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Dear Editor,

 Registered Dietitian Nutritionists (RDNs) are often involved with calculating parental nutrition (PN) requirements with in the clinical setting. Increasing patient safety and decreasing prescribing related errors are of the utmost importance with PN.

 Involvement with PN allows RDNs to not only increase their involvement with the healthcare team but also demonstrate their expertise with nutritional requirements for increasingly complicated disease states. The American Society for Parenteral and Enteral Nutrition (ASPEN) recently developed a tool to aid practitioners in establishing standardized competencies for parenteral nutrition prescribing. Establishing standardized competencies for parenteral nutrition prescribing would ensure that RDNs provide the highest level of care possible by demonstrating competency in all aspects of parenteral nutrition delivery.

 To research this topic further, a study was completed to determine the attitudes of RDNs toward establishing standardized competencies for parenteral nutrition prescribing, the number of healthcare facilities that have incorporated either ASPEN’s or a facility specific tool and how RDNs would rate their knowledge of PN, to name a few.

 Despite the complications that can arise as a result of PN complications, according to our study, only 33% the RDNs surveyed responded that their healthcare facility had standardized competencies in place that must be met prior to gaining parenteral nutrition privileges.

 This study will help to inform and emphasize the importance of having standardized competencies for parenteral nutrition prescribing in place to minimize errors and provide optimal clinical outcomes.

 This study was conducted as part of the Aramark Dietetic Internship requirements. This survey was conducted under the supervision of RDNs at Northwest Hospital and St. Luke’s as well as an Aramark Dietetic Internship Director. This survey was completed with the permission from Northwest Hospital and St. Luke’s. Thank you for your consideration of this manuscript.

Sincerely,

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**The Attitudes of Registered Dietitian Nutritionists on Incorporating the ASPEN Standardized Competencies for Parenteral Nutrition**

**Abstract**

Parenteral nutrition may be necessary when oral nutrition is contraindicated. There are potential risks with parenteral nutrition delivery if not administered correctly. The American Society for Parenteral and Enteral Nutrition (ASPEN) recently established a tool to aid practitioners in establishing competency for those involved with parenteral nutrition. This tool is designed to establish competency prior to practitioners gaining parenteral nutrition order-writing privileges. The goal of the tool is to establish requirements that must be met to ensure practitioners are knowledgeable and providing the highest level of care possible. The objective of this study was to determine the attitudes of registered dietitian nutritionists on incorporating the ASPEN standardized competencies for parenteral nutrition prescribing. A nine question survey was developed to ask RDNs how they felt about parenteral nutrition competency requirements. The survey also asked questions related to knowledge and competency requirements within each RDNs healthcare facility. Two-hundred, twenty-nine RDNs responded to the survey. It was determined that 61.5% of RDNs were not aware of ASPEN’s new order writing tool. It was also determined that 95% of RDNs agreed that a standardized competency model for gaining parenteral nutrition order writing privileges would improve safe and effective parenteral nutrition prescribing. This paper examines the feelings of RDNs related to requiring standardized competencies prior to gaining parenteral nutrition order-writing privileges. Research of current parenteral nutrition practices is discussed along with the barriers and potential complications that can arise from not having standardized competencies in place.

**Introduction**

Parenteral Nutrition (PN) involves delivering nutrition via the bloodstream. PN is necessitated when nutrition is unable to be delivered via mouth or enterally. The prescribing of PN is critical as it may be the only source of nutrition the patient is obtaining while recovering from illness, injury or may be what sustains a patient with a life-threatening condition. The complexity of PN lends itself to numerous potential errors. For this reason, it is essential that all aspects of the PN order are completed by those that are competent with PN prescribing. PN serves as an important therapeutic modality that is used in a variety of indications. The appropriate use of PN aims to maximize clinical benefit while minimizing the potential risks for adverse events. Complications can occur as a result of the therapy and as the result of the PN process. In addition, PN can be costly and contribute to serious metabolic and infection-related complications when it is improperly administered or prescribed. A case report by Hudson and Boullata indicates that the institution use of quality controls system that upgrades to effective and safe prescription practices in alignment with ASPEN practice guidelines and recommendations is the best approach to optimize treatment and costs or benefits of this very important nutrition support therapy. 1

**Literature Review**

Since July 2014, the Medicare and Medicaid Programs (Part II), allows a hospital and its medical staff the option of granting RDNs or other clinically qualified nutrition professionals ordering privileges for therapeutic diets and nutrition-related actions, including nutrition supplements, enteral, and PN if consistent with state law. 2 The RDN ordering privileges must be ensured through the hospital’s medical staff rules, regulations, and bylaws, or other facility specific process.3 A prospective study in São Paulo, Brazil, by Shiroma et al., observed that for 15 out of the 100 recruited patients receiving PN, the indication was not in accordance with ASPEN 2007 guidelines. Moreover, for 48 out of the 85 remaining patients that received PN (56.5 %), there were inadequacies in the volume administered. Shiroma et al. reports that the main cause for improper PN volume was operational errors not miscommunications among healthcare professionals regarding the best practice. Shiroma et al. suggest that nutrition quality control in therapy allows the identification of inadequate processes in PN.4 Therefore, the research highlights the need for additional knowledge and periodic training in PN among different health care professionals involved in prescribing and delivering PN to define responsibilities and protocols.4 Implementing the ASPEN competency model might lead to more standardized prescribing patterns, which also could help educate providers, improve safety of patient care, and decrease prescribing-related errors.3

The classification of PN as a high-alert medication requires healthcare organizations to develop evidence-based procedures and policies related to PN.5 The broad range of healthcare settings in which PN administration occurs -from critical care to home care- raises the potential for disparities to exist in the knowledge and skills of the healthcare professionals responsible for PN prescribing, review, compounding, and administration.1 Appropriate and safe prescribing and ordering of PN is a critical first step and an essential component of the PN process.5 The prescriber shall be well versed in the appropriate indications for PN, basics in sterility and infection control, as well as vascular access devices (peripheral/central) and their associated complications. In addition, the safe prescribing of PN requires a thorough knowledge of protein and energy requirements, macronutrients, micronutrients, components/medication interactions, and fluid homeostasis. Safe prescribing of PN begins with specific interdisciplinary team education and institutional policies focused on writing clear PN orders. Furthermore, there shall be clear means of communication among physicians, mid-level providers (nurse practitioners and physician assistants), registered dietitians, pharmacists involved in this process.5 This research provides suggestions for healthcare organizations and clinicians to adopt the recently published ASPEN tool, standards, and guidelines when creating policies for ordering/ prescribing PN in order to promote competent and safe nutrition support by RDN prescribers. ASPEN’s framework can be utilized to identify RDN learning needs and opportunities for advancement, development of career goals, or focus the institution continuing education efforts.3

**Emerging Trend**

According to the article, “Standardized Competencies for Parenteral Prescribing: The American Society for Parenteral and Enteral Nutrition Model”, the number of individuals prescribing PN may be increasing. Members of the medical team with PN prescribing privileges include members of the primary medical or surgical service, nutrition support team members, pharmacists, dietitians, advanced practice nurses and physician assistants. It has been determined that the ordering process for PN varies greatly between facilities.3 With the trend of variation in prescribing practices among facilities, standardized competencies for PN prescribing, could prove to be beneficial for both patients and facilities.

In 2014, ASPEN published an updated revision of the Standards of Practice (SOP) and Standards of Professional Performance (SOPP) for Registered Dietitians Nutritionists (RDNs).2 This model establishes a standardized guideline of prescribing while ensuring competency by utilizing a competency tool among its prescribers to ensure safe practices are used. While this model is not required to establish competency, it does provide a framework that can be utilized across all disciplines within institutions and is a standardized way to measure competence. RDNs face complex situations every day where they are required to address unique needs and apply standards appropriately which is essential to providing safe, timely, person-centered quality care and nutrition service. 6 These SOP and SOPP distinguishes the RDNs level of practice (competent, proficient, or expert) and would guide the RDN in creating a personal development plan to achieve increasing levels of knowledge, skill, and ability in nutrition support practice.2 According to SOP, a competent dietetics practitioner is an RDN who has recently obtained registration by the Commission on Dietetic Registration and is just beginning practice, or an experienced RDN who has recently assumed nutrition services responsibility in a new focus area facilitate evidence based practice, and serve as a professional evaluation resource.2 In addition, a competent practitioner can acquire additional on-the-job skills and be engaged in tailored continuing education to further enhance knowledge and skills acquired in formal education.6 The RDN begins with technical training and interprofessional interaction which can facilitate career advancement to further expand competence.6 The SOP standards indicates that all RDNs, even those with considerable experience in other practice areas, must begin at the competent level when practicing in a new setting or new focus area of practice.2 An interprofessional approach to Nutrition Care Process center more on how care is delivered and less on the traditional professional alignment of what care is delivered.6 At the competent level, an RDN interested in PN is learning the principles that underpin this medical nutrition support therapy and is developing skills for safe, effective, and ethical dietetics PN practice.2 To explore this model further and its use in prescribing PN and establishing competency, the attitudes of RDNs will be measured to determine their feelings toward incorporating the ASPEN Standardized Competencies tool for PN prescribing.​

**Importance of research need to Parenteral Nutrition and Patient Safety**

 According to the article “Parenteral Nutrition Therapy Over the Next 5-10 Years: Where Are We Heading?” the largest trend that will be seen in PN processing is patient safety. In healthcare, the rule of 5’s is stressed with the right medication, right time, right patient, right dose and right route. The complications associated with PN often originate from ordering, transcribing, compounding and the actual delivery of the PN formula. A prospective, observational study was done at a large university hospital looking at the error rate of PN prescribing over an 18 month period. A nutrition support team was in charge of the PN process, which included prescribing/ordering, preparation, administration, and monitoring. The hospital had an automated technology order entry system and errors were conveyed through a Web-based system. Over the 18 month period, 74 PN prescriptions (1.6%) had an error. The majority of errors (39%) took place during the transcription and administration (35%) areas of the PN process. 2% of the errors were due to incorrect ordering and 25% of the errors came from PN preparation that was not correct. It is important to note that the low prescribing error of 1.6% may have been due to the experience of the nutrition support team and their knowledge of the study. The prescription errors may have been higher had this been a blind study.7

**The Research Question**

With the recent establishment of the standardized competences for PN Prescribing by ASPEN, as previously mentioned, this research study sought to determine whether RDNs felt that standardized competencies should be met prior to gaining PN privileges. We believe the attitudes of RDNs will largely support implementation of standardized guidelines to establish competencies prior to gaining PN privileges.

In conclusion, after exploring the prescribing trends, changes in the CMS rules, and the recent publication of prescribing recommendations from ASPEN, the next logical step would be to develop a model for standardized RDN competencies around PN prescribing that all institutions may use.1 The challenge at hand for the RDN remains in the lack of institutional implementation of interprofessionalism into the educational environment to support the collaborative and interprofessional development of nutritional approaches to address health care needs.6 A standardized model for PN competencies utilized by this research would allow for consistency between institutions and offer a template for a variety of nutrition professionals to identify a minimum standard level of knowledge and skills for prescribing complex drug therapy such as PN. In addition, the standardized tool for PN prescribers can be utilized to identify, assess, and document competency of nutrition support RD or other treatment team providers in the clinical practice. Competencies can communicate the role of the professional RDN to employers, external accreditation bodies, or the public. Competencies highlight RDN expertise and ethical principles; therefore can be applied when developing, advertising, and marketing nutritional services.

**Methodology (Research Design)**

This study used a cross-sectional survey to look at a group of RDNs at a specific moment in time, to determine if they feel that standardized competencies should be met prior to gaining PN privileges. The data was collected online utilizing the Aramark SurveyMonkey tool site. There was no physical location for this survey as it took place online. Participating Aramark RDNs completed the survey on a computer in a location that is convenient for them. Computer, internet, and e-mails access were needed for subjects to participate on the survey. No funding was required for conducting this research.

**Study population (Subjects Inclusion/Exclusion Criteria)**

The targeted study population included RDNs currently employed by Aramark. Only subjects that are RDNs were eligible to take the survey. Modified cognitive interviewing was performed with three nutrition support practitioners from different disciplines who hold leadership positions evaluating the survey content and clarity. The survey tool was reviewed for content validity and modified based on the experts’ feedback prior to administration. Potential participants received an email invitation to participate in the electronic survey. To encourage survey completion, a reminder e-mail was sent out to encourage those who had not responded initially. This reminder email included a link to the online survey and information indicating the study responses deadline.

Nine questions were developed that could be completed within approximately 10 minutes. The survey questions were designed and based on the order writing tool published by ASPEN’s guidelines. The survey included mainly closed questions, including: questions regarding attitudes, knowledge and education towards nutrition support. The online survey was reproduced in a table and included as an attachment in the appendix.

**Results and Statistical Evaluation**

A total of 229 responses were received from currently employed Aramark RDNs who were willing to complete the survey. This survey did not gather any further demographic information such as age, sex, state of practice, or economic status from participants. The subjects were not divided into groups; however the length of time each participant has been working in the field was determined and included in the appendix (Table 1). The primary outcome for the survey was to determine RDNs attitudes regarding the need to meet standardized competencies recommended by ASPEN prior to gaining PN order-writing privileges. According to the survey, 93% of the participants felt that standardized competencies should be met prior to gaining writing privileges. In addition, only 21% of RDNs in this survey have a Certified Nutrition Support Clinician (CNSC) credential which was interesting given that almost 74% of the subjects provided recommendations for PN, with 84% of these dietary recommendations followed. Moreover, only 19% of RDNs rated their knowledge of PN at the expert level (builds and maintains knowledge, skills and credentials). Additionally, 62% of RDNs stated that they were not aware that ASPEN had recently published an order writing tool for establishing PN order writing competency. Also, 67% of RDNs administrated nutrition support therapies at a facility that lacked standardized competencies or specific practice policies in place that RDNs must meet prior to gaining PN privileges. Finally, 95% of RDNs agreed that a standardized competency model for gaining PN order writing privileges would certainly improve safe and effective PN prescribing (Table 1 and 3). The Aramark SurveyMonkey tool allowed for development and analysis of customizable results. Descriptive statistics were reported based on the results and are included in the appendix.

**Discussion**

The goal of this cross-sectional survey was to determine RDNs attitudes regarding meeting standardized competencies guidelines set by ASPEN prior to gaining parenteral nutrition ordering privileges. This survey exposes some of the limitations RDNs face as nutrition support providers and demonstrate the RDNs view of meeting competency as added value to nutrition support therapy.

A research survey by Lane et al conducted in 2013, illustrates the need for more prominent dissemination of the current PN guidelines. 8 The survey’s goal was to help guide education in this area of nutrition support. An online questioner was sent to all healthcare professionals working on ICUs across London via an e-mail link. The study assessed the knowledge base and attitudes of staff towards nutrition support, within an ICU setting, in order to understand the educational or training needs of staff. The survey result emphasized the lack of knowledge or standardized guidelines as barriers to implementing effective nutrition support and highlights the need to embed these areas in clinical setting policies, protocols, and auditable standards.8

A 2015 pilot study by Brody et al. surveyed healthcare professionals affiliated with ASPEN regarding their approaches to nutrition support practice using a complex patient case scenario in accordance with established clinical guidelines. The goal of the study was to evaluate current practice of nutrition support professionals caring for patients with pancreatitis and compare responses of those with and without the CNSC credential. Email invitations were sent to 48,093 participants, 4455 (9.1%) responded and met inclusion criteria. The survey included eight multiple choice knowledge questions addressing evidence-based nutrition support practice for pancreatitis patients. Demographic and clinical characteristic data were collected; most of respondents were RDNs, and 29.3% held CNSC credential. According to the survey, professionals holding CNSC scored significantly higher on knowledge assessment of guidelines compared with those without a credential. For example, CNSCs were more likely to calculate/prescribe stable PN admixture compared with non-CNSCs, were more likely to choose most appropriate access device, and to determine nutrient requirements, thus avoiding the potential complications associated with over/underfeeding. The research finding indicates that PN therapy is a complex process and is best performed by clinicians who have specialized training and experienced in nutrition support.9

This study has several potential limitations. Nonresponse error is of concern considering the low response rate. Web-based surveys can result in response rates below 10%, bringing into question the ability to generalize results to a larger sample. Non-responders could not be contacted due to the web blast administration of the survey; thus, it is unclear if the non-responders are different from responders. Nine questions were designed to elicit information on appropriate nutrition support therapy. Although more questions may have been needed to comprehensively evaluate nutrition support knowledge, survey fatigue was a concern. The opportunity for open-ended responses to questions was not provided as we were attempting to assess the attitudes or knowledge of recently published ASPEN competency guidelines. In spite of the limitations, this survey presents several potentially useful findings. It represents a nationwide sample of regional hospitals in the USA; therefore, can be generalized to RDNs working in similar settings. In addition, the results shed some lights on RDNs desire for additional potential opportunities for education and training.

Specialty certification such as CNSC provides a means to assess whether an individual has attained sufficient knowledge to provide safe and effective care.2 Meeting competencies allows the public and the scientific community to identify qualified RDNs. Improving PN safety can run up against significant organizational challenges (takes concerted effort, collaboration, and time); however can be successful when based on published practice guidelines, tools, and recommendations.7 ASPEN’s standards of care exist to guide nutrition support practitioners in assessment, management, and monitoring of PN.3 Future research should explore the benefit of the CNS credential on safe and efficacious nutrition support care by evaluating changes in patient care outcomes in healthcare settings and the impact of RDNs attitudes and confidence on actual practices as well as the subsequent impact of actual practices on patients’ health outcomes also requires full investigation. Planning a wider more systematic and representative survey will further evaluate the delivery of ASPEN educational intervention tools in order to assess the PN order prescribing for potential changes resulting from RDNs training and policies.

**Conclusion**

In conclusion, it is clear through research that a standardized competency requirement prior to gaining parental nutrition order-writing privileges would benefit both the practitioner and the patient. It is also evident that the majority of RDNs surveyed feel that a standardized competency requirement should be established. Hopefully, with time, exposure to this survey, and continued research, hospitals will see the benefit to establishing standardized competency tools for PN order-writing or implement the tool established by ASPEN. The benefit of establishing competency is to ensure the patient is receiving the highest level of care possible which is what practitioners can and should strive for on a daily basis.

**Appendix**

Table (1): Length of experience, number of year’s participant RD worked in the dietetics field. 10

|  |  |  |  |
| --- | --- | --- | --- |
| **Question**  | **1-5 years** | **6-10 years** | **Greater than 10 years** |
| Q 1 | How long have you been a registered dietitian/nutritionist? | 110 (48%) |  37 (16%) | 82 (35%) |

Table (2): RDNs responses to Yes or No questions. 10

|  |  |  |
| --- | --- | --- |
| **Question** | **Yes** | **No** |
| Q 2 | Do you have the Certified Nutrition Support Clinician (CNSC) credential? | 47 (20.5%) | 182 (79.5%) |
| Q 3 | Do you provide recommendations for parenteral nutrition? | 169 (74 %) | 59 (26 %) |
| Q 4 | If you provide recommendations for parenteral nutrition, are they followed? | 158 (84 %) | 30 (16%) |
| Q6 | Are you aware that ASPEN has an order writing tool for establishing parenteral nutrition order writing competency? | 87 (38.50%) | 139 (61.50%) |
| Q 7 | Does your facility have standardized competencies in place that must be met prior to gaining parenteral nutrition privileges? | 73 (33 % ) | 148 (67 %) |
| **Q 8** | **Do you feel that standardized competencies for parenteral nutrition should be met prior to gaining order writing privileges?** | **210 (93 %)** | **15 (7 %)** |
| Q 9 | Do you feel that a standardized competency model for gaining parenteral nutrition order writing privileges would improve safe and effective prescribing? | 215 (95 %) | 11 (5 %) |

|  |  |
| --- | --- |
| Table (3): RDNs response to rating of current parenteral nutrition therapy knowledge. 10 |  |
| **Question**  | **Competent**  | **Proficient**  | **Expert**  |
| Q 5 | How would you rate your knowledge of parenteral nutrition? |  117 (52%) |  65 (29%) | 43 (19 %) |

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