nutrition support therapy plan.
T30. Monitor for complications of nutrition support therapy.
T31. Evaluate laboratory test results to assess adequacy and tolerance of nutrition support therapy.
T32. Monitor nutritional and metabolic response to nutrition support therapy.
T33. Evaluate status of nutrition access device.
T34. Assess nutrition support therapy for safety concerns.
T35. Monitor for drug-nutrient interaction.
T36. Monitor for enteral or parenteral formula stability.
C. Modification of Therapy
T37. Modify nutrition support therapy based on changes in patient clinical status and medical plan of care.
T38. Manage complications related to nutrition support therapy.

- T39. Reevaluate nutrition support therapy goals.
- T40. Reevaluate adjunctive drug therapy.
- T41. Transition or discontinue nutrition support therapy.
- T42. Transition patient from one care setting to another.
- T43. Educate patient and/or caregiver on nutrition support therapy management.

III. Process Management

- T44. Develop or update policies and procedures to guide patient care.
- T45. Implement current guidelines and standards of practice in the provision of nutrition support therapy.
- T46. Develop or update patient education materials.
- T47. Utilize a continuous process improvement model to evaluate nutrition care.

IV. Professional Practice

- T48. Apply ethical principles in the application of nutrition support therapy.
- T49. Provide nutrition support therapy in compliance with legal and regulatory standards.
- T50. Evaluate scientific literature according to evidence-based guidelines.
- T51. Apply principles of evidence-based practice in provision of nutrition support therapy.

SAMPLE EXAMINATION QUESTIONS

1. In a patient receiving intravenous fat emulsion, which of the following levels should be monitored?
 1. Serum glucose
 2. Serum ammonia
 3. Serum cholesterol
 4. Serum triglyceride

2. Increased acetate supplementation in parenteral nutrition is most likely to be required in
 1. respiratory failure.
 2. intractable diarrhea.
 3. prolonged vomiting.
 4. furosemide treatment.

3. Dermatitis and alopecia are symptoms of
 1. hypophosphatemia.
 2. magnesium deficiency.
 3. vitamin A deficiency.
 4. essential fatty acid deficiency.

4. A 58-year-old patient has acute renal failure following abdominal aortic aneurysm repair. Dialysis is planned. If the patient's BUN is 90 mg/dL and creatinine 8 mg/dL, the most appropriate enteral formula for this patient would provide
 1. 0.5 g protein/kg/day mainly as essential amino acids.
 2. 1 g protein/kg/day mainly as essential amino acids.
 3. 0.5 g protein/kg/day as both essential and nonessential amino acids.
 4. 1 g protein/kg/day with both essential and nonessential amino acids.

5. Complaints of altered taste and smell are common symptoms of deficiency of which trace element?
 1. Zinc
 2. Copper
 3. Selenium
 4. Chromium

6. Indirect calorimetry provides a measure of
 1. basal metabolic rate.
 2. past 24-hour dietary intake.
 3. energy expenditure.
 4. calorie needs for weight gain.

7. Which of the following is most appropriate during transition from central parenteral nutrition support to enteral nutrition support?
 1. Dextrose should be infused peripherally to avoid hypoglycemia
 2. Transition to enteral nutrition should be discontinued if diarrhea develops
 3. Some parenteral nutrition should be maintained until the patient has demonstrated tolerance to enteral nutrition
 4. Central venous access should be discontinued as soon as the patient's nutritional requirements are met by a combination of enteral and peripheral parenteral support

8. During parenteral nutrition, the infusion of large amounts of dextrose increases electrolyte requirements for
1. sodium and potassium.
 2. sodium and phosphorus.
 3. potassium and chloride.
 4. potassium and phosphorus.
9. Metabolic consequences of the refeeding syndrome include
1. hyperkalemia.
 2. hypoglycemia.
 3. hypermagnesemia.
 4. hypophosphatemia.
10. An 85-year-old man receiving tube feeding due to dysphagia develops increased stooling and has a temperature of 38.3° C. Which of the following should be done?
1. Obtain stool cultures
 2. Decrease water flushes
 3. Begin diphenoxylate/atropine
 4. Change to a fluid-restricted tube feeding formula
11. Which of the following is a metabolic adaptation to simple starvation?
1. Decrease in urinary nitrogen losses
 2. Increase in hepatic glucose production
 3. Decrease in utilization of body fat stores
 4. Increase in cerebral glucose utilization
12. The small bowel usually has an absorption capacity of approximately
1. 400 mL/day.
 2. 1 L/day.
 3. 2 L/day.
 4. 9-12 L/day.

CORRECT ANSWERS TO SAMPLE QUESTIONS

1. 4, 2. 2, 3. 4, 4. 4, 5. 1, 6. 3, 7. 3, 8. 4, 9. 4, 10. 1, 11. 1, 12. 4

REFERENCES

The following references may be of some help in preparing for the examination. The list does not attempt to include all acceptable references nor is it suggested that the Certification Examination for Nutrition Support Clinicians is necessarily based on these references. The NBNSC does not endorse any reference or resource as an official study guide for the certification exam.

Practice Recommendations, Clinical Guidelines and Standards for Nutrition Support:

http://www.nutritioncare.org/guidelines_and_clinical_resources/

American Society for Parenteral and Enteral Nutrition (ASPEN) Board of Directors and Clinical Practice Committee. Definition of Terms, Styles, and Conventions Used in ASPEN Board of Directors-Approved Documents. American Society for Parenteral and Enteral Nutrition. http://www.nutritioncare.org/guidelines_and_clinical_resources/

Ayers P, Guenter P, Holcombe B, Plogsted S. ASPEN Parenteral Nutrition Handbook, 2nd Edition. Silver Spring, MD: ASPEN, 2014

Ayers P, Adams S, Boullata J, et al. ASPEN Parenteral Nutrition Safety Consensus Recommendations. *JPEN J Parenter Enteral Nutr*, March 2014; vol. 38, 3: pp. 296-333.

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Ultimate Authority

If it appears that an answer to an exam question may vary depending on the reference used the following policy will be followed:

- 1) The ASPEN Practice Guidelines and Standards and Practice papers will be considered the final authority when questions of answers are raised. These papers are available at no charge on the ASPEN website:

http://www.nutritioncare.org/guidelines_and_clinical_resources/

- 2) If the NBNSC determines that a guideline or standard from another organization differs from those published by ASPEN, it will only be considered authoritative if it is a peer reviewed document from a recognized organization and has been published after the publication date of the ASPEN document it disagrees with.
- 3) In the event that a question's answer is challenged the question and answer will be reviewed by the exam chairperson, the chairperson of the Executive board and, if necessary by a third person with special knowledge of the field.

PTC17054