



**IDENTIFYING AND OVERCOMING BARRIERS TO  
COMPETITION IN NUTRITION SERVICES  
PART II**

**FOLLOW-UP COMMENT SUBMITTED TO THE  
FEDERAL TRADE COMMISSION  
“EXAMINING HEALTH CARE COMPETITION”  
PROJECT**

**MAY 16, 2014**

The Center for Nutrition Advocacy® appreciates the opportunity to submit this follow-up comment to the Federal Trade Commission for consideration in its “Examining Health Care Competition” project. The Center for Nutrition Advocacy’s mission is to advance nutrition providers’ pivotal role in healthcare through effective public and private policy. An initiative of the Certification Board for Nutrition Specialists, the Center works toward a healthcare system that promotes science-based nutrition care, supports nutrition providers practicing to the level of their training, and gives consumers access to an array of nutrition practitioners.

We were pleased to attend the FTC’s “Examining Health Care Competition” workshop and hear the esteemed panelists’ perspective recognizing the importance of competition among health services providers to increase accessibility, quality and innovation in care as science and modalities evolve.

This second comment is in response to a comment submitted by the Academy of Nutrition and Dietetics (formerly American Dietetic Association) on April 30, 2014<sup>1</sup>. Our original March 10, 2014 submission to the FTC<sup>2</sup> covers most of the points raised by the AND comment, but a few points bear elaboration.

### **Anti-Competitive AND Approach**

It is noteworthy that the AND comment does not dispute that it favors exclusionary practice and benefit rights for its Registered Dietitians®. The AND comment is a telling recitation of the AND leadership’s anti-competitive philosophy that we enumerated in our original comment. The AND comment stands in stark contrast to the FTC goal of promoting competition through its examination of health care competition.

The AND comment continues to argue for restrictive regulation that unduly favors their private professional association and reduces competition for nutrition services. The AND comment’s primary thrust is the assertion that Registered Dietitians® are “the most qualified food and nutrition experts,” and should indeed have exclusive rights to nutrition practice and benefits. Further below, this comment will refute the assertion that RDs are the most qualified nutrition services providers.

However, the larger issue from a competition standpoint is that the AND comment represents a defense—rather than a refutation—of the association’s anti-competitive approach. Just a few such passages include:

“The AND urges the FTC...to reinforce the importance of dietetics licensure in assuring the *integrity of the profession* necessary to ensure *consumer protection*.”  
[emphasis added]

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<sup>1</sup> Academy of Nutrition and Dietetics comment to FTC Re: Health Care Workshop, Project No. P131207. April 30, 2014.

<sup>2</sup> Comment from Center for Nutrition Advocacy submitted March 10, 2014.  
<http://www.ftc.gov/policy/public-comments/comment-00044-20>.

“Registered Dietitian[s] are *the* Trusted, Effective Food and Nutrition Experts”

“Some commenters criticize state dietetics licensure statutes for being ‘predominantly patterned after the educational, exam, and practice requirements of RDs.’ However, this approach actually makes sense...”

The notion of the “integrity of the profession” is precisely the siloed thinking that many panelists at the FTC workshop blame for the lack of competition, quality and innovation in healthcare services.

Nutrition is not a discrete “profession,” like dentistry, for instance. Nutrition is a modality used by a wide variety of health professionals to improve health. A vast array of health providers employ nutrition as a tool, presenting unique challenges in regulating this modality.<sup>3</sup>

Moreover, for those who *do* engage in nutrition services as their sole profession, it is not a unified “profession.” It is an emerging and rapidly evolving field. There are a diverse set of professionals that have acquired training, competencies and credentials to legitimately and appropriately provide individualized nutrition advice and medical nutrition therapy to their clients and patients.

The AND does not represent the array of nutrition providers. “Dietetics” is one subset of the nutrition field, and RDs are its practitioners. AND efforts to enforce “integrity” for what is in fact a diverse, emerging profession serve only to stifle the burgeoning competition for nutrition services.

### **Economic Impact of AND Anti-Competitive Efforts**

The AND asserts there is no evidence that its exclusionary licensing efforts have “resulted in increased cost of nutrition services.”

The fact that artificially reducing the number of providers increases costs is a matter of fundamental economics of supply and demand. There is also ample evidence of the negative economic effects of privately-captured licensure generally, and nutrition services specifically:

- At the “Examining Competition in Healthcare” workshop, FTC Chairwoman Edith Ramirez noted:  
“[S]tudy after study tells us that vigorous competition in health care markets reduces costs, improves quality, and expands access to care for consumers.”<sup>4</sup>

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<sup>3</sup> Challenges and opportunities for nutrition education and training in the health care professions: intraprofessional and interprofessional call to action.

Dimaria-Ghalili RA1, Mirtallo JM, Tobin BW, Hark L, Van Horn L, Palmer CA.

Am J Clin Nutr. 2014 May;99(5):1184S-93S. doi: 10.3945/ajcn.113.073536. Epub 2014 Mar 19.

<sup>4</sup> Examining Competition in Healthcare workshop transcript

[http://www.ftc.gov/system/files/documents/videos/examining-health-care-competition-workshop-part-1/ftc\\_examining\\_health\\_care\\_competition\\_workshop\\_-\\_transcript\\_segment\\_1.pdf](http://www.ftc.gov/system/files/documents/videos/examining-health-care-competition-workshop-part-1/ftc_examining_health_care_competition_workshop_-_transcript_segment_1.pdf)

- As just one example, in examining the impact on job creation of occupational licensure, a 2013 Journal of Labor Economics study analyzed licensing data from dietetics and nutrition (along with librarians and respiratory therapists). Comparing states with licensure to states without, the study concluded that those states without licensure in these professions experience 20% faster job growth than states with licensure.<sup>5</sup>

### “Consumer Protection”

The AND argues that its exclusionary efforts are “necessary to ensure consumer protection”

The FTC and the panelists at its workshop noted that “consumer protection” is the standard justification put forth by private associations attempting to accrue exclusive practice and benefits rights for their members. The recent FTC Policy Perspectives report noted that the “consumer protection” argument, put forth by private provider associations to justify anti-competitive regulation, cuts both ways:

“Health care quality itself can be a locus of competition, and a *lack of competition—not just regulatory failures—can have serious health and safety consequences*. More generally, competition among health care providers yields important consumer benefits, as it tends to reduce costs, improve quality, and promote innovation and access to care.” [Emphasis added.]<sup>6</sup>

Barbara Safriet, J.D., LL.M., FAANP(H) noted at the FTC workshop:

“We still have embedded, instantiated in our law, these rigid notions of scope of practice which further institutionalize siloed mentality...And it has more to do...with preserving professional autonomy and control than it has anything to do with promoting health and safety.”<sup>7</sup>

The Center for Nutrition Advocacy is aware of no case where the public or a legislature has itself initiated a policy effort to confer exclusionary benefits to Registered Dietitians®. Rather, the AND and/or its state affiliates initiate such efforts.

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<sup>5</sup> Kleiner, Morris and Alan Krueger, “Analyzing the Extent and Influence of Occupational Licensing on the Labor Market” *Journal of Labor Economics*, Vol. 31 No. 2, 7 2013

<sup>6</sup> Federal Trade Commission Report -- Policy Perspectives: Competition Advocacy and the Regulation of Advanced Practice Nurse Practitioners. 2014. Andrew I. Gavil, Director, Office of Policy Planning Principal Authors Daniel J. Gilman, Attorney Advisor, Office of Policy Planning, Tara Isa Koslov, Deputy Director, Office of Policy Planning

<sup>7</sup> Examining Healthcare Competition Workshop

March 20, 2014 Segment 1 Transcript pg 32.

[http://www.ftc.gov/system/files/documents/videos/examining-health-care-competition-workshop-part-1/ftc\\_examining\\_health\\_care\\_competition\\_workshop\\_-\\_transcript\\_segment\\_1.pdf](http://www.ftc.gov/system/files/documents/videos/examining-health-care-competition-workshop-part-1/ftc_examining_health_care_competition_workshop_-_transcript_segment_1.pdf)

## Impact of AND Actions on Other Health Professionals

The AND comment states:

“Many differently licensed professionals *whose scope of practice includes the field of nutrition* can and do provide appropriate nutrition counseling without running afoul of any dietetics professional licensure statutes...Despite the fact that scopes of practice for professions frequently overlap, people are licensed primarily to practice within the profession for which they were initially trained. Some licensed professionals may expand their individual scopes of practice by engaging in additional training in specialty areas, adjunct areas of focus (like nutrition), and through continuing education. *Licensure does not limit such expansion of scope.*” [emphasis added]

Because nutrition is a modality employed by a broad range of professionals, it is in fact often very difficult for many licensed professionals *not* to run afoul of dietetics licensure laws.

- The AND’s siloed conception of licensure runs directly counter to the flexible, forward-thinking approach touted at the FTC workshop to remove artificial barriers and to encourage competition.
- It is inaccurate to say that dietetics “licensure does not limit such expansion of scope.” Note the qualifier in the AND’s comment “licensed professionals *whose scope of practice includes the field of nutrition...*” Many healthcare professionals with nutrition training and certifications are often barred from giving nutrition advice because their profession’s scope, often passed decades ago, does *not* include nutrition. They simply could not have imagined that a private association would attempt to carve out a widely used modality—nutrition—for itself.
- The dietetics exclusive scope licensure regimes force those professions without nutrition explicitly in their scope to go back to dozens of state legislatures to add nutrition services to their scope. That is extremely difficult due to the political turf battles among professions for scope that the FTC conference panel enumerated.
- Moreover, many health professions are emerging professions, and thus do not have ubiquitous licensure, or do not typically seek or require licensure. Some include extensive training in nutrition, yet dietitian exclusive scopes bar those professionals from providing meaningful nutrition services, often because of the patchwork and evolving nature of state licensure.
- Lastly, those other healthcare providers are unable to add a nutrition license, because dietetic licensure laws are written to block many other professionals with extensive science and nutrition training, simply because they did not pursue the dietetic association’s specific training. The AND’s own documents, attached as exhibits to our original comment, amply demonstrate that the AND views

those other professions as competition, and seeks ways to diminish the nutrition services provided by those professional competitors.

### **Nutrition Services in Federal Regulations**

The AND comment touts RDs' unique access to certain Medicare benefits.

While it is true that the AND has been successful at carving out for its RDs certain exclusive benefits, the Centers for Medicare and Medicaid Services does not support the position that the RD credential is superior to others.

In another example of AND seeking exclusive rights to public benefits for its private credential, in 2013, the AND asked CMS to shut out non-RD nutrition professionals from therapeutic diet ordering privileges:

[T]he Academy urges CMS to adopt...the definition of “qualified dietitian” as “an individual who meets practice requirements in the State in which he or she practices *and is a registered dietitian with the Commission on Dietetic Registration*”<sup>8</sup> (The credentialing agency for the AND).<sup>8</sup>

Fortunately, after our strenuous objection, The U.S. Department of Health and Human Services Centers for Medicare and Medicaid Services (CMS) on May 12, 2014, rejected the notion that Registered Dietitians® should have an exclusive right to recommend therapeutic diets in hospital settings. CMS' final ruling on Medicare and Medicaid Programs; Regulatory Provisions to Promote Program Efficiency, Transparency, and Burden Reduction; Part II, states:

“We agree with commenters that the regulatory language for § 482.28 should be inclusive of all qualified nutrition professionals. We do not agree with commenters who requested that we use the term “registered dietitian” or define “qualified dietitian” as an individual specifically registered with the Commission on Dietetic Registration. We agree that a more flexible approach would be the best way to ensure that patients benefit from the improved quality of care that these professionals can bring to hospital food and dietetic services...

Therefore, we are revising our proposed regulatory language in this final rule to now require that all patient diets, including therapeutic diets, must be ordered by a practitioner responsible for the care of the patient, or by a qualified dietitian *or qualified nutrition professional* as authorized by the medical staff and in accordance with *State law governing dietitians and nutrition professionals.*”<sup>9</sup>

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<sup>8</sup> AND Comment Re: CMS-3267-P (Medicare and Medicaid Programs; Part II—Regulatory Provisions to Promote Program Efficiency, Transparency, and Burden Reduction). April 8, 2013.

<sup>9</sup> <https://www.federalregister.gov/articles/2014/05/12/2014-10687/medicare-and-medicaid-programs-regulatory-provisions-to-promote-program-efficiency-transparency-and> p 48-9

## Evidence of Effectiveness

The AND comment cites research, primarily in its own sources, suggesting RDs achieve positive outcomes, and concludes that only RDs have demonstrated effectiveness:

“A search of PubMed produces no outcomes data or any review of the effectiveness of non-RD nutrition professionals...”

The notion that there is no data on other nutrition professionals achieving measurable health outcomes is wholly without merit. A cursory search of PubMed reveals numerous studies indicating that a wide variety of non-RD nutrition professionals obtain measureable health improvement outcomes through the application of nutrition therapy.<sup>10</sup>

## Accreditation of Certification Boards

To ensure that the record is correct, The CBNS' Certified Nutrition Specialist® certifying program *is indeed* fully accredited by the National Commission for Certifying Agencies

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<sup>10</sup> Examples:

The Finnish Diabetes Prevention Study (DPS): Lifestyle intervention and 3-year results on diet and physical activity. [Lindström J1](#), [Louheranta A](#), [Mannelin M](#), [Rastas M](#), [Salminen V](#), [Eriksson J](#), [Uusitupa M](#), [Tuomilehto J](#); [Finnish Diabetes Prevention Study Group](#). -[Diabetes Care](#). 2003 Dec;26(12):3230-6. Mediating the effect of self-care management intervention in type 2 diabetes: A meta-analysis of 47 randomised controlled trials. Minet, Lisbeth, et al, [Patient Education and Counseling](#) 80 (2010) 29–41

CAM: naturopathic dietary interventions for patients with type 2 diabetes. [Oberg EB<sup>1</sup>](#), [Bradley RD](#), [Allen J](#), [McCrary MA](#), [Complement Ther Clin Pract](#). 2011 Aug;17(3):157-61. doi: 10.1016/j.ctcp.2011.02.007. Epub 2011 Mar 17.

Long-term nutrition education reduces several risk factors for type 2 diabetes mellitus in Brazilians with impaired glucose tolerance. [Pimentel GD<sup>1</sup>](#), [Portero-McLellan KC](#), [Oliveira EP](#), [Spada AP](#), [Oshiiwa M](#), [Zemdegs JC](#), [Barbalho SM](#), [Nutr Res](#). 2010 Mar;30(3):186-90. doi: 10.1016/j.nutres.2010.03.003.

Evaluation of a nutritional intervention to reduce cholesterol levels in patients with coronary artery disease. [Martínez S<sup>1</sup>](#), [Zegers Y](#), [Stockins B](#), [Bustos L](#), [Sanhueza A](#), [Rivera A](#), [Soto L](#), [Mackay A](#), [Vega D](#), [Rapimán P](#), [Atton R](#), [Alberti G](#), [Rev Med Chil](#). 2004 Dec;132(12):1457-65

The development and testing of a nurse practitioner secondary prevention intervention for patients after acute myocardial infarction: A prospective cohort study

Harbman, Patricia [International Journal of Nursing Studies](#), in press, available on line [http://ac.els-cdn.com/S0020748914000807/1-s2.0-S0020748914000807-main.pdf?\\_tid=4413c2dc-dd05-11e3-bbcc-00000aab0f27&acdnat=1400250223\\_219dbeabfbf1f76aab5cb228e002fdf2](http://ac.els-cdn.com/S0020748914000807/1-s2.0-S0020748914000807-main.pdf?_tid=4413c2dc-dd05-11e3-bbcc-00000aab0f27&acdnat=1400250223_219dbeabfbf1f76aab5cb228e002fdf2) accessed 5/16/2014

A randomized controlled trial of the effects of nurse case manager and community health worker team interventions in urban African-Americans with type 2 diabetes

Tiffany L. Garya,\*<sup>a</sup>, Marian Batts-Turnerb, et al, presented in part at the annual Centers for Disease Control and Prevention (CDC) Division of Diabetes Translation Conference, St. Louis, MO, May 2002; and the 63rd Scientific Sessions of the American Diabetes Association, New Orleans, LA, June 2003, [Controlled Clinical Trials](#), Volume 25, Issue 1, February 2004, Pages 53-66.

(NCCA), the accrediting arm of the Institute for Credentialing Excellence. This accreditation signifies that the CNS certifying program has achieved the highest standards of professional credentialing, and is the *same accreditation held by the AND's Commission on Dietetic Registration for its RD credential*.

**Assertion that “Registered Dietitian[s] are *the* Trusted, Effective Food and Nutrition Experts”**

The AND comment states:

“Registered dietitian nutritionists have been identified as the most qualified food and nutrition experts, according to the Institute of Medicine (IOM), most physicians, and the US Preventive Services Task Force (USPSTF)...In fact, according to the prestigious IOM, “the registered dietitian is currently the single identifiable group of health-care professionals with standardized education, clinical training, continuing education and national credentialing requirements necessary to be directly reimbursed as a provider of nutrition therapy.”

In fact, however:

- AND’s own 2011 survey found that consumers identified both “registered dietitians” and “nutritionists”, as equally credible (78%).<sup>11</sup>
- The IOM paper cited is now *14 years old*, and there has been a sea change in the nutrition training and services landscape since then. Moreover, the paper stated “the registered dietitian is *currently* the single identifiable group”– the AND comments omitted the follow-on portion of the passage which went on to state:

“However, it is recognized that other health care professionals could in the future submit evidence to be evaluated by HCFA for consideration as reimbursable providers.”<sup>12</sup>

- Since then, non-RD credentials and professionals have been noted in many instances, such as state legislation, the Department of Labor’s Bureau of Labor Statistics, and recently in a Medicare and Medicaid Services (the successor to HCFA) regulations ruling noted below.

We will not use this venue for a full rebuttal of the AND comment’s statements about other credentials, but we offer some insight here.

Many credential holders and other health care professionals have far more sophisticated training in clinical nutrition than the RD credential provides. As just one example, the

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<sup>11</sup> Dietetics Association Nutrition and You: Trends 2008, Report of Results, Perceived Credibility of Sources p 62

<sup>12</sup> “The Role of Nutrition Maintaining Health in the Nation’s Elderly: Evaluating Coverage of Nutrition Services for the Medicare Population.” Washington, DC: Food and Nutrition Board, Institute of Medicine; January 1, 2000 (published).



Certified Nutrition Specialist® credential<sup>13</sup> represents a demonstrably higher standard for medical nutrition therapy than the RD credential.

Again, the CBNS' Certified Nutrition Specialist certifying program is fully accredited by the National Commission for Certifying Agencies (NCCA)—the highest standard for professional credentialing—which is the same accreditation held by the Commission on Dietetic Registration for its RD credential.

The CNS is an advanced degree credential, whereas the RD credential is a bachelors-level credential. Certified Nutrition Specialists hold Masters or PhDs, or a doctoral degree in a health field, with a nutrition specialty. CNSs pass a rigorous nutrition science and medical nutrition therapy examination, and have a minimum 1000 hours of supervised practice experience.

The NCCA accreditation for the CNS credential demonstrates that its examination is appropriately geared toward our candidates: advanced-degreed clinical health practitioners, such as MDs, PhDs and Master's-degreed nutrition professionals. The RD examination is appropriately geared toward its bachelor's degree holders.

In our original comment, our analysis of the RD examination compared with the CBNS examination demonstrated that 38% of the RD examination is focused on non-clinical areas—Food Service Systems and Food Management—while 95% of the CNS examination focuses on clinical nutrition science, assessment, and intervention.

The far greater sophistication and relevance of the CNS examination is self-evident even to lay observers, as demonstrated by the sample questions in the Exhibit to this comment.

## **Conclusion**

The AND leadership advocates and defends policies that benefit its association at the expense of competition and the health of our citizens. Enshrining the private dietetics model as the exclusive mode of delivery of nutrition services stifles innovation, competition, and sophistication of nutrition services—at a time when this nation faces a nutrition-driven epidemic of obesity and chronic disease.

At the FTC workshop, the comments of Barbara Safriet were directly applicable to the anti-competitive dynamics at work in the nutrition services field:

“[W]e need a fundamental reorientation—which is hard given all the vested interests and the law...that no one skill, no one ability, no one competence belongs exclusively to any one provider.

There are other systems in other countries that specifically acknowledge this, like in Canada, where...the scope of practice of various providers is not protected in the sense

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<sup>13</sup> The CNS credential is conferred by the Certification Board for Nutrition Specialists (CBNS), and the Center for Nutrition Advocacy is an initiative of the CBNS.

that it does not prevent others from performing the same activities. Rather it acknowledges the overlapping scope of practice of all health professionals.

We still have embedded, instantiated in our law, these rigid notions of scope of practice which further institutionalize siloed mentality. They provoke, in fact, they necessitate, turf battles as between occupational therapists and physical therapists and others. And it has more to do with history, it has more to do with preserving professional autonomy and control than it has anything to do with promoting health and safety.

If we just did one thing in guiding our regulatory regime and freeing up and promoting healthy competition in order to serve the public, it would be to acknowledge, specifically, unabashedly, that scopes of practice, scopes of ability overlap. And we have very good models from experience-- it's not hypothetical-- where we have removed these unnecessary barriers and we have promoted access to care, high quality care, often at less costs.

So there's no lack of data to drive this. Rather what's lacking is the data to demonstrate that we need to continue these sorts of restrictions.”<sup>14</sup>

We thank the Federal Trade Commission for its continuing focus on these matters of vital interest to our nation's future.

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<sup>14</sup> Examining Healthcare Competition Workshop. March 20, 2014 Segment 1 Transcript pg 32.  
[http://www.ftc.gov/system/files/documents/videos/examining-health-care-competition-workshop-part-1/ftc\\_examining\\_health\\_care\\_competition\\_workshop\\_-\\_transcript\\_segment\\_1.pdf](http://www.ftc.gov/system/files/documents/videos/examining-health-care-competition-workshop-part-1/ftc_examining_health_care_competition_workshop_-_transcript_segment_1.pdf)

## EXHIBIT A: COMPARISON OF RD® AND CNS® EXAMINATION QUESTIONS

### **REGISTRATION EXAMINATION FOR REGISTERED DIETITIANS®: DESIGNED FOR UNDERGRADUATE DIETETICS, WITH 38% OF QUESTIONS ON MATTERS UNRELATED TO CLINICAL NUTRITION SCIENCE, SUCH AS FOOD SERVICE SYSTEMS, INSTITUTIONAL MANAGEMENT, AND COMMUNICATION.**

*Source: Registration Examination for Dietitians Handbook for Candidates – 2011*

According to the Handbook: "The following sample questions are illustrative of those found in the examination." (These represent all 16 sample questions that appear.)

1. The first step in assuring a quality program for clinical dietetics practice is to:
  - A. Compare the productivity of the clinical staff to national means.
  - B. Monitor the quality of the documentation in the medical record.
  - C. Review current standards of practice.
  - D. Develop a tool to measure the amount of work done by the clinical dietitians.
  
2. Which of the following special supplemental nutrition programs requires that participants be at nutritional risk?
  - A. Head Start Program
  - B. Food Stamp Program
  - C. Commodity Supplemental Food Program (CSFP)
  - D. Special Supplemental Foods Program for Women, Infants, and Children (WIC)
  
3. Which of the following microorganisms are the primary cause of foodborne illness?
  - A. Viruses
  - B. Bacteria
  - C. Protozoa
  - D. Parasites
  
4. A diet containing 3000 mg sodium has how many mEq of sodium?
  - A. 69
  - B. 77
  - C. 117
  - D. 130
  
5. Consider the following meal:
  - 3 oz baked skinless chicken breast
  - 1/2 cup green beans
  - 1/2 cup baked potato
  - 1 slice bread
  - 1/2 cup strawberries
  - 2 tsp margarine
  - 1 cup 2% milk
  - 1/2 cup ice cream (vanilla)

How many grams of fat are in this meal?

  - A. 20
  - B. 30
  - C. 40
  - D. 50
  
6. Which of the following responses illustrates the interviewing strategy of reflection?
  - A. "Yes, go on."
  - B. "You said you'd like to reduce . . ."
  - C. "I experienced a similar situation."
  - D. "How do you perceive your body image?"
  
7. Which of the following dish machine cleaning schedules is most appropriate?
  - A. Drain tanks and rinse machine daily.
  - B. Drain tanks and rinse machine after each meal.
  - C. Drain tanks after each meal and rinse machine daily.
  - D. Drain tanks after each meal and rinse machine weekly.

8. All of the following factors are considered when planning employee schedules. Which is the most important factor?
- Amount of working space available per person
  - Skill of available personnel
  - Number of available personnel
  - Production requirements of the operation
9. End products of bacterial fermentation of mal-absorbed carbohydrate are:
- Lactic acid, alpha ketoglutaric acid and carbon dioxide
  - Lactic acid, hydrogen and methane
  - Short chain fatty acids, hydrogen and carbon dioxide
  - Carbon dioxide, hydrogen and pyruvate
10. Which of the glucose tolerance curves shown below is most likely to represent lactase deficiency in a patient who has just ingested 50 g of lactose?
- I
  - II
  - III
  - IV
- 11. What are the most important data to consider when forecasting the amount of food to be prepared?**
- Holiday and weekend volume**
  - Skill levels of employees**
  - Food-item selection statistics**
  - Weather conditions and temperatures**
- 12. A dietitian lobbying for specific legislative action should:**
- Prioritize issues and be prepared to compromise on less important issues.**
  - Work alone rather than risk having a difference of opinion with members of a coalition.**
  - Know the exact goals for the bill and work diligently to ensure all issues are included.**
  - Speak with the legislator to learn more about the issues before expressing an opinion.**
- 13. Which of the following changes in design would improve the efficiency of resource flow in this foodservice facility?**
- Reverse storage and dishroom areas**
  - Reverse production and storage areas**
  - Reverse storage and service areas**
  - Reverse dishroom and production areas**
14. Before recommending nutrition management of a patient with end stage renal disease who is on hemodialysis, the dietitian needs information about the:
- Serum potassium level.
  - Specific gravity of the urine.
  - Patient's usual intake of carbohydrates.
  - Patient's intake of iron before hospital admission.
15. Costs in which area are most likely to be evaluated first following an announcement of a budget reduction?
- Food
  - Labor
  - Equipment and maintenance
  - General nonfood supplies
16. Five hundred people become ill with acute gastro - enteritis 4–6 hours after eating custard pie. Which bacteria is the most likely cause?
- Campylobacter jejuni
  - Vibrio parahaemolyticus
  - Staphylococcus aureus
  - Listeria monocytogenes

**CBNS EXAM FOR CERTIFIED NUTRITION SPECIALISTS®: 95% OF QUESTIONS CONCERN ADVANCED NUTRITION SCIENCE, BIOCHEMISTRY AND MEDICAL NUTRITION THERAPY**

*Source: Study Guide for the Certifying Exam for Nutrition Specialists, 4th ed.*

1. Compared to the requirements of a non-pregnant adult woman, the dietary requirements for several vitamins are increased during gestation; among these are the requirements for:
  - a. Vitamin A
  - b. Pyridoxine and pantothenic acid
  - c. Thiamin, riboflavin and niacin
  - d. Vitamin D
2. Altered metabolism of pyridoxine in chronic alcoholism results from:
  - a. Increased aldehyde oxidase activity.
  - b. Decreased aldehyde oxidase activity.
  - c. Unchanged aldehyde oxidase activity.
  - d. Decreased excretion of pyridoxine.
3. Insulin sensitivity may be enhanced by supplementation with:
  - a. Chromium picolinate.
  - b. Iron acetate.
  - c. Zinc chloride.
  - d. Selenium hexanoate.
4. To decrease the Respiratory Quotient (RQ), one should replace dietary:
  - a. Fat with protein.
  - b. Carbohydrate with fat.
  - c. Protein with carbohydrate.
  - d. Fat with carbohydrate.
5. Initial advice for a lactose-intolerant postmenopausal woman with a history of kidney stones and subnormal spinal BMD should be:
  - a. Restriction of dietary calcium intake.
  - b. Restriction of fluid intake.
  - c. Increased consumption of dairy products.
  - d. Dietary supplementation with magnesium.
6. The purpose of encouraging individuals with diabetes to increase the dietary fiber contents of their meals is to:
  - a. Reduce plasma albumin concentration.
  - b. Stimulate insulin secretion.
  - c. Minimize postprandial hyperglycemia.
  - d. Stimulate intestinal glucose transport.
7. The most accurate and reliable way to assess the macronutrient intake of an individual is through the use of a:
  - a. 24-hour food intake recall questionnaire.
  - b. 7-day food intake diary.
  - c. "Food frequency questionnaire."
  - d. Stool and urine analysis.
8. Biological value of food protein can be enhanced by:
  - a. Supplementing with branched-chain amino acids.
  - b. Slow cooking.
  - c. The addition of MSG.
  - d. Combining with complementary food protein.
9. If a bolus containing 600 mOsm/L enters the jejunum, the net direction of fluid movement in the intestinal tract will be:
  - a. From the intestinal lumen to the circulation.
  - b. From the circulation to the intestinal lumen.
  - c. Longitudinally along the mucosal basement membrane.
  - d. From the circulation to the lymphoid system.
10. Excessive production of gas within the intestines may be caused by excessive colonic bacterial fermentation of unabsorbed:
  - a. Gluten.
  - b. Small peptides.
  - c. Lignin.
  - d. Carbohydrates.