# Defining the Practice of Certified Specialists in Gerontological Nutrition

**Amin Saiar, PhD**
**PSI Services LLC**

**Jessica Rapey, RD**
**Commission on Dietetic Registration**

**Kathleen Niedert, PhD, RD, LNHA**
**Western Home Services**

**Suzanne Cryst, RD**
**Maria Joseph Center**

**Greg Hurtz, PhD**
**PSI Services LLC**

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Older adults can have a variety of healthcare concerns, one of which is careful attention to their nutritional needs. Recognizing the need for special attention and regulation in this area, the Dietetics in Health Care Communities (DHCC; formerly the Consultant Dietitians in Health Care Facilities) and the Healthy Aging (HA) dietetic practice groups of the Academy of Nutrition and Dietetics proposed a certification for practitioners in this specialty area a little over 10 years ago. A practice analysis was carried out in 2005 to delineate the content specifications and develop items for an initial Board Certified Specialist in Gerontological Nutrition (CSG) examination, and by 2006 new CSG examinations were being administered at testing sites throughout the country with the first 5-year certification period granted in 2007. As of the date of this report, more than 500 registered dietitians hold the CSG credential. The purpose of this manuscript is to describe the processes used to update the examination specifications for the CSG examination, summarizing findings from a recent analysis of work carried out by CSG practitioners in 2013 (PSI Services LLC, 2014) to delineate the content specifications for the CSG certification examination. Through the discussion within this manuscript, the Academy of Nutrition and Dietetics members will be able to gain increased awareness and understanding of the CSG specialty.

The analysis of work is the systematic process of identifying the work role requirements, job tasks, and competencies associated with a given job role. This process comes under many names that can be used somewhat interchangeably, including: job task analysis, work analysis,

occupational analysis, and practice analysis, practice audit, role delineation study, among others. A clear exposition of the needs for the analysis and intended use of its outcomes helps to drive decisions about the details of the specific methodologies (Wilson, 2012); however, the overarching goal is virtually always the same: to study and document the nature of work. Depending on the purpose, it may lead to descriptors of work that are highly detailed or may lead to use of more generalized work activity dimensions (Gibson, 2012). The analysis may focus primarily on the work tasks and activities, or it may give balanced or even exclusive attention to practitioners in terms of the competencies required for effective performance. In the context of test development, the analysis of work is crucial in defining the scope of test content and specifying a valid plan and blueprint for building the test (Doverspike & Arthur, 2012). A thorough analysis will ensure that content specifications for test construction maximize coverage of all relevant content, leaving no noteworthy deficiencies in coverage and excluding irrelevant or unimportant content that would contaminate the test. Content areas are specified and test questions are constructed based on these content specifications.

The primary purpose for the 2013 practice analysis was to define entry-level CSG performance in terms of the tasks that qualified practitioners must be able to perform at the time of certification (i.e. targeted to practitioners in possession of an RDN certification and 2,000 hours of experience with older adult populations) and the knowledge requisite for the performance of those tasks. In accordance with professional standards and guidelines such as those spelled out by the Standards for Educational and Psychological Testing (1999) and the National Commission for Certifying Agencies Standards for the Accreditation of Certification

Programs (NCCA Standards), this would provide the foundation for evaluating, and revising as needed, the CSG examination content specifications.

## Methodology

### *Participants*

The Commission on Dietetic Registration (CDR), work analysts from PSI Services LLC, and subject matter experts (SMEs) collaborated to carry out the practice analysis. Through the process, 10 practicing CSG SMEs served as participants in a specialized practice analysis workgroup. In addition, six practicing CSG SMEs served as interviewees for the preliminary data gathering for the practice analysis. To qualify as a SME for these activities several criteria needed to be met: (1) Credentialed as a Registered Dietitian Nutritionist (RDN); (2) Documentation of 2,000 hours of practice experience as an RDN in the geriatric/gerontological specialty area; (3) Completion of two or more years of experience as a CSG in direct care of older adults, (4) Credentialed as a CSG in good standing; and (5) Currently practicing in the United States. The qualified SMEs who were selected were recognized among their peers as experts in their field or area of practice and contributed by drawing from day-to-day experience in the identification of content and context related to practice. They represented practitioners throughout the United States from a wide range of practice settings including large-scale hospitals, correctional facilities, senior residential facilities, community-based organizations for older adults, policy-based organizations for older adults, and private consulting. These selection and sampling criteria helped ensure that relevant tasks and knowledge in the profession would

be identified and that examination content would continue to reflect current practice and job competencies.

Additional experts were surveyed later in the process, and were comprised of all CSG credential-holders in addition to individuals who were not currently certified as a CSG but (1) held the RD/RDN credential for 2 or more years, (2) resided in the United States, and (3) were members of Dietetic Practice Groups (DPGs) for older adults.

***Procedures***

Work analysts from PSI Services LLC studied the 2005 practice analysis and examination specifications, and other relevant resources such as textbooks, manuals, published literature, and interviews with practitioners. Background research was instrumental in learning about terms and concepts used in gerontological practice (e.g. assessment tools validated for use with older adults, prevalence of nutrition care process, use of the Academy's standardized language for diagnostic terms, food and nutrition programs and policies for community-residing older adults, physical changes related to aging, food service management, and nutritional risk factors for older adults). Efforts were made to identify current and newly-emerging tasks and knowledge relevant to CSG practice.

*Interviews with Practitioners.* Work analysts conducted interviews with six CSGs to gain an understanding of gerontological specialty practice. During the interviews, CSGs were asked to identify major subject matter areas in their work and the job tasks performed in each subject matter area. They were also asked to identify specific knowledge necessary to perform each task safely and competently.

*Development of the Preliminary Task and Knowledge Statements.* Work analysts developed preliminary lists of task and knowledge statements associated with the CSG job role, based on a synthesis of information gathered from the background research and the interviews. Job tasks and knowledge statements were transcribed from the information gathered so that each job task and knowledge statements had a consistent format and language. The task and knowledge statements were designed to capture the important aspects of the task or knowledge, with each reflecting about the same level of specificity so that no task or knowledge is considerably more broadly-defined or too specific. Each task was written to be a mutually-exclusive unit of work rather than elemental steps in a procedure. Knowledge was conceptualized in terms of principles, methods, and techniques relevant to actual practice. The specification of task and knowledge requirements was guided by the operational taxonomy of nine functional areas (content domains) of CSG practice.

*Review and Validation of the Task and Knowledge Statements.* The preliminary lists were critically reviewed for relevance to CSG work by the practice analysis workgroup at a 2-day face-to-face meeting. The workgroup was instructed to review tasks and knowledge and phrase each at the same level of specificity and in terms that were universally understood across practice settings. Every task and knowledge statement was refined until each was structured in a consistent format and phrased in terms that were technically correct, conceptually accurate, comprehensive, and representative of practice.

In this process, the workgroup performed a linkage process to ensure that every task was associated with at least one knowledge statement and every knowledge statement was

associated with at least one task. The end result of the practice analysis workgroup validation was 115 tasks and 147 knowledge statements.

*Task Analysis Survey.* Since tasks were the primary focus for the definition of the CSG job role, they were the focus of the next step in the validation process. Knowledge statements would be formally linked to the critical tasks in each content area in a separate process and were therefore not included in the survey at this stage. The first part of the task survey collected information about the respondents and their current jobs. The second part asked respondents to rate the frequency that they engage in each of the 115 tasks, and the significance of the task relative to patient safety, health, and welfare. Rating scales are shown in Figure 1.

The task survey was prepared in both electronic and paper-and-pencil (with postage-paid return mail) formats for distribution to CSGs and Dietetic Practice Group (DPG) members whose practice involved older adults. The rationale for providing both options was to maximize the overall response rate. The online format allowed respondents to log in multiple times to continue their survey in the event that they were unable to respond in one sitting. During a 4-week interval, three e-mail reminders were sent to encourage a high response rate. In addition, there were two types of incentives offered to respondents. The surveys mailed to CSGs contained a $1 bill and an opportunity to enter a drawing for one of ten $50 gift cards. The individuals who were not CSGs but completed the survey were offered an opportunity to receive a $25 discount on the specialty examination fee.

*Identification of Critical Tasks.* The practice analysis workgroup reviewed mean task frequency and importance ratings as well as mean critical values (frequency × importance),

both within and across content areas. The practice analysis workgroup was instructed to review the task ratings, discuss the reasonableness of the ratings and the potential impact of retaining tasks with low ratings, and to achieve consensus on which critical tasks to include in the specifications.

*Validation of Content Specifications.* Work analysts held a second 2-day face-to-face meeting with the practice analysis workgroup to make final evaluations and decisions on the content specifications resulting from the practice analysis. The meeting began with an overview of the practice analysis and examination development process to assist the workgroup in understanding the multi-phase process involved in developing psychometrically sound examinations. Next, a summary of the sample of respondents who completed the task survey was presented to provide a context for interpretation of the practice analysis results. Finally, a description of the rating scales and tables of the ratings for each task were presented.

Weights for each content area were derived as the proportion of the overall sum of critical values that was attributable to the critical values within each content area. The weight of each content area is therefore a function of both the number of tasks in the area and the criticality of those tasks. The practice analysis workgroup reviewed the sorted tables of mean task ratings, discussed the reasonableness of the ratings and the impact of including lower-criticality tasks in the specifications, and achieved consensus as to the inclusion of tasks in the specifications.

## Results

Table 1 provides a summary of data on the response rates for the task analysis survey. Invitations to complete the survey were sent to the 493 CSGs credentialed at the time of the

survey and 3,654 DPG members. Emails were sent to these 4,147 individuals as prospective respondents, with 58 choosing to opt out of the process. Several emails bounced back as undeliverable, leaving 4,075 as the remaining potential pool of respondents. After 4 weeks and three reminder e-mails, 412 surveys were returned from 184 (37%) of the 493 CSGs and 228 (6%) of the 3,654 DPG members (it should be noted that there was no expectation that DPG members would complete the survey, as not all practice with older adults). Data were screened to retain only those surveys where it was clear the respondents were actively engaged in practice relevant to the CSG credential, and where respondents rated at least 50% of the tasks. A few respondents completed both the online survey and a paper-and-pencil survey and in these cases only one set of data was retained.

Tables 2 to 5 summarize the demographic characteristics of the 412 respondents. Table 2 reveals that nearly 90% of the respondents were in the Northeast, Midwest, and South. Slightly over half held bachelor's degrees while the rest held graduate degrees. Over half had greater than 20 years of experience as an RD, and nearly all were currently providing gerontological nutrition services. Of those who were CSGs, most had been a CSG for 1-4 years consistent with the timeline from inception of this specialty certification to the timing of the survey. Three-fourths spent at least 20 hours per week providing gerontological services, and nearly the same number had been providing such services for over 8 years. Most saw 76-100 gerontological clients per month, while three-fourths saw 26 or more per month. Three-fourths also saw 25 or fewer non-gerontological clients per month, with one-third seeing none. Table 2 demonstrates that those sampled are highly experienced in treating geriatric populations, but appropriately represent a variety of experience levels as well. Table 3 summarizes the work

settings of respondents, with respondents able to choose more than one option related to the multiple job offerings often held by this group of individuals. Many respondents indicated a variety of other work settings, broadening the representativeness of the sample to less common types of work settings. Tables 4 and 5 indicate the sample is drawing from experiences across a variety of clinical functions and disease states in the treatment of the gerontological population.

For the 115 tasks, the mean frequency rating was 2.58 (SD = 0.61) and the mean significance rating was 2.84 (SD = 0.34). The difference in standard deviations indicates there is more overall variability in how frequently different tasks are carried out (0.61) than there is how significant those tasks are (0.34).

Table 6 provides the means and standard errors of task ratings, and mean criticality indices for each task. Also noted are the average indices for the clusters of tasks within each functional area. Criticality was highest for Nutrition Screening, Nutrition Data Synthesis, Nutrition Diagnosis, and Nutrition Data Gathering in this order. Next were Nutrition Care Plan, Professional Practice, Nutrition Monitoring and Evaluation, Nutrition Counseling and Education, and Foodservice, in this order. To paraphrase, this bifurcation of task clusters suggests a split between gathering, analyzing and diagnosing on the one hand, and creating, implementing and monitoring treatment plans on the other hand.

After lengthy deliberation about such issues as including low-frequency but moderately significant tasks (e.g. “Assess disaster preparedness by ensuring adequate food and water supplies”, mean frequency = 1.23 and mean significance = 2.44), the workgroup determined that all of the tasks should be retained in the specifications. The derived weights for each area

are shown Figure 2. The newly-defined specifications were very similar to the previous specifications; with only slight changes in the number of items for Nutrition Screening, Nutrition Care Plan, Nutrition Counseling and Education, and Nutrition Monitoring and Evaluation. Table 7 presents the content weighting of the updated examination content outline alongside the weights that were derived from the original practice analysis and used as the original examination plan; Table 8 provides the final CSG examination content outline.

## Discussion

The purpose of the practice analysis completed in 2013 was to update the CSG examination plan. The objective was to map out the task domain and link measurable components of knowledge to work tasks, in order to evaluate and update the specifications for building new certification exams. The analysis largely confirmed the findings derived from the original CSG practice analysis conducted in 2005 and resulted in only minor adjustments to the operational exam plan. The dimensions of CSG practice derived in 2005 were confirmed in 2013.

In many ways, these dimensions define CSG practitioners as critical thinkers and problem-solvers. Problem solving involves identifying gaps between current and desired states, generating and evaluating alternative courses of action, selecting and implementing the most effective and safest solutions, and monitoring progress to verify whether the initial gap was closed or another possible solution needs to be pursued (Halpern, 1996). These problem-solving activities are well reflected in the performance dimensions for CSG practice where the nature of the problems is associated with nutrition within older adult populations.

Continuing this broader look at the identified domains of CSG practice, it is instructive to relate these domains to higher-order taxonomies and theories of work performance. This opens potential doors for a deeper and more comprehensive understanding of CSG practice by identifying its more basic dimensions, and how it relates at this foundational level to other occupations with similar work activity and requirement profiles. To provide this linkup, the definitions of the nine dimensions delineated in Table 8 were analyzed in relation to the taxonomy of generalized work activities from the O*NET system (Jeanneret, Borman, Kubisiak, & Hanson, 1999), which was developed to aid in making cross-occupational comparisons of work activities. Figure 3 displays connections between the CSG dimensions and a subset of the O*NET generalized work activities to which they are logically linked. Figure 2 also shows a recombination of the percentages of criticality space from the nine CSG dimensions (from Figure 2) to the generalized work activities. This analysis shows that mental processes – information and data processing, and reasoning and decision-making – accounts for over half (55%) of the overall criticality space for CSG practice, while seeking that information accounts for a little over one-quarter (28%) of the criticality space. In total, 83% of the criticality space involves seeking and processing information to make judgments and decisions. The remaining 17% involves documenting their work and communicating and interacting with others.

The validation of the nine defined practice areas as part of the 2013 practice analysis, in conjunction with the comparison of the foundational CSG dimensions to higher-order taxonomies and theories of work performance, provides continued evidence of content validity for the CSG examination program and supports the use of the CSG examination to identify RDNs who have the capabilities to competently practice in the CSG job role.

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**Figure 1**

**Task frequency and significance rating scales**

**Task frequency:** *Consider whether the task is part of your job, and if so, how often you perform the task.*

| | |
|---|---|
| 0 | NOT PERFORMED |
| 1 | RARELY PERFORMED (1-2 times/year) |
| 2 | SOMETIMES PERFORMED (monthly) |
| 3 | OFTEN PERFORMED (weekly) |
| 4 | CONSTANTLY PERFORMED (daily) |

**Task significance:** *Consider how performance of the task relates to patient safety, health, and welfare.*

| | |
|---|---|
| 0 | NOT SIGNIFICANT |
| 1 | SLIGHTLY SIGNIFICANT (little health or financial impact on patient) |
| 2 | SOMEWHAT SIGNIFICANT (some health or financial impact on patient) |
| 3 | QUITE SIGNIFICANT (moderate health or financial impact on patient) |
| 4 | EXTREMELY SIGNIFICANT (severe health or financial impact on patient) |

**Figure 2**

**Relative criticality weights associated with each dimension of CSG practice**

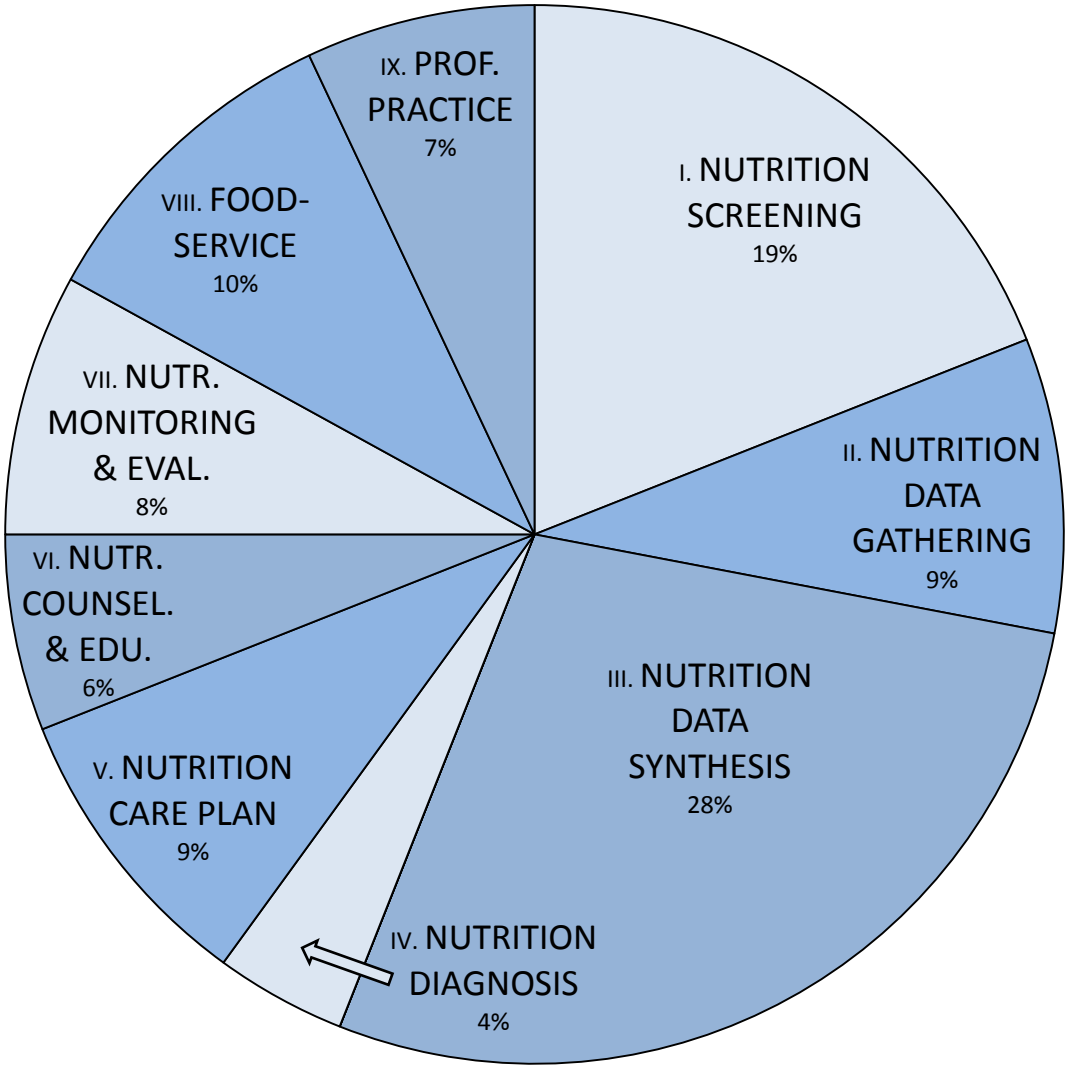

**Figure 3**

**Linkage between CSG practice dimensions and relevant dimensions of the O*NET generalized work activity (GWA) taxonomy.**

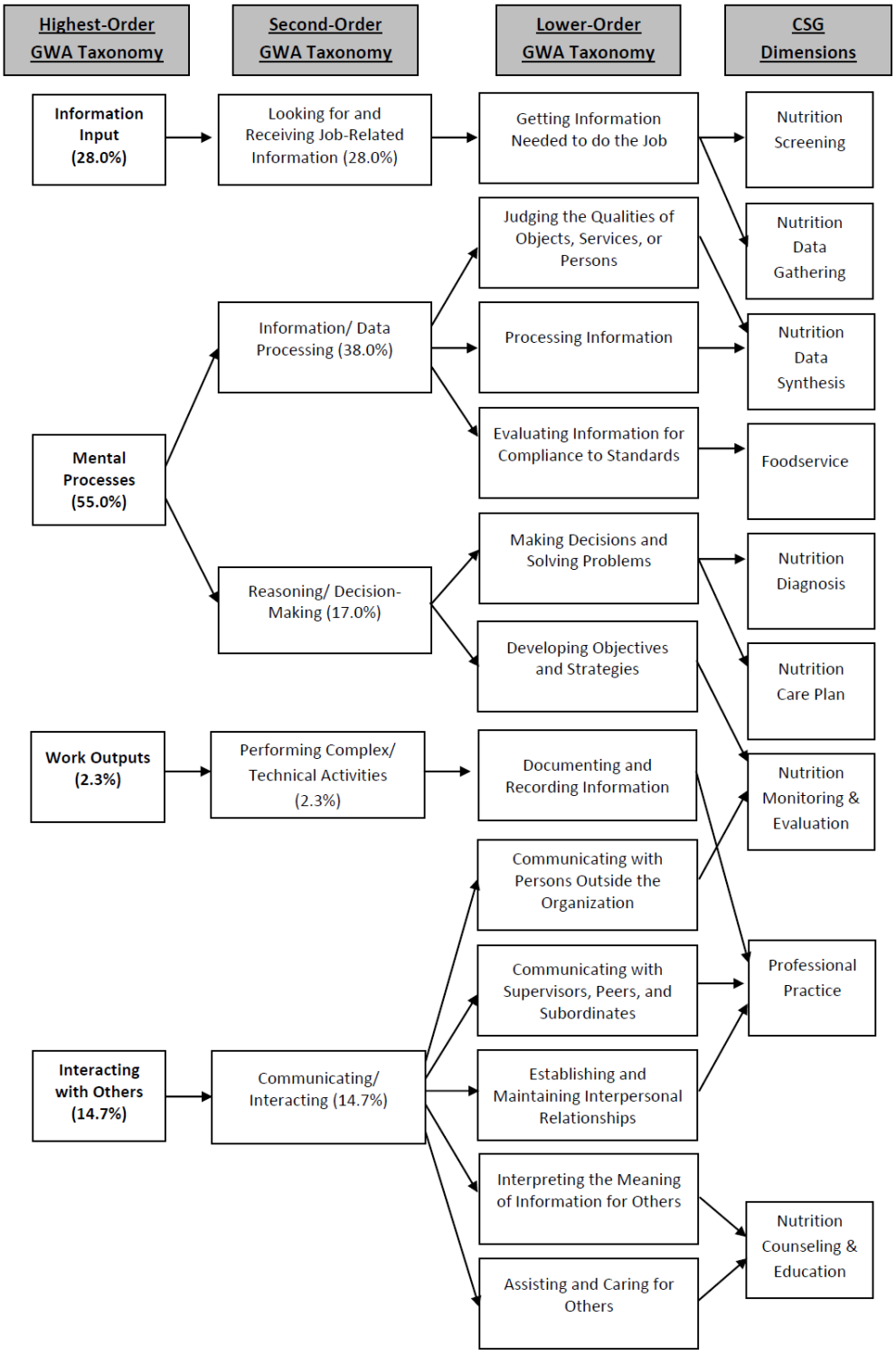

**Table 1**

**Response rates for CSG and DPG samples**

| Group | Sample | Not Practicing | Opt-Out | Bounce Back | Duplicate with Paper & Pencil | Complete |
|---|---|---|---|---|---|---|
| DPG | 3,654 | 26 | 53 | 12 | 0 | 228 |
| CSG | 493 | 7 | 5 | 2 | 3 | 184 |
| Total | 4,147 | 33 | 58 | 14 | 3 | 412 |

**Table 2**

**Characteristics of task survey respondents**

| | |
|---|---|
| **Location of Primary Practice** | |
| Northeast | 27% |
| Midwest | 30% |
| South | 31% |
| West | 9% |
| No Response, Canada, or "Other" (e.g. multiple States) | 2% |
| **Level of Education (Highest Degree)** | |
| Bachelor's | 54% |
| Master's | 44% |
| Doctorate | 2% |
| **Years Practicing as a Registered Dietitian (RD)** | |
| Over 20 | 52% |
| 11-20 | 24% |
| 5-10 | 17% |
| 3-4 | 6% |
| 1-2 | 2% |
| **Currently Provide Gerontological Nutrition Services** | |
| Yes | 98% |
| No | 2% |
| **Years as a Certified Specialist in Gerontological Nutrition (CSG)** | |
| Over 6 | 6% |
| 5-6 | 6% |
| 3-4 | 13% |
| 1-2 | 15% |
| Less than 1 | 8% |
| Not a CSG (but were members of Dietetic Practice Groups who work with adults) | 52% |
| **Hours Per Week Providing Gerontological Services** | |
| Over 40 | 29% |
| 31-40 | 28% |
| 21-30 | 18% |
| 11-20 | 12% |
| 6-10 | 5% |
| 1-5 | 7% |
| 0 | 1% |
| **Years Providing Gerontological Nutrition Services** | |
| Over 8 | 71% |
| 7-8 | 6% |

| | |
|---|---|
| 5-6 | 8% |
| 3-4 | 10% |
| 1-2 | 4% |
| 0 | 1% |
| **Gerontological Clients Per Month** | |
| 76-100 | 38% |
| 51-75 | 21% |
| 26-50 | 17% |
| 1-25 | 17% |
| Less than 1 | 1% |
| No clients | 6% |
| **Non-Gerontological Clients Per Month** | |
| 76-100 | 7% |
| 51-75 | 6% |
| 26-50 | 13% |
| 1-25 | 36% |
| Less than 1 | 5% |
| No clients | 32% |

**Table 3**

**Task survey respondents' work settings**

| Setting (check all that apply) | Number of Respondents | % of Respondents |
|---|---|---|
| Long term care facility | 309 | 75% |
| Rehabilitation facility | 122 | 30% |
| Assisted living facility | 85 | 21% |
| Acute care facility | 60 | 15% |
| Hospital | 58 | 14% |
| Foodservice management | 54 | 13% |
| Other | 50 | 12% |
| Foodservice operation | 38 | 9% |
| Outpatient clinic | 28 | 7% |
| Home care agency | 26 | 6% |
| Community nutrition programs | 25 | 6% |
| Private practice/consulting | 24 | 6% |
| Veterans administration | 19 | 5% |
| Education | 17 | 4% |
| Government agency | 17 | 4% |
| Community/public health facility or organization | 13 | 3% |
| Correctional facility | 5 | 1% |
| Research | 4 | 1% |
| Pharmaceutical company | 0 | 0% |

*Note*. Percents sum to over 100 because respondents marked all that apply to them.

**Table 4**

**Task survey respondents' job functions performed with older adults**

| Setting (check all that apply) | Number of Respondents | % of Respondents |
|---|---|---|
| Clinical services (inpatient) | 332 | 81% |
| Foodservice | 229 | 56% |
| Nutrition information/communication | 217 | 53% |
| Education of other health care professionals | 211 | 51% |
| Management | 144 | 35% |
| Wellness/disease prevention | 127 | 31% |
| Clinical services (home or community based care) | 78 | 19% |
| Clinical services (outpatient) | 77 | 19% |
| Public health/community nutrition | 52 | 13% |
| Higher education | 16 | 4% |
| Other | 13 | 3% |
| Research | 11 | 3% |
| Public/commercial foodservice | 7 | 2% |
| Sales/marketing/product development | 7 | 2% |

*Note*. Percents sum to over 100 because respondents marked all that apply to them.

**Table 5**

**Types of disease states or conditions task survey respondents work with**

| Disease/Condition (check all that apply) | Number of Respondents | % of Respondents |
|---|---|---|
| Diabetes | 403 | 98% |
| Cardiovascular disease | 391 | 95% |
| Renal disease | 379 | 92% |
| Alzheimer's disease | 375 | 91% |
| Gastrointestinal disease | 370 | 90% |
| Neurological diseases/stroke | 357 | 87% |
| Parkinson's disease | 357 | 87% |
| Oncological disease | 332 | 81% |
| Gout/arthritis | 296 | 72% |
| Hepatic disease | 281 | 68% |
| Bone disease | 274 | 67% |
| Other | 78 | 19% |
| *Note*. Percents sum to over 100 because respondents marked all that apply to them. | | |

**Table 6**

**Summary of task statement ratings by content area**

| | Task | Task Frequency | | | Task Importance | | | Criticality |
|---|---|---|---|---|---|---|---|---|
| | | N | Mean | S.E. | N | Mean | S.E. | Freq × Imp |
| **I. NUTRITION SCREENING** | | | **3.02** | | | **3.11** | | **10.08** |
| T1 | Identify physical activity levels to determine energy needs. | 412 | 3.19 | .056 | 411 | 2.73 | .051 | 9.24 |
| T2 | Identify functional status that may affect food intake, nutrient intake and nutrition status. | 412 | 3.56 | .041 | 411 | 3.50 | .037 | 12.74 |
| T3 | Identify food, fluid and nutrient intake patterns. | 412 | 3.58 | .043 | 411 | 3.52 | .036 | 12.92 |
| T4 | Identify drugs, complementary and alternative medicines, and dietary supplements that may impact nutritional status. | 412 | 3.35 | .046 | 411 | 3.22 | .039 | 11.17 |
| T5 | Identify physical and disease related conditions that may affect food intake, nutrient intake and nutrition status. | 412 | 3.59 | .040 | 410 | 3.56 | .033 | 13.03 |
| T6 | Identify activities of daily living/disabilities (ADL) limitations that may affect food intake, nutrient intake, and activity level. | 411 | 3.40 | .046 | 411 | 3.34 | .040 | 11.73 |
| T7 | Identify instrumental activities of daily living (IADL) limitations that may affect food intake, nutrient intake, and activity level. | 411 | 2.94 | .060 | 410 | 2.96 | .051 | 9.59 |
| T8 | Identify food security, food sufficiency and hunger issues that may impact food intake, nutrient intake and nutrition status. | 412 | 2.28 | .063 | 409 | 2.92 | .055 | 7.47 |
| T9 | Identify environmental conditions that may affect food intake, nutrient intake, and functional status. | 412 | 2.57 | .060 | 411 | 2.85 | .047 | 7.97 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| T10 | Identify socioeconomic factors that may affect food intake, nutrient intake, nutrition status, and functional status. | 412 | 2.25 | .065 | 410 | 2.84 | .053 | 7.16 |
| T11 | Identify access and availability issues that may affect food intake, nutrient intake, nutrition status and functional status. | 412 | 2.21 | .065 | 410 | 2.84 | .054 | 7.10 |
| T12 | Identify cognitive factors that may affect food intake, nutrient intake, nutrition status and functional status. | 412 | 3.42 | .044 | 411 | 3.44 | .037 | 12.11 |
| T13 | Identify mental and behavioral health factors that may affect food intake, nutrient intake, nutrition status and functional status. | 411 | 3.26 | .047 | 410 | 3.26 | .040 | 11.08 |
| T14 | Identify social and caregiver support factors that may affect food intake, nutrient intake, nutrition status and functional status. | 411 | 2.66 | .058 | 410 | 2.96 | .047 | 8.54 |
| T15 | Identify cultural, ethnic, and religious issues that may affect food intake, nutrient intake, nutrition status and functional status. | 410 | 2.70 | .056 | 410 | 2.71 | .047 | 7.91 |
| T16 | Identify oral health status and swallowing issues that may affect food intake, nutrient intake and nutrition status. | 411 | 3.46 | .044 | 410 | 3.60 | .033 | 12.73 |
| T17 | Identify level of nutrition risk in order to determine whether intervention for groups/individuals is necessary. | 411 | 3.35 | .052 | 410 | 3.19 | .045 | 11.26 |
| T18 | Utilize standardized screening tools designed for use with older adults. | 411 | 2.56 | .073 | 409 | 2.57 | .060 | 7.68 |
| **II. NUTRITION DATA GATHERING** | | | **2.72** | | | **2.81** | | **8.58** |
| T19 | Identify educational and literacy levels that may affect food intake, nutrient intake, nutrition status and functional status | 411 | 2.19 | .061 | 410 | 2.44 | .054 | 6.18 |
| T20 | Identify health and disease conditions that may affect individual's ability to participate in and implement nutrition care plan. | 411 | 3.21 | .053 | 410 | 3.07 | .047 | 10.48 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| T21 | Collect anthropometric data pertaining to body composition. | 411 | 3.07 | .068 | 410 | 3.01 | .052 | 10.12 |
| T22 | Identify factors in living environment that may affect nutritional status. | 411 | 2.48 | .061 | 410 | 2.69 | .050 | 7.38 |
| T23 | Collect nutrition related biochemical data, medical tests and procedure results. | 411 | 3.40 | .052 | 410 | 3.25 | .040 | 11.45 |
| T24 | Identify functional abilities related to food consumption. | 411 | 3.33 | .048 | 410 | 3.25 | .043 | 11.28 |
| T25 | Identify caregivers' ability to provide nutrition care and support for individuals. | 411 | 2.24 | .062 | 409 | 2.81 | .053 | 7.07 |
| T26 | Perform nutrition focused physical examination. | 411 | 2.01 | .073 | 411 | 2.56 | .060 | 6.41 |
| T27 | Collect information for the federally mandated Resident Assessment Instrument. | 409 | 2.32 | .087 | 409 | 2.04 | .072 | 6.08 |
| T28 | Conduct food and nutrient intake history. | 411 | 2.97 | .057 | 411 | 2.95 | .048 | 9.39 |
| **III. NUTRITION DATA SYNTHESIS** | | | **2.84** | | | **2.96** | | **9.15** |
| T29 | Evaluate energy and nutrient intake for independent individuals and those living in community and care settings, e.g., food, beverages, supplements and enteral/parenteral nutrition. | 411 | 2.69 | .074 | 409 | 2.94 | .057 | 8.99 |
| T30 | Evaluate knowledge, beliefs and attitudes about food, nutrition, health and physical activity. | 411 | 2.66 | .056 | 411 | 2.73 | .047 | 7.90 |
| T31 | Evaluate energy and nutrition needs for individuals receiving oral, enteral or parenteral nutrition. | 411 | 3.04 | .054 | 410 | 3.49 | .040 | 11.02 |
| T32 | Evaluate individuals receiving texture-modified diets for possible changes in texture. | 411 | 2.81 | .062 | 411 | 3.30 | .044 | 9.87 |
| T33 | Evaluate family history of disease that may affect nutrient intake and nutrition status. | 411 | 1.84 | .062 | 411 | 2.04 | .054 | 4.62 |
| T34 | Evaluate history and presence of food allergies, hypersensitivities and intolerances. | 411 | 3.15 | .052 | 410 | 3.15 | .046 | 10.40 |
| T35 | Evaluate use of medical food supplements and fortified foods. | 411 | 3.29 | .050 | 411 | 3.16 | .041 | 10.88 |
| T36 | Assess cultural preferences that affect nutrition intake. | 411 | 2.74 | .055 | 411 | 2.69 | .049 | 7.97 |

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|---|---|---|---|---|---|---|---|---|
| T37 | Determine impact of activities of daily living (ADL) limitations on food intake, nutrient intake and activity level. | 411 | 3.10 | .055 | 411 | 3.00 | .048 | 9.97 |
| T38 | Determine impact of instrumental activities of daily living (IADL) on food intake, nutrient intake and activity level. | 410 | 2.59 | .067 | 410 | 2.67 | .058 | 8.04 |
| T39 | Assess data regarding individual's medical history and health status that affect nutrition intake. | 409 | 3.38 | .048 | 408 | 3.23 | .040 | 11.29 |
| T40 | Assess physical activity levels that affect energy needs. | 409 | 3.11 | .053 | 407 | 2.82 | .047 | 9.31 |
| T41 | Assess oral health status and swallowing issues that affect nutrition intake. | 409 | 3.31 | .053 | 407 | 3.40 | .043 | 11.78 |
| T42 | Evaluate individual for signs and symptoms of abuse, neglect or exploitation. | 408 | 1.80 | .071 | 406 | 2.88 | .058 | 5.83 |
| T43 | Evaluate current use of medications, complementary and alternative medicines, and dietary supplements. | 409 | 3.30 | .050 | 408 | 3.12 | .040 | 10.70 |
| T44 | Evaluate laboratory data using age- related reference standards. | 409 | 3.26 | .059 | 408 | 3.13 | .047 | 10.86 |
| T45 | Evaluate fluid needs. | 409 | 3.50 | .049 | 408 | 3.40 | .041 | 12.28 |
| T46 | Evaluate hydration status. | 406 | 3.37 | .052 | 405 | 3.46 | .041 | 12.13 |
| T47 | Evaluate factors related to food access, selection and preparation. | 409 | 2.19 | .068 | 406 | 2.68 | .055 | 6.77 |
| T48 | Integrate assessment data for nutrition related diagnosis and plan of care. | 409 | 3.35 | .055 | 407 | 3.01 | .049 | 10.61 |
| T49 | Assess need for nutrition counseling regarding disease management, health promotion/wellness and disease prevention. | 409 | 2.76 | .058 | 408 | 2.78 | .048 | 8.36 |
| T50 | Assess need for medical nutrition therapy regarding disease management, health/wellness promotion and disease prevention. | 409 | 2.99 | .060 | 408 | 3.05 | .045 | 9.68 |
| T51 | Identify signs and symptoms of a nutrition related problems. | 409 | 3.41 | .048 | 407 | 3.27 | .043 | 11.54 |

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| T52 | Assess need for palliative/end-of- life care that incorporates advance directives. | 409 | 2.39 | .062 | 408 | 3.01 | .050 | 7.77 |
| T53 | Assess need for adaptive eating devices. | 409 | 2.38 | .064 | 409 | 3.00 | .049 | 7.72 |
| T54 | Assess need for environmental adaptations or changes to accommodate nutrient intake. | 408 | 2.29 | .063 | 408 | 2.66 | .051 | 6.88 |
| T55 | Determine individual/community interventions, goals and expected outcomes. | 408 | 2.59 | .070 | 408 | 2.58 | .056 | 7.66 |
| T56 | Identify qualitative and quantitative criteria for measuring intervention outcomes. | 409 | 2.52 | .067 | 409 | 2.54 | .054 | 7.29 |
| T57 | Select indicators and instruments to measure nutrition outcomes. | 409 | 2.50 | .069 | 409 | 2.55 | .054 | 7.20 |
| **IV. NUTRITION DIAGNOSIS** | | | **2.98** | | | **2.71** | | **8.91** |
| T58 | Identify nutrition diagnosis or diagnoses. | 411 | 3.07 | .064 | 411 | 2.81 | .054 | 9.32 |
| T59 | Identify etiologies that support each nutrition diagnosis. | 411 | 2.98 | .066 | 411 | 2.69 | .057 | 8.86 |
| T60 | Identify signs and symptoms of nutrition status that support each nutrition diagnosis. | 411 | 3.02 | .065 | 411 | 2.74 | .055 | 9.09 |
| T61 | Develop diagnostic statement describing nutrition problems. | 411 | 2.86 | .071 | 411 | 2.58 | .059 | 8.36 |
| **V. NUTRITION CARE PLAN** | | | **2.69** | | | **2.84** | | **8.41** |
| T62 | Analyze barriers/solutions to implementation of nutrition care plan. | 411 | 2.98 | .057 | 409 | 2.86 | .050 | 9.19 |
| T63 | Determine need for collaboration and referral to nutrition, social services, community based organizations, medical and allied health care professionals. | 411 | 2.75 | .063 | 411 | 2.98 | .051 | 8.92 |
| T64 | Formulate goals and plan of action based on severity of problem, safety concerns, individual's needs and priorities, and likelihood of success. | 411 | 3.06 | .058 | 410 | 2.99 | .049 | 9.82 |
| T65 | Prioritize nutrition diagnoses and problems in terms of importance and urgency to determine most important nutrition interventions. | 411 | 3.03 | .063 | 411 | 2.90 | .053 | 9.58 |

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| T66 | Provide opportunities for health promotion, disease prevention, risk reduction and chronic disease management. | 410 | 2.25 | .064 | 410 | 2.52 | .056 | 6.56 |
| T67 | Develop monitoring plan for nutrition care indicators. | 411 | 2.91 | .060 | 411 | 2.78 | .051 | 8.75 |
| T68 | Provide interventions as defined by nutrition care plan. | 411 | 3.30 | .054 | 411 | 3.17 | .044 | 10.90 |
| T69 | Collaborate with interdisciplinary team regarding nutrition discharge plans. | 411 | 2.51 | .065 | 411 | 2.82 | .053 | 7.82 |
| T70 | Refer to nutrition service programs in home care, community based programs and health care settings. | 412 | 1.47 | .058 | 411 | 2.50 | .057 | 4.29 |
| T71 | Collaborate with interdisciplinary team regarding individual care in health care and community settings. | 412 | 2.62 | .066 | 411 | 2.84 | .053 | 8.30 |
| **VI. NUTRITION COUNSELING AND EDUCATION** | | | **2.14** | | | **2.63** | | **6.33** |
| T72 | Utilize established programs and materials for older adults. | 412 | 2.17 | .062 | 411 | 2.42 | .054 | 6.04 |
| T73 | Provide medical nutrition therapy counseling for specific needs of individuals. | 412 | 2.50 | .062 | 410 | 2.90 | .049 | 7.91 |
| T74 | Develop materials that use evidence based information to target audiences. | 412 | 1.52 | .059 | 410 | 2.37 | .058 | 4.32 |
| T75 | Provide nutrition education for specific needs of individuals. | 411 | 2.60 | .055 | 410 | 2.82 | .049 | 7.90 |
| T76 | Provide education to other professionals, decision makers, and policymakers on role of nutrition and the registered dietitian in the health, independence, quality of life and cost effective services for older adults. | 412 | 1.63 | .054 | 410 | 2.59 | .057 | 4.65 |
| T77 | Provide nutrition related training to formal and informal caregivers of individuals. | 412 | 1.91 | .054 | 410 | 2.67 | .052 | 5.68 |
| T78 | Assess need for nutrition education regarding disease management, health promotion/wellness and disease prevention. | 412 | 2.36 | .061 | 411 | 2.60 | .051 | 6.85 |
| T79 | Evaluate readiness to change nutrition related behaviors. | 412 | 2.45 | .060 | 411 | 2.68 | .054 | 7.32 |
| **VII NUTRITION MONITORING AND EVALUATION** | | | **2.21** | | | **2.46** | | **6.46** |

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| T80 | Monitor individual/community interventions, goals and expected outcomes. | 412 | 2.38 | .069 | 410 | 2.59 | .056 | 7.22 |
| T81 | Monitor qualitative and quantitative criteria for measuring intervention outcomes. | 412 | 2.33 | .067 | 411 | 2.52 | .055 | 6.85 |
| T82 | Utilize indicators and instruments to measure nutrition outcomes. | 412 | 2.44 | .066 | 411 | 2.53 | .053 | 7.07 |
| T83 | Evaluate data relevant to progress in nutrition care plan. | 412 | 2.87 | .058 | 410 | 2.75 | .050 | 8.54 |
| T84 | Evaluate data relevant to program implementation and intervention. | 412 | 2.24 | .066 | 409 | 2.43 | .056 | 6.39 |
| T85 | Evaluate outcomes by comparing progress towards goals and established evidence based standards. | 411 | 2.47 | .063 | 410 | 2.57 | .055 | 7.24 |
| T86 | Evaluate outcomes relevant to quality measures. | 412 | 2.21 | .062 | 410 | 2.40 | .057 | 6.25 |
| T87 | Incorporate data feedback to improve nutrition care process. | 410 | 2.02 | .067 | 408 | 2.29 | .059 | 5.61 |
| T88 | Evaluate ongoing need for nutrition services. | 412 | 2.67 | .066 | 409 | 2.71 | .054 | 8.11 |
| T89 | Evaluate need for referral to other settings or health care providers. | 411 | 2.28 | .067 | 410 | 2.62 | .056 | 6.92 |
| T90 | Evaluate need for participation in relevant food/nutrition programs. | 412 | 1.53 | .064 | 409 | 2.33 | .061 | 4.45 |
| T91 | Collect data for documenting outcomes related to nutrition and physical activity status of populations. | 411 | 1.05 | .065 | 408 | 1.85 | .064 | 2.85 |
| **VIII. FOODSERVICE** | | | **1.93** | | | **2.72** | | **5.93** |
| T92 | Assess food safety, sanitation and storage. | 412 | 2.41 | .061 | 411 | 3.07 | .052 | 7.99 |
| T93 | Assess food handling methods. | 411 | 2.38 | .065 | 411 | 3.08 | .053 | 7.96 |
| T94 | Assess nutrient and food quality. | 412 | 2.50 | .060 | 411 | 2.96 | .049 | 7.98 |
| T95 | Assess sensory qualities of food and meals. | 411 | 2.44 | .063 | 409 | 2.79 | .052 | 7.49 |
| T96 | Assess appropriateness of meals for older adult populations of diverse health conditions, religious customs/practices, and cultures. | 412 | 2.39 | .061 | 411 | 2.81 | .051 | 7.36 |

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| T97 | Assess foodservice systems and preparation methods relative to functional abilities and availability of equipment. | 412 | 1.82 | .066 | 410 | 2.39 | .059 | 5.20 |
| T98 | Assess availability of adaptive/assistive eating devices to promote optimal food intake. | 412 | 2.15 | .062 | 411 | 2.82 | .052 | 6.74 |
| T99 | Assess environmental condition of dining areas in home, community based or care settings. | 412 | 2.16 | .066 | 411 | 2.55 | .056 | 6.28 |
| T100 | Develop foodservice systems and dining programs that incorporate individually focused needs and preferences. | 412 | 1.58 | .068 | 410 | 2.56 | .059 | 4.84 |
| T101 | Propose revisions in foodservice systems and dining programs to meet needs of individuals. | 412 | 1.69 | .062 | 411 | 2.57 | .056 | 5.09 |
| T102 | Perform training needs assessment of staff and foodhandlers. | 412 | 1.50 | .057 | 411 | 2.62 | .058 | 4.44 |
| T103 | Conduct training of staff and foodhandlers based on identified needs. | 410 | 1.54 | .054 | 411 | 2.68 | .056 | 4.58 |
| T104 | Meet regulatory standards within menu planning development. | 412 | 1.87 | .068 | 411 | 2.79 | .057 | 5.90 |
| T105 | Assess disaster preparedness by ensuring adequate food and water supplies. | 412 | 1.23 | .052 | 409 | 2.69 | .061 | 3.66 |
| T106 | Develop policies and procedures relative to foodservice operations, education and training. | 412 | 1.22 | .052 | 408 | 2.44 | .060 | 3.36 |
| **IX. PROFESSIONAL PRACTICE** | | | **2.40** | | | **2.87** | | **7.72** |
| T107 | Administer nutrition service programs in home care, community based programs and health care settings. | 412 | 1.45 | .077 | 410 | 2.33 | .066 | 4.55 |
| T108 | Recognize responsibilities related to provision of palliative and end- of-life care of older adults to support the individual and families. | 412 | 2.32 | .059 | 410 | 2.90 | .050 | 7.27 |
| T109 | Discuss pros and cons of aggressive nutrition support with individuals, family and/or caregivers. | 412 | 1.93 | .051 | 411 | 3.13 | .048 | 6.47 |
| T110 | Collaborate with interdisciplinary team on issues related to nutrition outcomes. | 412 | 3.12 | .049 | 411 | 3.19 | .042 | 10.40 |

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| T111 | Advocate for individual in situations involving advance directives, living will, code status and end-of-life issues. | 412 | 1.72 | .061 | 411 | 2.86 | .056 | 5.60 |
| T112 | Document nutrition services provided in home care, community based programs and care facilities. | 412 | 2.58 | .080 | 410 | 2.75 | .060 | 8.12 |
| T113 | Document decisions regarding ongoing need for nutrition services. | 412 | 2.80 | .066 | 410 | 2.85 | .053 | 8.70 |
| T114 | Coordinate quality assurance and performance indicators with interdisciplinary team. | 412 | 2.02 | .058 | 411 | 2.54 | .055 | 5.87 |
| T115 | Comply with federal regulations related to the care of older individuals, e.g. HIPAA, Accountable Care Act, Resident/Patient Bill of Rights, Elder Abuse Act, Dependent Adult Abuse. | 411 | 3.69 | .042 | 410 | 3.32 | .052 | 12.51 |

**Table 7**

**Overview of content areas, weights, and number of items for original and revised examination content outlines**

| Content Domain (*and subdomain*) | 2013 Exam Content Outline | | 2006 Exam Content Outline | |
|---|---|---|---|---|
| | % Of Exam Questions | # of Scored Questions | % Of Exam Questions | # of Scored Questions |
| I. Nutrition Screening | 19% | 26 | 18% | 24 |
| II. Nutrition Data Gathering | 9% | 12 | 9% | 12 |
| III. Nutrition Data Synthesis | 28% | 38 | 28% | 38 |
| *A. Physical* | *10%* | *14* | - | - |
| *B. Clinical Data* | *14%* | *19* | - | - |
| *C. Social And Environmental* | *4%* | *5* | - | - |
| IV. Nutrition Diagnosis | 4% | 5 | 4% | 5 |
| V. Nutrition Care Plan | 9% | 12 | 10% | 14 |
| VI. Nutrition Counseling And Education | 6% | 8 | 4% | 5 |
| VII. Nutrition Monitoring And Evaluation | 8% | 11 | 10% | 14 |
| VIII. Foodservice | 10% | 14 | 10% | 14 |
| IX. Professional Practice | 7% | 9 | 7% | 9 |
| TOTAL | 100% | 135 | 100% | 135 |

*Note.* Because the content area "Nutrition Data Synthesis" contained a large number of tasks, it was subdivided into the three functional subareas shown, in order to provide further definition of this content area.

**Table 8**

## Final Examination Content Outline for CSG Certification Examination

### I. NUTRITION SCREENING (19%)

1. Barriers to adequate food and nutrient intake for older adults
2. Clinical signs of poor bone health
3. Clinical signs of poor oral health
4. Common interactions as related to older adults between drugs and herbal medicines, food and drugs, drugs and drugs, food and herbal medicines
5. Ethnic, cultural, and religious factors that alter nutritional intake
6. Nutritional factors that contribute toward healthy aging
7. Markers of adequate hydration in older adults
8. Nutrition and health concerns of older adults
9. Physical changes that occur with aging in older adults
10. Metabolic changes that occur with aging in older adults
11. Physiological changes that occur with aging in older adults
12. Neurological changes that occur in older adults
13. Sensory changes that occur with aging in older adults
14. Continuum of care and of relationship of nutrition in primary, secondary and tertiary disease prevention
15. Risk factors associated with poor nutritional status
16. Risk factors associated with socioeconomic, social, and psychological factors
17. Standards and guidelines for screening and assessment of older adults
18. Tools for assessing physical and functional activity level
19. Screening tools appropriate for evaluating nutritional risk in programs and facilities designed for and serving older adults
20. Environmental factors affecting accessibility to adequate supply of safe and nutritious food
21. Prevalence of acute and chronic diseases, and conditions of older adults
22. Prevalence of nutrition related conditions
23. Effect of physical activity on nutritional status

### II. NUTRITION DATA GATHERING (9%)

1. Methods and tools to assess socioeconomic support
2. Methods and tools to perform an age-related nutrition assessment
3. Methods and tools to assess social support
4. Methods and tools to perform cognitive assessment
5. Impact of acute and chronic diseases and conditions on health and nutrition status
6. Federal regulations associated with nutrition care assessment process in programs and facilities designed for and serving older adults
7. Indicators of involuntary weight loss

8. Methods to assess hydration status for older adults
9. Methods to measure bone mineral content and density
10. Methods to perform a nutrition focused physical examination
11. Standard anthropometric measures for older adults
12. Care planning process and implications for older adults
13. Social and psychological family and caregiver support for home safety
14. Food availability, selection, preparation, safety, and adequacy and accessibility of kitchen facilities
15. Methods to assess biochemical data, medical tests, and procedure results

**III. NUTRITION DATA SYNTHESIS (28%)**

***A. Physical (10%)***

1. Methods to synthesize information from screening and assessment tools
2. Effect of aging on ability to regulate fluid balance
3. Effect of oral health on nutrition status
4. Effects of age-related physical changes on nutrition status
5. Effects of age-related metabolic changes on nutrition status
6. Effects of age-related physiological changes on nutrition status
7. Effects of age-related neurological changes on nutrition status
8. Effects of age-related sensory changes on nutrition status
9. Impact of age-related sarcopenia on physical and functional capacity, and quality of life
10. Mandatory reporting requirements regarding elder abuse, neglect and exploitation
11. Recommendations for maximizing independent eating by older adults
12. Effects of pain on nutrition intake
13. Methods of transitioning individuals from enteral/parenteral feedings to oral nutrition
14. Methods to evaluate nutrition intake

***B. Clinical Data (14%)***

1. Age-related pharmacodynamic changes
2. Age-related pharmacokinetic changes
3. Biochemical tests and measures associated with nutrition status
4. Methods to synthesize information from screening and assessment tools
5. Effect of aging on ability to regulate fluid balance
6. Relationship between nutritional status and skin integrity
7. Effects of age-related physical changes on nutrition status
8. Effects of age-related metabolic changes on nutrition status
9. Effects of age-related physiological changes on nutrition status
10. Effects of age-related neurological changes on nutrition status
11. Effects of age-related sensory changes on nutrition status
12. Impact of age-related sarcopenia on physical and functional capacity, and quality of life
13. Palliative/end of life care
14. Effects of pain on nutrition intake

***C. Social and Environmental (4%)***

1. Methods to synthesize information from screening and assessment tools
2. Effect of socioeconomic, social and psychosocial history on nutrition status
3. Impact of age-related sarcopenia on physical and functional capacity, and quality of life
4. Mandatory reporting requirements regarding elder abuse, neglect and exploitation
5. Methods to obtain information regarding home environment

**IV. NUTRITION DIAGNOSIS (4%)**

1. Clinical signs of undernutrition and overnutrition in older adults
2. The nutrition care process
3. Components of a nutrition diagnosis specific for older adults
4. Standards for developing nutrition diagnosis statements
5. Data sources and tools for nutrition diagnosis
6. Functional, biochemical and anthropometric markers in older adults
7. Attitudes/beliefs, physical environment, access to food or food safety

**V. NUTRITION CARE PLAN (9%)**

1. Unique nutritional needs of older adults as related to Dietary Reference Intakes, Dietary Guidelines for Americans and modifications necessary for management of acute and chronic diseases and conditions
2. Federal regulations and nutrition program requirements that relate to nutrition care of older adults in facility and community settings
3. Recommendations for maximizing independent eating by older adults
4. Funding sources for food and nutrition programs and services available to older adults
5. Older adults' demographic characteristics, family dynamics, informal and formal caregiver support, and their impact on nutrition interventions
6. Referral sources for psychiatric and psychological services
7. Characteristics of dietary practices, dietary behaviors and food preferences for different cultures/ethnicities/religions and food preferences of older adults
8. Community programs providing food and nutrition services to older adults
9. Complementary and alternative therapies and medicines that may affect nutrition status
10. Dining issues for the eating-disabled older adults
11. Interaction between drug and herbal medicines, food and drugs, drugs and drugs, drugs and nutrients that affect food and nutrition intake
12. Evidence-based nutrition guidelines
13. Federal regulations associated with discharge planning for clients in skilled nursing and other facilities
14. Federal regulations associated with nutrition care for clients receiving care in the home
15. Intergenerational/cohort influences that affect food and nutrient intake and physical activity for older adults
16. Housing options for older adults
17. Medical Nutrition Therapy (MNT) protocols for chronic diseases and conditions of older adults

18. Menu development to liberalize diets for older adults in various settings and with multiple chronic conditions
19. Food texture modifications, texture-modified products and availability for older adults
20. Theories of behavior change specific for older adults in adopting healthy lifestyles
21. Home and community based nutrition service options (e.g. Medicare, Medicaid Waivers, PACE, adult day service, day health rehabilitation)
22. Evidence based physical activity programs and strategies for older adults

**VI. NUTRITION COUNSELING AND EDUCATION (6%)**

1. Adult learning theories, standards and guidelines for nutrition counseling and education of older adults
2. Language and literacy issues that affect the delivery of nutrition counseling and education
3. Techniques for providing culturally and religiously appropriate nutrition education, counseling, physical activity and health promotion
4. Facilitation process in goal setting to assist behavior change for older adults
5. Services and programs across socioeconomic levels
6. Community mental health services relevant to older adults
7. Counseling techniques and evidence based behavior change principles appropriate for older adults, caregivers and families
8. Federal programs involving benefits, food assistance and preventive health services for older adults
9. Health promotion programs related to prevention and management of chronic conditions in older adults (e.g. wellness)
10. Programs and services related to home safety for older adults
11. Programs and services related to stress management and grief counseling for older adults
12. Programs and services providing caregiver and family support
13. Programs and services that address medication management for older adults
14. Home and community based programs and services that address health, social, nutritional, and educational needs of older adults
15. Techniques for communicating with older adults

**VII. NUTRITION MONITORING AND EVALUATION (8%)**

1. Components of client/program nutrition monitoring and evaluation
2. Tools and methods to measure nutritional outcomes
3. Factors that determine whether to continue care, refer or discharge client/group from nutrition care
4. Methods for evaluating individual and group outcomes related to the nutrition diagnosis and goals established in intervention plan
5. Methods for evaluating program outcomes
6. Standards and guidelines for nutrition and case management
7. Nutrition care model as it relates to ongoing evaluation for older adults
8. Continuum of care and tiers of nutritional services for older adults

9. Palliative/end of life care
10. Effects of pain on nutrition intake

**VIII. FOODSERVICE (10%)**

1. Dietary Reference Intakes, Dietary Guidelines for Americans, macronutrients, micronutrients, and other bioactive food components for older adults
2. Requirements pertaining to Older Americans Act and other federal nutrition programs
3. Food safety training and education materials designed for and serving older adults
4. Federal/state regulations pertaining to dining environments in programs and facilities serving older adults
5. Federal/state regulations pertaining to dietary service staffing in programs and facilities designed for and serving older adults
6. Federal/state regulations pertaining to foodservice operations in programs and facilities designed for and serving older adults
7. Federal/state regulations pertaining to menus and nutritional adequacy
8. Food safety issues that may affect older adults
9. Standards and guidelines for training of personnel who work with foodservice programs for older adults
10. Standards and guidelines pertaining to foodservice equipment/water/physical facilities
11. Best practices relating to the dining experience/needs of older adults
12. Effects of time and environmental conditions on food quality and nutrient retention for congregate and home delivered meals
13. Standards for disaster preparedness for facility based and community based care setting

**IX. PROFESSIONAL PRACTICE (7%)**

1. Federal and national health indicators and disease prevention data
2. Ethical guidelines regarding end of life issues including refusal of treatment
3. Federal regulations associated with the survey process in programs designed for and serving older adults
4. Legal obligations regarding advance directives in long term and end of life care
5. Standards and guidelines for documenting nutrition care
6. Standards of care pertaining to liberalizing nutrition interventions for older adults
7. Legislation and available programs for administering nutrition services programs in home- and community based settings (e.g. Medicare, Medicaid, USDA food assistance programs, Older Americans Act, etc.)
8. Federally-mandated quality assurance/performance improvement programs
9. Programs and services related to transition to and from various care settings
10. Academy of Nutrition and Dietetics Code of Ethics in Dietetics