DETERMINATION OF RELIABILITY OF THE NUTRITION CARE PROCESS EVALUATION INSTRUMENT

BY

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Care Process Evaluation Instrument

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ABSTRACT

Objective: At the time of this study, no known validated tool existed that was specifically developed to assess dietetic students' clinical judgment during interprofessional simulations. To fill this gap, the author developed the Nutrition Care Process Evaluation Instrument to measure clinical judgment of dietetics students during interprofessional simulations at the University of Kansas Medical Center.

Methods: Through a pilot study, the Nutrition Care Process Evaluation Instrument was tested to determine reliability when measuring simulation participants' clinical judgment during three separate patient scenarios. Study subjects (n=16) were pooled from Dietetic Intern students who participated in interprofessional simulations as a requirement of the DN 826 Medical Nutrition Therapy course. During the simulations, one rater completed the validated assessment tool, the Lasater Clinical Judgment Rubric, while two other raters completed the newly developed Nutrition Care Process Evaluation Instrument.

Results: Matched by student and scenario, inter-rater reliability was determined using Cohen's Kappa between raters who completed the Nutrition Care Process Evaluation Instrument. Exploratory analysis was also completed using Spearman's rank-order correlation coefficient to determine the strength of association between raters using both the validated and new tool.

Discussion: Reliability of the Nutrition Care Process Evaluation Instrument was not fully established, possibly due to the small sample size, vast differences in raters, issues with scheduling, and the subjective nature of the assessment. Additionally, little association was seen between scores provided on both tools, likely due to the differing contents of each. Further research is needed to fully determine the reliability and validity of the Nutrition Care Process Evaluation Instrument.

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CHAPTER I

JUSTIFICATION

Summary of Relevant Literature

Recent and compounding evidence supports student participation in patient-scenario simulation activities as an integral part of education within various health care fields. Simulation can facilitate advancement of clinical knowledge and improvement of clinical judgment through life-like, hands-on experiences without the potential for adverse consequences of real-life clinical scenarios. According to Tanner C, patient scenario simulations aid in expansion of students' detection of textbook signs and symptoms and support improvement and accuracy in identifying important changes in patient conditions.(1) Additionally, teamwork training is considerably lacking in most health care education programs furthering the disparities between school-based education and entrance into interprofessional clinical practice. Interprofessional components are beginning to be introduced into patient-scenario simulations as a growing amount of evidence supports incorporating interprofessional collaboration within health care education.

Need for Further Investigation

The majority of research regarding the use of simulation in education focuses on nursing, medical, or pharmacy student simulations with little research available describing effects within the field of dietetics. The outcome evaluation tools customized towards these health care fields do not reflect the specific core competencies and objectives dietetics students are expected to accomplish. In an effort to fill this gap, the author proposed developing a simulation evaluation instrument focused on core aspects of the Nutrition Care Process along with interprofessional components. The tool was used to measure clinical judgment of dietetics students during patient-scenario simulations.

Statement of Purpose

The purpose of this investigation was to estimate the reliability of the newly developed Nutrition Care Process Evaluation Instrument. The evaluation instrument was expected to provide similar scores for each student, matched by scenario, between three raters, resulting in high inter-rater reliability. Additionally, the new instrument's results were compared to the validated assessment tool, the Lasater Clinical Judgment Rubric, to determine whether similar results were obtained from each instrument. Currently, there is no known validated tool specifically developed to assess clinical judgment of dietetic students in simulated or clinical settings.

Research Question

The researcher sought to determine if the newly developed Nutrition Care Process Evaluation Instrument would result in high reliability when measuring participants' clinical judgment. Additionally, the researcher hoped to conclude if the new instrument would yield similar results when compared to the validated assessment tool, the Lasater Clinical Judgment Rubric.

CHAPTER II

REVIEW OF LITERATURE

The literature review was conducted to determine the importance of integrating interprofessional patient-scenario simulations into healthcare education. The researcher sought to establish which tool is the most useful for assessing clinical judgment of dietetic students and therefore comparable to a newly developed instrument. These questions are at the heart of current healthcare education discussions when considering improvement of healthcare professional training and subsequently, patient outcomes.

Currently in dietetics education, as well as other disciplines, a discrepancy exists between what is taught in the classroom and what is experienced in clinical settings.(2) Simulation integration may aid to bridge this gap. Incorporating simulation experiences with interprofessional components into healthcare education can improve recognition of important clinical conditions, confidence in clinical practice, communication with other disciplines and subsequently improve patient outcomes.(3-7) Research on interprofessional simulation and assessment of dietetic students' clinical judgment is lacking. Throughout the review of literature it became clear that a dietetics-focused validated assessment tool does not yet exist. Though, due to it's previously established reliability and validity, the Lasater Clinical Judgment Rubric appeared to be the most useful tool for assessing clinical judgment of dietetic students and for validating a new evaluation instrument.(8-11)

This literature review was conducted utilizing electronic databases including PubMed, Cinahl, and Google Scholar. Search terms included but were not limited to; simulation evaluation, interprofessional simulation, clinical judgment rubric, dietetic evaluation methods, and validated evaluation tool. Articles obtained focused on dietetic, nursing, medical, or pharmacy student simulation evaluation methods and were not limited by type of simulation (i.e. human, video,

mannequin.) Additional, articles were obtained through committee referral or references from previously stated searched publications.

USE OF SIMULATION IN CLINICAL EDUCATION

The history of simulation exercise is extensive, most notably used by military and aviation entities.(3) High-fidelity (as close to real as possible) flight simulation has historically and is currently employed for training and testing of pilots and machinery.(3) Military members utilize "video-game" type simulations to emulate real-life military scenarios and practice important decision-making skills. Both situations involve high-risk scenarios where real-life practice could be too costly and dangerous to complete.(3)

Unsurprisingly, the practice has extended into healthcare training and education. Simulation experiences can vary in nature and may include interaction with computer programs, actor portrayal, mannequins or even role-playing. Historically, cadavers and other anatomical models have been used as real-life educational resources. The Sim One, created by Abrahamson and Denson in the 1960s, was one of the first mannequin models developed for medical simulation.(12) Features of Sim One included breathing, blood pressure, facial functionality, and real-time responsiveness to drug and gas administration.(12) Since then, models have become increasingly sophisticated and more readily available ranging from low to high fidelity.(3) High-fidelity mannequins may be voiced over by students, teachers, or observers allowing patient interviews to expose important clinical information, e.g. coughing or fatigue. When combined with computer technology, mannequin characteristics may be altered to mimic a clinical scenario, e.g. a drop in blood pressure or heart attack.(3) Distinctive clinical conditions otherwise difficult to assess outside of real-life cases can be presented to students through the use of mannequins or other simulation resources. These include but are not limited to tube-feedings, colostomies, and presentation of disease state or deficiency signs and symptoms. Overall, "practice makes perfect" and presenting relevant clinical scenarios as often as possible may help students become more

comfortable providing clinical care. Additionally, it offers visual and interactive learning to students to supplement traditional teaching methods such as lecture.

Simulations provide students with the opportunity to improve recognition of patient conditions and outcomes, while performing in a less-threatening environment than real-life clinical scenarios.(1) Students can perform high-risk clinical care wherein real-life scenarios may require preceptor intervention.(2) Other benefits of simulation include; decreased risk to patients and learners, capability of practicing repeatedly, tailored training, and visual manifestation of textbook and lecture topics.(3) A 2011 study by Ogilvie et al. substituted ten third-year nurses' hospital clinic time for four days of high-fidelity mannequin simulation scenarios over the course of two weeks.(2) Participants were required to assess the patient, provide interventions, and problem-solve unexpected scenarios. All simulation scenarios were video-recorded and debriefing sessions followed each experience.(2) Participants were interviewed semi-structurally about their overall experience with the simulations.(2) Interview transcripts were analyzed and simulation participants reported improved ability to provide quality patient care, increased knowledge, better organization and improved confidence in their clinical ability at the conclusion of the study.(2) Since the study supplemented standard clinical experience with simulations, important benefits could be seen aside from those gained during normal clinical rotations.

Debriefing sessions, or discussion, may be held after simulation scenarios to provide immediate correction to mistakes and missed information that occurred. The reflective aspects of debriefing may open the line of communication between students and teachers. Imperative clinical components can then be discussed and feedback can be provided to the student regarding their performance during these sessions. In real-life clinical scenarios, time constraints may impede the ability of preceptors to provide this type of immediate feedback to students, offering an additional benefit of incorporation of simulation into dietetics education. Audio or video recordings of clinical encounters may also provide an opportunity for self-reflection.(2)

Recordings allow students to self-assess and reflect on their own clinical judgment in a non-threatening environment.(2)

Use of Simulation In Dietetics Education

Overall, simulation research exclusively involving dietetic students is lacking. At the University of Kansas Medical Center, dietetic interns have only recently been incorporated into the nursing students' simulation experiences. The few studies available, however, highlight the benefits of including simulation in dietetics education. Simulation provides the opportunity to practice and refine clinical management and counseling techniques. A study by Turner et al. compared 108 dietetic interns, 56 of who participated in computer program simulated care versus a less interactive computer tutorial.(4) During orientation, dietetic interns completed a randomly assigned computer program (simulation scenarios or tutorial). Each intern's clinical rotation preceptor then completed 8 performance evaluations and a total of 686 evaluation forms were returned and analyzed.(4) Students who completed the computer-programmed simulated care had a greater rate of performance improvement than tutorial participants in obtaining anthropometric, biochemical and diagnostic data ($p=0.009$), interviewing patients ($p=0.037$), and analyzing data ($p=0.012$).(4) Computer-programmed simulation experience appeared to have better prepared students for assessment, treatment, and monitoring of patients in the clinical setting.(4) The study used randomization, applied interventions to both study groups, and performed sound statistical analysis, strengthening the results found. In the Hampl et al. study, 14 dietetic students were required to assess and provide nutrition instruction to an extensively trained actor portraying a 17-year-old pregnant woman.(5) Debriefing sessions occurred post-simulation and students were then asked to complete a questionnaire consisting of mostly open-ended questions regarding their overall experience.(5) Students stated the standardized patient session was a positive encounter and agreed it should be included in dietetic education.(5) The students, implying the need for debriefing sessions post-simulation, appreciated the immediate and detailed assessment of their

performances.(5) Students specifically valued receiving feedback from the actor, a typically unfeasible interaction in clinical scenarios.(5)

INTERPROFESSIONAL EDUCATION

Interprofessional education is defined by the World Health Organization as, "when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes."(13) Interprofessional collaboration is not a new concept, though the incorporation of team-based, patient-centered care into healthcare education is.(14) In 1972, the Institute of Medicine (IOM) held the "Interrelationships of Educational Programs for Health Professionals" conference where 120 leaders from various healthcare professions met to discuss interprofessional education.(14) Over 40 years after the IOM conference, interprofessional learning has yet to become a universal part of healthcare education. "Crossing the Quality Chasm," a 2001 IOM report, encouraged increased communication between healthcare providers in an effort to eliminate patient safety concerns.(15) The report identified "professional silos," or healthcare providers exclusively operating within their own field, as a hindrance to patient care improvement.(15) In 2010, the Joint Commission also issued a report promoting interprofessional relationships to "improve communication and patient care outcomes and reduce adverse events."(16)

In a study by Koo et al., 46 pharmacy and nurse practitioner students were divided into three groups to complete two interprofessional clinical scenarios that included in-person, telephone, and video-conferencing communication methods followed by debriefing sessions.(17) Thirty of the students then voluntarily participated in one of three semi-structured interview discussion groups.(17) Conventional content analysis, or grouping and organizing of central themes and ideas were used to analyze the qualitative data obtained from the discussion groups.(17) Preceding the simulations, some students expressed uncertainty of what to communicate to other healthcare professionals and how to communicate it appropriately. Post-

simulation, students felt more confident in their communication skills with other professions.(17) The pharmacy and nurse practitioner students gained an awareness of each other's roles and responsibilities in the workplace. A nurse practitioner student, for example, was previously unaware that pharmacists were able to give immunizations in that state.(17) The focus group discussions topics were explained in detail giving a comprehensive overview of students' perceptions of the experience.

Vyas et al. studied 208 medical, nursing and pharmacy students who participated in an interprofessional simulation. Grouped in teams of five to six, participants were presented five varying patient cases they were expected to assess and treat.(6) The simulations included high-fidelity mannequins and standardized patients played by trained actors and a debriefing session concluded the scenarios.(6) Raters completed the Knowledge, Skills and Attitudes (KSA) survey, a 30-point Likert scale pre and post-test, to assess collaboration and overall performance.(6) Students completed a 10-item pre and post-survey regarding team communication.(6) Statistical analysis was performed and post-simulation, significantly fewer students reported that training with other health professions "diluted the quality" of their education ($p<.001$).(6) Additionally, students revealed they were more comfortable reporting an error to the physician ($p\leq.002$) post-simulation experience.(6) Overall, over 90% of participating students responded that the experience increased their understanding of other healthcare professions, improved their communication with other professions, and enhanced their ability to identify patient safety concerns.(6) Strengths of the study include the large number of participants, training and standardization of scenarios, using a validated assessment tool. Though, providing a detailed account of topics discussed during debriefing sessions may have shed more light on issues or education gaps encountered during the simulations.

Use of Interprofessional Education in Dietetics

To effectively assess and prioritize care of patients, nutrition professionals, or Registered Dietitians, are required to communicate with other health professions to gather pertinent patient information and discuss interventions, monitoring, and evaluation aspects. Registered Dietitians commonly consult with doctors, nurses, respiratory therapists, social workers, and pharmacists to gather patient family history, medical history, medications, laboratory values, diet history, diet recalls, and anthropometric measurements. The addition of other health professionals to dietetic simulations may allow dietetic students to learn the roles and responsibilities of other professionals and vice versa. Increased understanding of professional roles in the workplace can facilitate communication and subsequently may improve quality of care.

Eliot and Reubling described the positive results they experienced by incorporating interprofessional education into their undergraduate Didactic Program in Dietetics.(7) Skills they credited to the IPE curriculum included outstanding communication and respect for other health professionals, as indicated by Dietetic Internship Directors and alumni working with graduates of the program.(7) Pullon et al. looked at the effects of integrating interprofessional education into courses for medical, physiotherapy, and dietetic students.(18) Seven students from each program (n=21) were selected to participate in the interprofessional education pilot designed to run synergistically with students' existing courses.(18) Interprofessional education components included a three-hour interactive interdisciplinary collaboration lesson and real-life patient home visits with group presentations.(18) Pre and post-surveys with a 5-point Likert scale were collected and focus groups were conducted.(18) The sample size was smaller (n=21) and statistical analysis data provided served as a good example of a study that was underpowered (a pilot). When comparing the pre and post-surveys, students showed a 0.2-point improvement in their attitudes towards interprofessional health care teams (95% CI 0.02–0.386; $t(20)=2.34$, $p=0.03$).(18) Also, a 0.26-point improvement was seen in students' attitudes towards interprofessional education (95% CI 0.08–0.45; $t(20)=3.06$, $p=0.006$) and a larger 0.64-point

improvement was found in students' perception of the effectiveness of interprofessional collaborations (95% CI 0.36–0.92; $t(20)=4.73$, $p<.001$.)(18) These findings overall indicate an increased confidence in the effectiveness and importance of interprofessional teamwork.(18)

Interprofessional training is noticeably lacking in most health care education programs furthering the disparities between school-based education and entrance into clinical practice.(14) Recently, however, interprofessional components are being introduced into patient-scenario simulations as a growing amount of evidence supports incorporating interprofessional collaboration within healthcare education.(7, 18) In 2010, the University of Kansas Medical Center's Center for Interprofessional Education and Simulation (CIPES) began Interprofessional Education (IPE) with nursing and medical students. IPE at KUMC has since expanded to include dietetic, respiratory therapy, occupational therapy, and physical therapy students as well as other disciplines across campus.

CLINICAL JUDGMENT

Evaluating health professionals' clinical judgment is essential to improving the efficiency and effectiveness of the delivery of health care.(1) Clinical judgment was defined by Tanner as, "an interpretation or conclusion about a patient's needs, concerns, or health problems, and/or the decision to take action (or not), use or modify standard approaches, or improvise new ones as deemed appropriate by the patient's response."(1) Clinical judgment in healthcare involves the ability to distinguish a clinical situation, assess and interpret findings, respond appropriately and reflect upon those responses.(1) Tanner's Clinical Judgment Model includes four domains of clinical judgment that occur within the thinking process in making clinical decisions: noticing, interpreting, responding, and reflecting.(1)

Noticing, or "a perceptual grasp of the situation at hand," includes the overall observation of a patient's changing condition.(1) The healthcare provider balances textbook knowledge, situational experience, and intuition to then interpret the information gathered. Interpreting is

"developing a sufficient understanding of the situation to respond" and subsequently prioritizing care. Responding and "deciding on a course of action deemed appropriate" includes professionally communicating the plan of care. Reflecting is "attending to patients' responses to the action while in the process of acting," and includes personal and professional evaluation of the implemented plan.(1) The act of reflecting "contributes to ongoing clinical knowledge development and capacity for clinical judgment in future situations."(1)

Originally developed to describe the clinical judgment process of nurses, Tanner's model may have other uses. A practical application of the model can be seen during debriefing sessions after simulations. The model can be used to evaluate students' clinical judgment and initiate reflection on missed information and educational gaps that occurred during a patient case scenario.(1) In a study by Wotton et al., 300 third-year nursing students participated in three separate high-fidelity simulations with debriefing sessions included at the end.(19) Students then completed an evaluation survey consisting of 11 questions rated on a 5-point Likert scale and 3 open-ended questions.(19) The majority of participants (97%) agreed that the simulated scenarios helped them gain knowledge they can apply in clinical practice.(19) Students commented regarding the usefulness of bringing classroom theories into clinical practice and visualizing signs, symptoms, and patient outcomes.(19) Over 95% of students agreed that debriefing sessions clarified rationale for patient assessments and interventions and improved understanding of patient cases.(19) Specific statistical analysis data was not provided, though evaluation forms were explained in detail and examples were provided. A relatively large study (n=300), the results highlight the benefits of simulation experience when incorporated into standard health care education.

EVALUATION TOOLS

Stevens and Levi defined a rubric as an assessment tool that outlines expectations for a task or assignment.(20) Clearly defined objectives and core competencies are necessary to

providing students and evaluators with similar expectations for a particular educational event.(1) In theory, this will lead to fair and consistent outcome assessments of student performances during these activities.

The literature review revealed no consensus on the most appropriate tool used to evaluate clinical judgment of dietetic students. Often, preceptors complete evaluation checklists upon conclusion of dietetic interns' clinical rotations to assess overall clinical performance, rather than clinical judgment. For simulation evaluation, many researchers develop original evaluation tools typically focused on determining students' perception of the simulation, versus student performance and clinical judgment.(2, 4, 5) These tools do not necessarily uniformly reflect the expectations of dietetic students during simulations and do not always fully evaluate the specific core competencies and objectives of dietetics education. Appropriate and accurate assessment of students' clinical judgment can lead to improved patient outcomes and recognition of important clinical signs and symptoms.

In 2010, Kardong-Edgren and Adamson described over 25 different evaluation tools.(21) The study provided detailed assessment of evaluation tools, formatted into varying categories for ease of reading. From this analysis it was determined that the Clark (2006), Gore, Hunt, & Raines (2008), and the Lasater (2007) tools most closely reflected clinical judgment assessment and therefore warranted further review. In 2006, Clark developed the Clinical Simulation Grading Rubric (CSGR) to evaluate cognitive performance in an obstetrical simulation scenario.(22) The CSGR incorporates Bloom's Taxonomy cognitive domains (knowledge, comprehension, application, analysis and synthesis) as well as Benner's experience levels (novice, advanced beginner, competent, proficient, and expert.)(22) The rater assigns a score between 1 (lowest) and 5 (highest) for each category (patient assessment, history gathering, critical thinking, communication, patient teaching, review of lab data, and diagnostic studies.) The tool contains language specific to obstetrical students, i.e. to receive a 5 in the critical thinking category the student "anticipates emergency c-section for fetal distress."(22) Though it is stated the tool may

be adapted to fit other clinical scenarios, it does not fully evaluate all aspects of clinical judgment and has no established reliability or validity.(22) Therefore the tool was not selected for use in assessment of clinical judgment in dietetic students.

In 2008, Gore, Hunt, and Raines designed the Safe Human Patient Simulation and Clinical Evaluation tool (SHPCE) based on specific simulation objectives for beginning nursing students.(23) The SHPCE tool contains checklist-type tasks organized into 5 domains: safety and communication, assessment and critical thinking, diagnosis and critical thinking, interventions, evaluation and critical thinking, and finally reflection and critical thinking.(23) A point value is allotted for each checklist item and partial points are allowed. Though the tool utilizes nursing-specific language, the checklist items are broad enough in nature to be generalized to other healthcare fields. Despite these features, the tool has not been evaluated for reliability or validity within the nursing student population and is therefore inappropriate to use for assessment of clinical judgment in dietetic students.(23)

In 2007, Lasater developed the Lasater Clinical Judgment Rubric (LCJR). This tool was found to most closely resemble the purpose and objectives of dietetics education and evaluation of clinical judgment. Originally intended to assess nursing students' clinical judgment, the LCJR incorporated the four components of Tanner's Clinical Judgment Model (noticing, interpreting, responding, and reflecting) into its eleven differing dimensions using a 4-point Likert-type scale.(24) Student performances of these dimensions can be categorized and measured in four domains; beginning (1 point), developing (2 points), accomplished (3 points), or exemplary (4 points) with a total of 44 points possible.(25) A study by Adamson et al. examined and summarized the reliability and validity of the LCJR using an analysis of three separate studies: the Adamson study, the Gubrud-Howe Study, and the Sideras study.(26) The Adamson study involved 29 raters who scored video-archived scenarios using the LCJR and an interrater reliability of 0.889 was found using intraclass correlation.(8) Prior to beginning research, Gubrud-Howe established inter-rater reliability by having two raters watch recorded "anchor"

performances and compared their overall scores and domain scores using the LCJR.(9) After each recording, scores were compared and little disagreement occurred (alpha coefficient 0.87, >0.70 considered acceptable.)(9) With preliminary reliability established, Gubrud-Howe continued on. Two trained raters observed 42 nursing students participating in simulated scenarios and completed the LCJR for each student.(9) To reaffirm scores assigned, raters watched recordings of the simulations before submitting the evaluation instrument.(9) Raters' overall scores and domain scores were compared revealing inter-rater reliability (alpha of 0.87) internal consistency (Cronbach's alphas of 0.89 to 0.93) and subsequently established validity.(9) The Sideras study compared performances of students with varying clinical experience during three simulation scenarios. The study found a large range of reliability (0.57-1.0).(10) The Adamson et al. stated the results from each of the three studies supported the validity of the LCJR in evaluating clinical judgment of students during simulation scenarios.(26) In a separate study by Blum et al., the LCJR was found to have interrater reliability of 0.87, internal consistency (calculated using Cronbach's alphas of 0.886-0.931), and subsequently established validity.(11) With established reliability and validity the LCJR would be an appropriate tool to use in the evaluation of dietetic students' clinical judgment.

A validated assessment tool is vital to the evaluation of healthcare professionals during their education and employment. In order to develop a tool specifically focused on dietetic student core competences, a validated tool was needed for comparison. The Lasater Clinical Judgment Rubric has proven reliability and validity and was thought to be appropriate for validating a new nutrition-focused evaluation instrument. A dietetics-focused evaluation instrument should utilize the Nutrition Care Process as described by the Academy of Nutrition and Dietetics. ADIME documentation (assessment, diagnosis, interventions, monitoring, and evaluation) should be included to aid in defining clinical judgment in dietetic students. Interprofessional components should also be integrated to offer a holistic evaluation of student

performance in the workplace and to reinforce the importance and practice of team-based patient care.

CONCLUSION

Many dietetic education programs lack interprofessional simulations and may benefit from incorporating them into their curriculum. Simulations offer students real-life practice of clinical theories in a non-judgmental and safe environment. Including simulation experiences with interprofessional components in healthcare education may improve patient outcomes by increasing participants' ability to recognize important clinical components, confidence in clinical practice, and communication with other health professionals.(1, 2, 4, 6, 17)

No validated evaluation tool currently exists specifically to assess dietetic students' clinical judgment. The LCJR, however, appeared to be the most useful tool for assessing clinical judgment of dietetic students and for validating a new evaluation instrument due to the commonalities of evaluation domains, and it's previously established reliability and validity.(8-11, 26) An evaluation instrument focused on core aspects of the Nutrition Care Process and integrating interprofessional components would prove vital to the advancement of dietetics education. A nutrition-focused evaluation tool could be used to assess dietetic students' clinical judgment and communication skills in various clinical scenarios. Furthermore, employers may be able to use the tool as a benchmark for appropriate interprofessional and clinical nutrition care expected from Registered Dietitians in the workplace. In addition, it was recommended the tool be flexible, allowing for adaptation to varying patient situations in both clinical and simulation scenarios.

CHAPTER III

METHODS

At the time of the research project, no known validated tool existed that was specifically developed for assessment of clinical judgment during interprofessional simulations within the field of dietetics. To fill this gap, the author developed the Nutrition Care Process Evaluation Instrument to measure clinical judgment of dietetics students during interprofessional simulations. Through a pilot study, the newly developed Nutrition Care Process Evaluation Instrument was tested to determine reliability when measuring simulation participants' clinical judgment.

Sample and Setting

Eligible participants included second semester dietetics students (n=16) enrolled in Dietetics and Nutrition 826 in the Spring 2015 semester at KUMC. All subjects will have completed a Baccalaureate degree at an accredited undergraduate college or university. Study subjects were pooled from Medical Nutrition Therapy students who participated in interprofessional simulations as a requirement of the DN 826 Medical Nutrition Therapy course. The final subjects chosen for this study included those simultaneously completing KUMC's Dietetic Internship (DI) program (N=16) due to their perceived fundamental knowledge base of interprofessional relationships and experience in management of clinical scenarios.

The KUMC interprofessional simulation participants included senior-level nursing students and first-year dietetics students in the second semester of their dietetic internship. Simulations occurred during the 2015 spring semester between January 20th and February 6th and took place at the KUMC School of Nursing Clinical Learning Laboratory.

The main researcher, Rater 1, is a Registered Dietitian and evaluated students only using the validated assessment tool, the Lasater Clinical Judgment Rubric, for each student's three

patient scenarios to avoid rating bias. Two other raters evaluated the student subjects using the Nutrition Care Process Evaluation Instrument. The two raters were also Registered Dietitians and included the committee chairperson (Rater 2) and a committee member (Rater 3A) or student researcher (Rater 3B.) Due to scheduling conflicts, the committee member and student researcher were used interchangeably as the "third rater," a noted limitation to this study.

Ethics

IRB approval was obtained prior to student participation in the research and simulations (Appendix A). The study qualified for exempt status involving human subjects because it was completed within the context of a normal course requirement and was filed as an amendment to a previous study. Though students must have completed the simulation scenarios as a requirement of the Medical Nutrition Therapy course, they were able to request their results not be used for research purposes. Students were informed that choosing not to participate in the research would not affect their grade. Through an online-survey, all participating students agreed to participate in the research component and be video-recorded.

Students were video-recorded for educational purposes related to the simulation exercise. Recordings may be used in cases of research only with expressed permission of the student. Students were advised (Appendix B): "The researchers will protect your information, as required by law. Absolute confidentiality cannot be guaranteed because persons outside the study team may need to look at your study records. The researchers may publish the results of the study. If they do, they will only discuss group results. Your name will not be used in any publication or presentation about the study. Video recording of the simulations will be labeled with your participant number. They will be encrypted, password protected for sharing purposes within the research team. Video recordings will be stored on a separate USB or data device. The data device(s) will be kept in a locked drawer for a maximum of 3 years and then will be destroyed.

The data will be encrypted, coded and password protected for sharing purposes with the research team." All participating students explicitly agreed to be video-recorded for educational purposes.

Procedures

A literature review was conducted utilizing electronic databases including PubMed, Cinahl, and Google Scholar. Search terms included but were not limited to; simulation evaluation, interprofessional simulation, clinical judgment rubric, dietetic evaluation methods, and validated evaluation tool. Articles obtained focused on dietetic, nursing, medical, or pharmacy student simulation evaluation methods and were not limited by type of simulation (i.e. human, video, mannequin.) Remaining articles were obtained through committee referral.

Patient cases that were currently in use for simulations were reviewed and edited, incorporating nutrition problems and interprofessional opportunities for dietetic and nursing students to recognize and address through consultation. Students enrolled in DN 826 Medical Nutrition Therapy II signed up for a two-hour simulation that coordinated with their personal schedule. Prior to the simulation, dietetic students were required to complete a pre-test provided through RedCap (Appendix B)(27) and state if they agreed to participate in the research component and be video-recorded. The questionnaires were developed during a previous study specifically for the simulation with the assistance of faculty from the School of Nursing. The questionnaires were specific to dietetics students and included multiple-choice questions, open-ended questions, and responses on Likert scales. Dietetics students who agreed to participate in the research (n=16) also completed post-test evaluations (Appendix C)(27) through RedCap after their simulation experience.

Prior to the simulations, those observing and rating dietetic students attended a training session discussing appropriate use of the Nutrition Care Process Evaluation Instrument. There was sufficient time allotted to answer questions that arose during training and the researcher's contact information was distributed. Raters were refreshed on this information immediately

before simulations began. The main researcher thoroughly reviewed and studied the Lasater Clinical Judgment Rubric prior to the simulations. The researcher contacted the creator of the Lasater Clinical Judgment Rubric for permission of use.

Preceding the simulations, students received access to the academic electronic health record to view patient information. Students also received written instructions pertaining to each of the three patient scenarios detailing important information to gather and bring to the simulation (i.e. patient education materials, tube-feeding recommendations) (Appendix D).(27) Students were given the Nutrition Care Process Evaluation Instrument prior to participating in the simulations and received the author's contact information for questions. It was imperative for the students and raters to have a clear and agreeable idea of expectations for student performances during the simulations to improve consistency in evaluation. Students were again notified that simulation sessions and debriefings would be video-recorded for educational purposes. Recordings served as definitive proof of patient encounters and debriefings should discrepancies have been encountered in grading. Additionally, students were required to view their individual recordings in order to complete their self-evaluations.

During the simulation, one dietetic student worked with two to three nursing students to complete three separate patient scenarios. Two of the patients were moderate-fidelity mannequins operated by graduate students from the School of Nursing at KUMC. The third patient was played by one of the nursing students participating in the simulation or a faculty member. Each unfolding scenario was conducted in twenty-minute sessions concluding to a total of one hour of simulation activity. See Appendix E for simulation patient cases and Appendix F for patient scripts for graduate teaching assistants (GTAs).

Fifteen-minute debriefing sessions occurred between each of the simulation scenarios and at the conclusion of all three simulations, totaling to forty-five minutes of debriefing. A checklist was utilized by each of the three raters to tailor debriefing discussion towards important topics that might have been missed during the scenario (Appendix G). Debriefing sessions were also

utilized to clarify uncertainty of students' clinical judgment. Raters were able to further inquire about students' decisions that occurred during the previous scenario, questions including; how did you determine your interventions? How did you determine which educational materials to discuss? What nutrition diagnoses did you consider? Etc. The final debriefing session specifically focused on discussing interprofessional opportunities presented during each scenario of the simulation and allowed nursing and dietetic students to discuss individual roles during the simulations and how the students related to one another.

Students completed and submitted ADIME (assessment, diagnosis, intervention, monitoring, and evaluation) documentation notes formatted according to the Academy of Nutrition and Dietetics for each of the three patient scenarios (Appendix H). ADIME documentation notes were submitted to the instructor within two hours of the completion of the simulation to emulate expectations of real-life clinical scenarios and then distributed among raters. The three raters were then able to compare the checklist items and documentation notes to their respective evaluation instruments to provide formative and summative evaluations of the students' performances. Two raters completed the Nutrition Care Process Evaluation Instrument and the third rater, the main researcher, completed the Lasater Clinical Judgment Rubric for each student participant. The raters were asked to submit their completed evaluations to the researcher by April 10th, 2015 for data analysis.

Furthermore, students were asked to reflect upon their own performance and clinical judgment. Self-reflection was captured by student completion of the Nutrition Care Process Evaluation Instrument after the simulations. Students were given access to their individual simulation session video-recordings to aid in completion of the Nutrition Care Process Evaluation Instrument. Students submitted their completed evaluations to the instructor and main researcher by February 9th, 2015.

Lastly, a final debriefing was held with the students as a focus group to reflect on the simulation experience as a whole. Topics included; opinion and thoughts on the Nutrition Care

Process Evaluation Instrument, student perspective on being video-recorded, positive and negative outcomes of simulation experience, benefits and setbacks of debriefing sessions, opinion of simulation experience in students who had completed clinical versus those who had not, as well as suggestions for the future.

Materials

The Nutrition Care Process Evaluation Instrument (Appendix I) was developed based on Tanner's Clinical Judgment Model and also incorporated the Nutrition Care Process from the Academy of Nutrition and Dietetics and core competencies from the expert panel of the Interprofessional Collaborative Practice (Panel IECE). The core competencies and objectives used are outlined in Appendix J. In this tool, the four domains of the Nutrition Care Process (assessment, diagnosis, intervention, and monitoring/evaluation) were correlated with Tanner's Clinical Judgment domains (noticing, interpreting, responding and reflecting.) A checklist for each of the Nutrition Care Process domains was provided to serve as a guideline for determining placement of student performance into one of three categories using a 5-point Likert-type scale: beginner (0-1 points), meets expectations (2-3 points), and exemplary (4-5 points.) A student was to be placed in the "beginner" category if less than 60% of pertinent information was provided for each domain. A student who "met expectations" provided 60-75% of pertinent information and an "exemplary" performance included more than 75% of pertinent information for each domain. Interprofessional components were incorporated into each domain to aid in determination of student placement. Scores were generalized and interpreted based on the category in which the student was placed with a total of twelve points possible; "beginner" (score of 0 to 1) providing 1 point total, "meets expectations" (scores of 2 to 3) providing 2 points total, and "exemplary" (scores of 4 to 5) providing 3 points total.

Raters utilized the simulation checklist, ADIME checklist (Appendix K), documentation notes and personal notes to consider all aspects of the evaluation tool before finally assigning a

specific score for each clinical judgment domain. Rater 1 and Rater 2 attended all live simulations by each individual student and returned simulation evaluation materials within one week of observation. Rater 3A completed twelve of the sixteen students' simulation evaluations. Seven of these twelve live simulations were attended by Rater 3A. The remaining five students' were evaluated by Rater 3A solely utilizing the documentation notes submitted by the students, a noted limitation to this study. Additionally, Rater 3A completed and submitted evaluation materials two months after live simulations occurred. Rater 3B attended four students' live simulation experiences Rater 3A was unable to attend and returned evaluations materials within two weeks of observation.

A validated assessment tool was utilized to compare results with the Nutrition Care Process Evaluation Instrument. The Lasater Clinical Judgment Rubric (LCJR) (Appendix L) was often referenced during the review of literature and was therefore used as a model for the structure and content of the Nutrition Care Process Evaluation Instrument. The LCJR incorporates the four components of Tanner's Clinical Judgment Model (noticing, interpreting, responding, and reflecting) into its eleven differing dimensions using a 4-point Likert-type scale.(24) Student performances of these dimensions could be categorized and measured in four domains; beginning (1 point), developing (2 points), accomplished (3 points), or exemplary (4 points) with a total of 44 points possible.(25) According to studies by Blum et al. and Gubrud-Howe, the LCJR has established validity, inter-rater reliability (alpha of 0.87), and internal consistency (Cronbach's alphas of 0.89 to 0.93) and was therefore appropriate to use for comparison in this study.(9, 11)

Analysis of Data

Matched by student and scenario, the Nutrition Care Process Evaluation Instrument was compared against itself determine whether similar domain scores for individual students were

obtained from each rater. Additionally, students' self-reflection scores from the Nutrition Care Process Evaluation Instrument were then compared to scores provided by the raters for each individual student. Finally, the Lasater Clinical Judgment Rubric was compared to the Nutrition Care Process Evaluation Instrument for exploratory research on the correlation between raters within each instrument domain.

Inter-rater reliability, a measure of precision, refers to the agreement between raters or observers.(28) In this study, inter-rater reliability referred to the extent to which the same scores were obtained from different raters using the same evaluation instrument, or, the extent of agreement of student's clinical judgment between raters evaluating the patient-scenario simulations.(29) Inter-rater reliability of the Nutrition Care Process Evaluation Instrument was determined between the two raters for each separate patient simulation scenario (N=3) for each student participant (N=16). An inter-rater reliability analysis using Cohen's Kappa statistic was performed to determine consistency among raters using the Nutrition Care Process Evaluation Instrument. Cohen's Kappa ranges from 0 to 1.0 in which larger numbers exhibit better reliability, though negative numbers are possible and exhibit less reliability.(28) Landis & Koch as well as McHugh interpreted Kappa values as follows: <0 signified poor agreement attributable to chance alone, 0.0-0.20 slight agreement, 0.21-0.40 fair agreement, 0.41-0.60 moderate agreement, 0.61-0.80 substantial agreement, 0.81-1.00 almost perfect agreement.(28, 30) These guidelines were used to categorize Kappa values obtained from data analysis.

Reliability of the new instrument was also examined by comparing students' self-evaluation scores of the Nutrition Care Process Evaluation Instrument to Rater 2's scores who used the same tool. Inter-rater reliability analysis using Cohen's Kappa statistic was performed to determine consistency among students and Rater 2, their Medical Nutrition Therapy professor. Kappa values were categorized based on the guidelines previously stated. Additionally, exploratory analysis was completed using Spearman's rho to determine correlation between all raters' and the students' self-evaluations.

Due to limitations with sample size and study design, the researcher chose to perform exploratory analysis between the Nutrition Care Process Evaluation Instrument and the Lasater Clinical Judgment Rubric to determine the strength of association between raters.(31) The non-parametric measure, Spearman's rank-order correlation coefficient (rho or r_s), is used when variables are ranked or not normally distributed.(31) Spearman's correlation coefficient ranges from -1 to 1, where values closest to -1 or 1 represent a stronger relationship and value of zero represents no relationship between the variables.(31) The direction of the relationship can be determined from the sign of the value; wherein negative values represent an inverse relationship between variables and positive values represent direct relationships.(31) For this study, the higher the correlation coefficient, the more reliable the instrument was and a $\rho > 0.70$ was considered reliable.(29) In an effort to better represent the data at hand it was again matched by student and patient scenario. Rater 3A and 3B's scores were also combined into one dataset and total scores were weighted against the range of scores possible (i.e. Lasater Clinical Judgment Rubric scores were divided by 44 points possible and Nutrition Care Process Evaluation Instrument scores were divided by 12 points possible to determine a total percentage.) Finally, Spearman's rho was performed for all raters using the Nutrition Care Process Evaluation Instrument to determine correlation between raters within each domain.

An alpha level of 0.05 marked statistical significance. Statistical tests were performed and analyzed using Microsoft Excel and the Statistical Package for the Social Sciences (IBM SPSS, release 20.0.0) to produce graphs and trends.

Schedule of Activities

In August of 2014, the researcher began gathering information and making initial project decisions. By September, development of the literature review was underway and the researcher was meeting with the committee chairperson and mentor weekly. The researcher began developing the proposal in October and presented the proposal to the committee November 18th,

2014. The month of December consisted of preparing for the simulations and training raters on the use of the Nutrition Care Process Evaluation Instrument.

IRB approval was submitted and obtained January 5th, 2015. Preparations for the simulations continued into January and simulations began January 20th and extended through February 6th. February and March were allotted for simulation evaluation completion by raters and final data collection by the researcher was completed April 10th, 2015. Throughout April, the researcher analyzed the data collected and began the thesis write-up and presentation development. The thesis was submitted to the committee April 22nd, 2015 and defended April 29th, 2015 to all committee members.

CHAPTER IV

RESULTS

COHEN'S KAPPA

It was hypothesized that the Nutrition Care Process Evaluation Instrument would have high reliability when assessing clinical judgment of dietetic students during interprofessional simulations. Due to the varying patient scenarios presented to students, the researcher believed it was vital to sort and analyze data by student and patient scenario. The researcher examined inter-rater reliability using Cohen's Kappa between four raters (Rater 2, 3A, 3B, and student self-evaluations (SE)) for the Nutrition Care Process Evaluation Instrument for each student, scenario, and finally domain.

Patient Scenario A (Table 1, Figure 1.0)

Within the noticing domain, the inter-rater reliability between Rater 2 and Rater 3A was found to be Kappa=0.547 ($p<0.0001$), 95% CI [0.22-0.88], classified to moderate agreement. Rater 2 compared to rater 3B and the self-evaluations (SE) had less, but fair agreement, with Kappa=0.385 ($p=0.046$), 95% CI [-0.04-0.81], and Kappa=0.223 ($p=0.54$), 95% CI [-0.05-0.5], respectively.

Within the interpreting domain, Rater 2 compared with Rater 3A, 3B, and the SE had slight agreement with Kappa=0.192 ($p=0.257$), 95% CI [-0.16-0.54], Kappa=0.077 ($p=0.505$), 95% CI [-0.09-0.24], and Kappa=0.059 ($p=0.608$), 95% CI [-0.15-0.27], respectively.

Within the responding domain, Rater 2 compared with Rater 3A had fair agreement with Kappa=0.229 ($p=0.111$), 95% CI [-0.09-0.55]. Rater 2 had slight agreement when compared with Rater 3B and the SE with Kappa=0.200 ($p=0.546$), 95% CI [-0.45-0.85] and Kappa=0.015 ($p=0.904$), 95% CI [-0.27-0.30], respectively.

Within the reflecting domain, Rater 2 had fair agreement when compared with Rater 3A with Kappa=0.388 (p<0.016), 95% CI [0.08-0.70]. Rater 2 compared with Rater 3B and SE found poor agreement, with Kappa values <0, suggesting any correlation would be due to chance alone.

Lastly, total scores analyzed revealed slight agreement between Rater 2 and Rater 3A, and fair agreement between Rater 2 and SE with Kappa=0.150 (p=0.075), 95% CI [-0.03-0.33], and Kappa=0.263 (p=0.007), 95% CI [0.01-0.51], respectively. Poor agreement was found between Rater 2 and Rater 3B with Kappa <0, again suggesting any correlation would be due to chance alone.

Patient Scenario B (Table 2, Figure 2.0)

Within the noticing domain, Rater 2 compared with Rater 3A, 3B, and SE were all found to have fair agreement with Kappa=0.282 (p=0.022), 95% CI [-0.02-0.59], Kappa=0.333 (p=0.157), 95% CI [-0.10-0.77], and Kappa=0.262 (p=0.04), 95% CI [-0.04-0.57], respectively.

Within the interpreting domain, Rater 2 was found to have slight agreement with Rater 3A (Kappa=0.059 (p=0.674), 95% CI [-0.22-0.34]), fair agreement with Rater 3B (Kappa=0.273 (p=0.296), 95% CI [-0.20-0.74]), and poor agreement with the SE where any correlation was attributable to chance alone.

Within the responding domain, Rater 2 had poor agreement when compared with Rater 3A, Rater 3B, and SE, with Kappa<0 signifying any correlations found could be attributed to chance alone.

Within the reflecting domain, Rater 2 had fair agreement when compared with Rater 3A with Kappa=0368 (p=0.004), 95% CI [0.04-0.70]. Rater 2 was found to have substantial agreement with Rater 3B with Kappa=0.636 (p=0.046), 95% CI [0.05-1.2]. Rater 2 compared with the SE found poor agreement; with Kappa value <0, suggesting any correlation would be due to chance alone.

Next, total scores analyzed revealed slight agreement between Rater 2 and SE with Kappa=0.131 (p=0.110), 95% CI [-0.07-0.34]. Rater 2 was found to have poor agreement with Rater 3A and 3B, with Kappa<0, suggesting any correlation found was due to chance alone.

Patient Scenario C (Table 3, Figure 3.0)

Within the noticing domain, it was found that Rater 2 had slight agreement with Rater 3A and the SE with Kappa=0.018 (p=0.894), 95% CI [-0.17-0.20] and Kappa=0.179 (p=0.165), 95% CI [-0.09-0.45], respectively. Additionally, Rater 2 was found to have fair agreement with Rater 3B with Kappa=0.385 (p=0.046), 95% CI [-0.04-0.81].

Within the interpreting domain, Rater 2 was found to have moderate agreement with Rater 3A with Kappa=0.564 (p<0.0001), 95% CI [0.24-0.88]. Rater 2 was found to have poor agreement with Raters 3B and the SE within this domain, with Kappa<0.

Within the responding domain, Rater 2 had slight agreement with Raters 3A, 3B and the SE with Kappa=0.127 (p=0.400), 95% CI [-0.20-0.45], Kappa=0.077 (p=0.728), 95% CI [-0.42-0.57], and Kappa=0.059 (p=0.609), 95% CI [-0.19-0.31], respectively.

Within the reflecting domain, Rater 2 was found to have slight agreement with Raters 3A and 3B with Kappa=0.032 (p=0.757), 95% CI [-0.20-0.27] and Kappa=0.200 (p=0.046), 95% CI [-0.07-0.47], respectively. Rater 2 and the SE were found to have poor agreement, with Kappa<0.

Finally, when comparing total scores for all domains, Rater 2 had slight agreement with Rater 3B with Kappa=0.143 (p=0.248), 95% CI [-0.09-0.37]. Rater 2 was found to have poor agreement with Rater 3A and the SE, with Kappa<0.

SPEARMAN'S RHO

A Spearman's rank-order correlation was run to determine the relationship between sixteen students' clinical judgment scores during the interprofessional simulations using both the NCPEI and LCJR. When comparing raters' total weighted scores using either the Nutrition Care

Process Evaluation Instrument, or the Lasater Clinical Judgment Rubric, the null hypothesis stated that the raters' scores are not correlated ($\rho = 0$). The alternative hypothesis was that the raters' scores are correlated ($\rho \neq 0$).

Patient Scenario A (Table 4, 5, Figure 4.11, 4.12)

Within the noticing domain, Rater 2 was positively and significantly correlated with rater 3A (r_s=0.768, p=0.004) and students' SE (r_s=0.674, p=0.004). Rater 3A was also positively and significantly correlated with the students' SE (r_s=0.767, p=0.004). No significant correlations were found within the interpreting domain. Within the responding domain, Rater 2 was positively and significantly correlated with Rater 3A (r_s=0.578, p=0.049). and the students' SE (r_s=0.586, p=0.017). Within the reflecting domain, Rater 2 was positively and significantly correlated with Rater 3A (r_s=0.714, p=0.009). Within the total scores domain, Rater 2 was positively correlated with Rater 3B (r_s=0.949, p=0.051) and the students' SE (r_s=0.762, p=0.001). Finally, within the total weighted scores domain, Rater 1 was significantly and negatively correlated with Rater 3B (r_s=-1.000, p<0.001).

Patient Scenario B (Table 4, 6, Figure 4.21, 4.22)

Within the noticing domain, Rater 2 was positively and significantly correlated with Rater 3A (r_s=0.578, p=0.049) and the students' SE (r_s=0.715, p=0.002). Additionally, Rater 2 was positively, but not significantly, correlated with Rater 3B (r_s=0.889, p=0.111). Within the interpreting domain, Rater 1 was positively and significantly correlated with Rater 2 (r_s=0.625, p=0.010). No significant or insignificant correlations were found within the responding domain. Within the reflecting domain, Rater 1 was positively and significantly correlated with Rater 3A within the reflecting domain (r_s=0.585, p=0.046). Also, Rater 2 was positively and significantly correlated with Rater 3A (r_s=0.725, p=0.008) and insignificantly correlated with Rater 3B (r_s=0.833, p=0.167). Finally, within the total scores domain, Rater 2 was positively and

significantly correlated with the students' SE (r_s=0.530, p=0.035) and insignificantly correlated with Rater 3B (r_s=0.833, p=0.167). Also, Rater 3B was positively, but not significantly, correlated with the students' SE (r_s=0.949, p=0.051).

Patient Scenario C (Table 4, 7, Figure 4.31, 4.32)

Within the noticing domain, Rater 2 was positively but not significantly correlated with Rater 3B (r_s=0.833, p=0.167). Within the interpreting domain, Rater 2 was positively and significantly correlated with Rater 3A (r_s=0.695, p=0.012) and insignificantly correlated with Rater 3B (r_s=0.949, p=0.051). Within the responding domain, Rater 2 was positively but not significantly correlated with Rater 3B (r_s=0.800, p=0.200). Within the total scores domain, Rater 2 was positively but not significantly correlated with Rater 3B (r_s=0.833, p=0.167). Finally, when comparing total weighted scores, Rater 1 was negatively and significantly correlated with Rater 2 within the reflecting domain (r_s=-0.632, p=0.009).

DEBRIEFING

A focus group-like debriefing was held with participating students two weeks after the conclusion of the simulations. The first topic discussed was students' opinions and thoughts on the Nutrition Care Process Evaluation Instrument. Students' appreciated receiving the evaluation instrument prior to the simulations and attributed overall less-stress during the simulations to knowing what was expected of them during the event. Explaining the different categories and domains proved beneficial in that many students felt relief when told they were not expected to perform at a "5" or exemplary level.

Students were next asked their perspective on being video-recorded and many valued the recordings of their patient encounters. Some stated the recording increased their nervousness, though the majority did not feel distracted by being recorded during the simulations and a few even forgot they were being recorded. Additionally, students enjoyed watching their recordings in

the privacy of their own home separated from the stress of completing the simulation. By watching their own recordings students were able to catch "weird phrases and sayings" and better understand how they interacted with the patients.

In the discussion it was revealed that overall students enjoyed the simulation experience and appreciated the knowledge gained from the clinical scenarios. Students' experienced a sense of independence in managing clinical scenarios without the threat of causing harm to the patient or being "wrong." Additionally, they learned more about their skills as individuals and became more comfortable working with patients and other healthcare professionals. Understandably, frustrations stemmed from confusion related to patient's clinical scenarios, misinformation provided during the simulation, and a less-than detailed explanation of the simulation workflow.

Finally, differences in opinions of those who had and had not completed clinical rotations as well as student perspectives on debriefing sessions were discussed. Students who had not completed clinical rotations prior to the simulations found the event to be a beneficial stepping-stone towards clinical rotations. Those who had completed clinical rotation enjoyed being "on their own" and appreciated the immediate feedback provided during debriefing sessions.

When asked about suggestions for the future, students exhibited an interest in learning more about other healthcare professionals' roles prior to the simulations in order to have fully and appropriately utilized their resources during the event. Many appreciated the opportunity to advocate and elaborate on the role of the dietitian to other healthcare professions. Students believed interprofessional communication was improved through the interprofessional opportunities presented during the simulation and would like to see other healthcare professions included in the future. Additionally, they appreciated the variety and complexity of the clinical scenarios and the practice they received in managing patients in a clinical setting. Overall students felt the scenarios were realistic and that they would utilize the knowledge gained in future clinical practice.

Table 1[1]

Patient Scenario A				
	Rater 2 vs. Rater 3A		Rater 2 vs. Rater 3B	
	Kappa Statistic	**Spearman's Rho**	**Kappa Statistic**	**Spearman's Rho**
Noticing Domain	0.547[c]	0.768**	0.385[d]	0.738
Interpreting Domain	0.192	0.376	0.077	0.272
Responding Domain	0.229[d]	0.578*	0.2	0.707
Reflecting Domain	0.388[d]	0.714**	-0.143	0.333
Total Scores	0.15	0.493	-0.067	0.949

Table 2

Patient Scenario B				
	Rater 2 vs. Rater 3A		Rater 2 vs. Rater 3B	
	Kappa Statistic	**Spearman's Rho**	**Kappa Statistic**	**Spearman's Rho**
Noticing Domain	0.282[d]	0.578*	0.333[d]	0.889
Interpreting Domain	0.059	0.138	0.273[d]	0
Responding Domain	-0.297	0.082	-0.333	0.272
Reflecting Domain	0.368[d]	0.725	0.636[b]	0.833
Total Scores	-0.048	0.574	-0.091	0.833

a = almost perfect agreement (0.81-1.00)
b = substantial agreement (0.61-0.80)
c = moderate agreement (0.41-0.60)
d = fair agreement (0.21-0.40)
*Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)

Table 3[2]

Patient Scenario C				
	Rater 2 vs. Rater 3A		Rater 2 vs. Rater 3B	
	Kappa Statistic	Spearman's Rho	Kappa Statistic	Spearman's Rho
Noticing Domain	0.018	0.52	0.385[d]	0.833
Interpreting Domain	0.564[c]	0.695*	-0.231	0.949
Responding Domain	0.127	0.46	0.077	0.8
Reflecting Domain	0.032	0.316	0.2	-0.056
Total Scores	-0.031	0.435	0.143	0.833

Table 4

Total Score Percentage Comparison		
	Rater 1 vs. Rater 2	Rater 1 vs. Rater 3 (A+B)
	Spearman's Rho	Spearman's Rho
Patient Scenario A	0.218	0.064
Patient Scenario B	0.630**	0.408
Patient Scenario C	-0.325	-0.27

Table 5

Patient Scenario A		
	Rater SE vs. Rater 2	
	Kappa Statistic	Spearman's Rho
Noticing Domain	0.223	0.674**
Interpreting Domain	0.059	0.483
Responding Domain	0.015	0.586*
Reflecting Domain	-0.011	0.192
Total Scores	0.263	0.762**

a = almost perfect agreement (0.81-1.00)
b = substantial agreement (0.61-0.80)
c = moderate agreement (0.41-0.60)
d = fair agreement (0.21-0.40)
*Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)

Table 6[3]

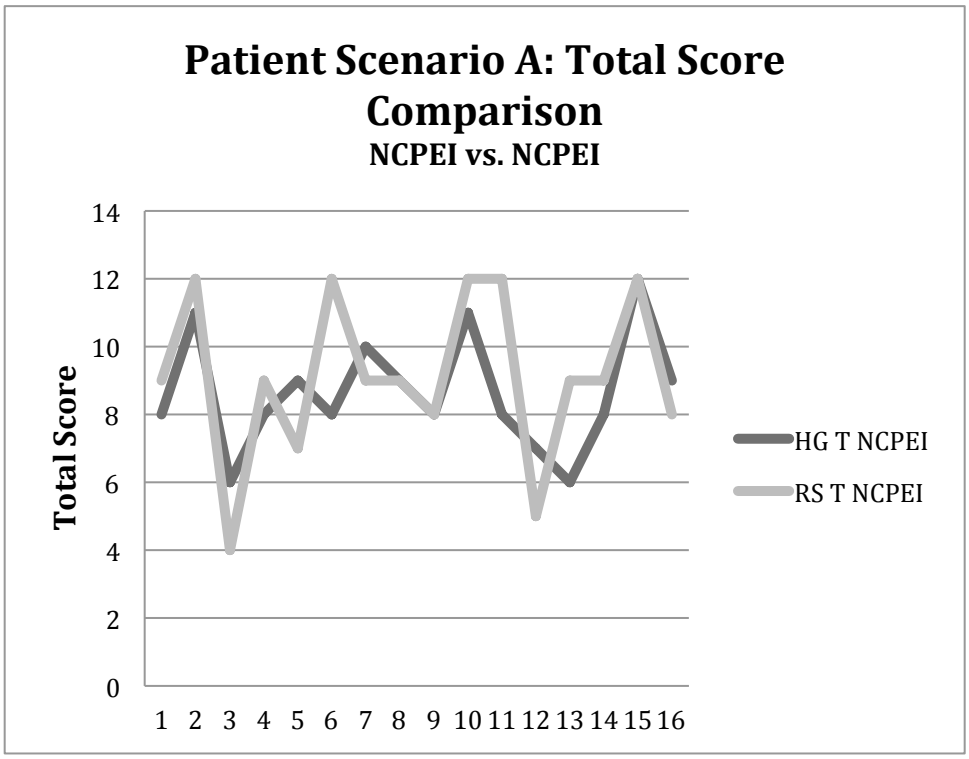
Patient Scenario B		
	Rater SE vs. Rater 2	
	Kappa Statistic	**Spearman's Rho**
Noticing Domain	0.262[d]	0.715**
Interpreting Domain	-0.057	0.224
Responding Domain	-0.04	0.389
Reflecting Domain	-0.02	0.224
Total Scores	0.131	0.530*

Table 7

Patient Scenario C		
	Rater SE vs. Rater 2	
	Kappa Statistic	**Spearman's Rho**
Noticing Domain	0.179	0.194
Interpreting Domain	-0.101	0.383
Responding Domain	0.059	0.195
Reflecting Domain	-0.091	0.346
Total Scores	-0.048	0.042

a = almost perfect agreement (0.81-1.00)
b = substantial agreement (0.61-0.80)
c = moderate agreement (0.41-0.60)
d = fair agreement (0.21-0.40)
*Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)

Figure 1.0



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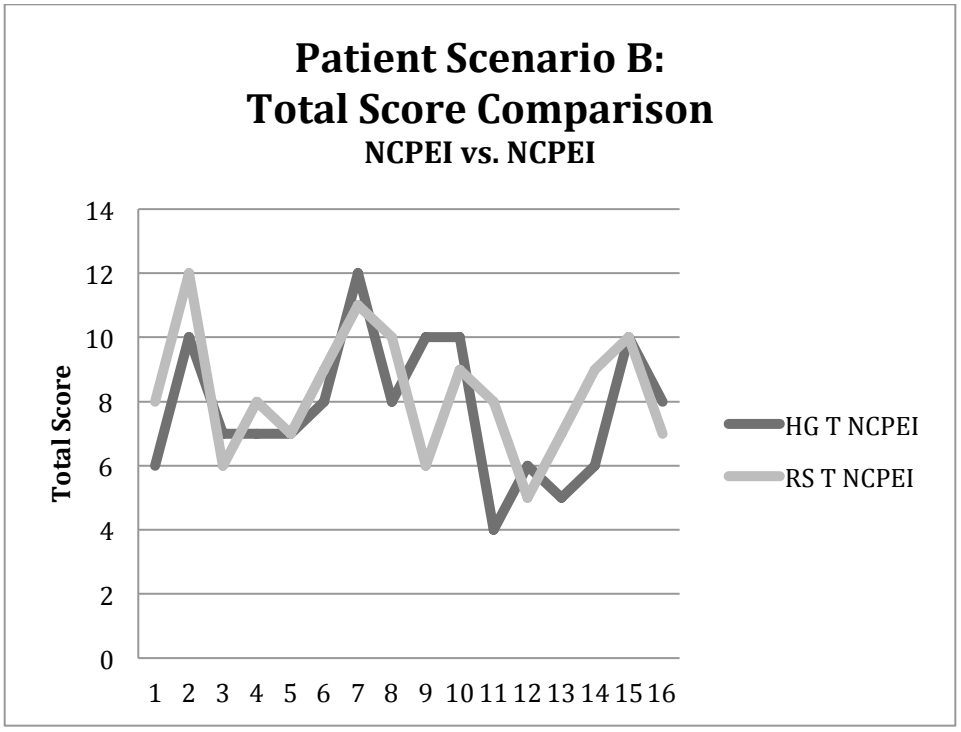

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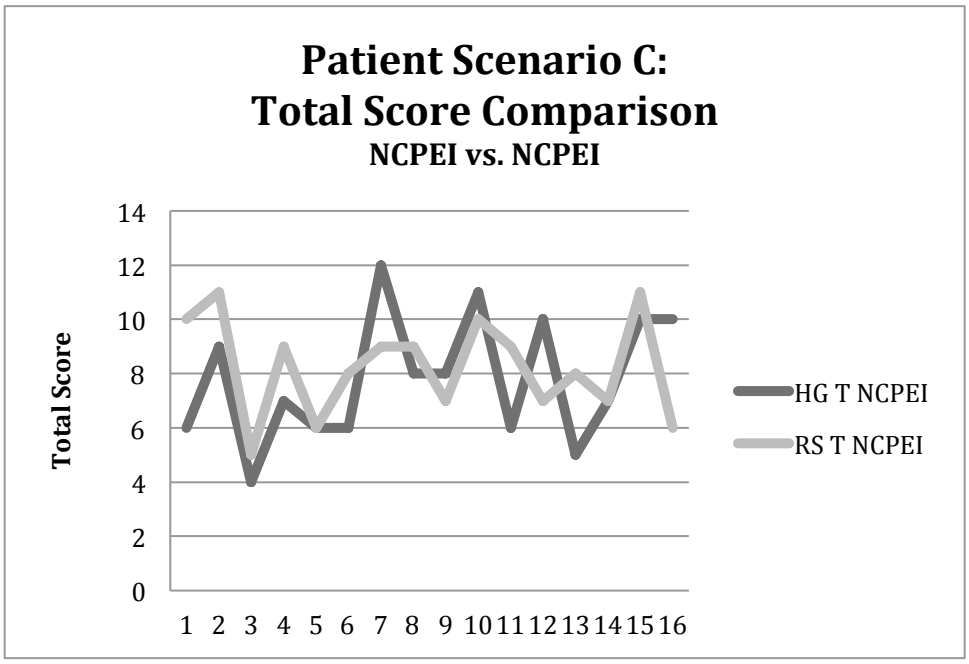

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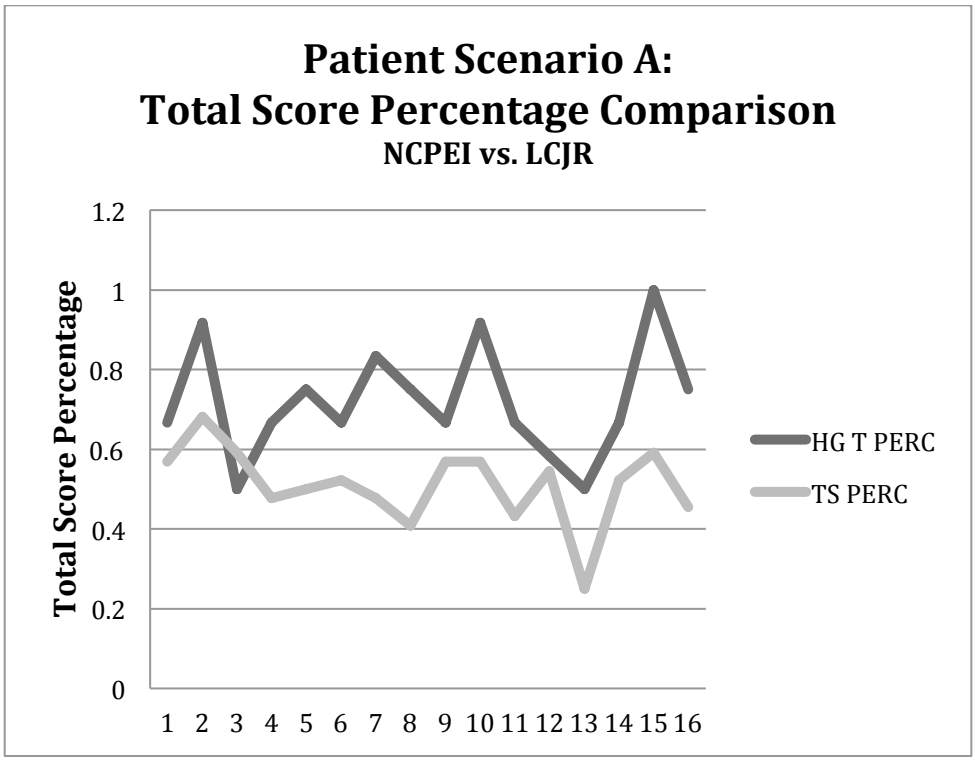

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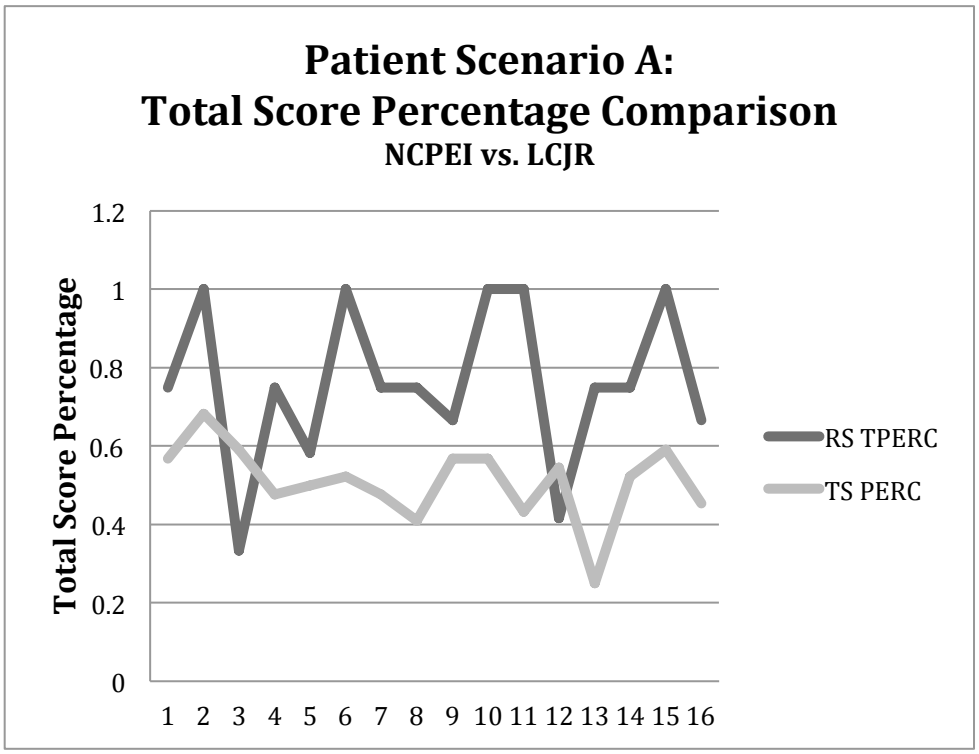

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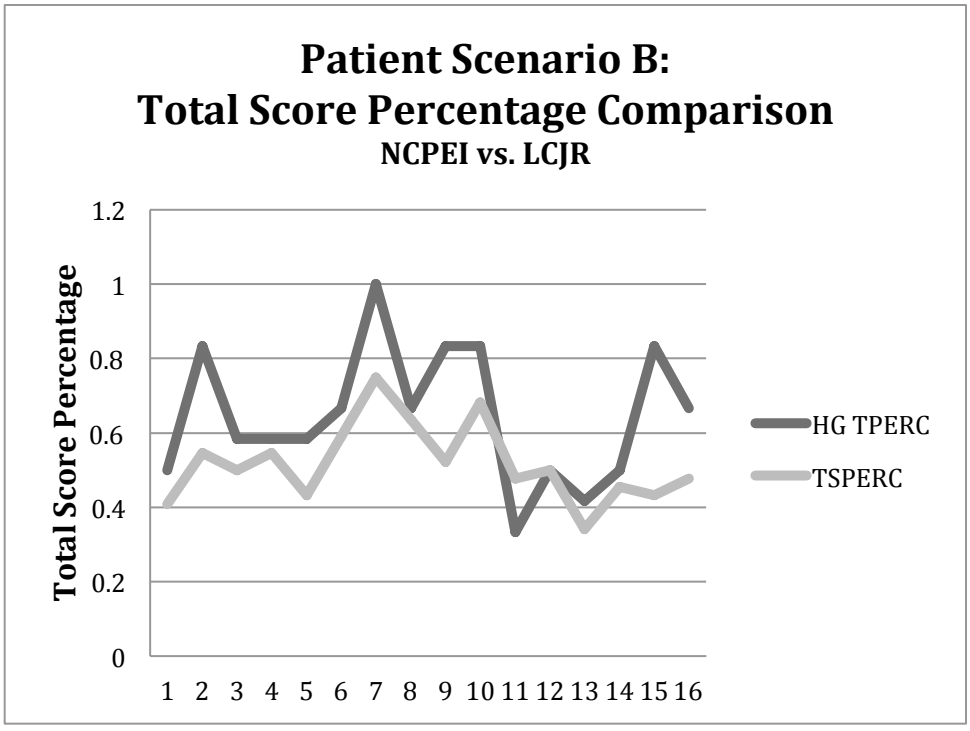

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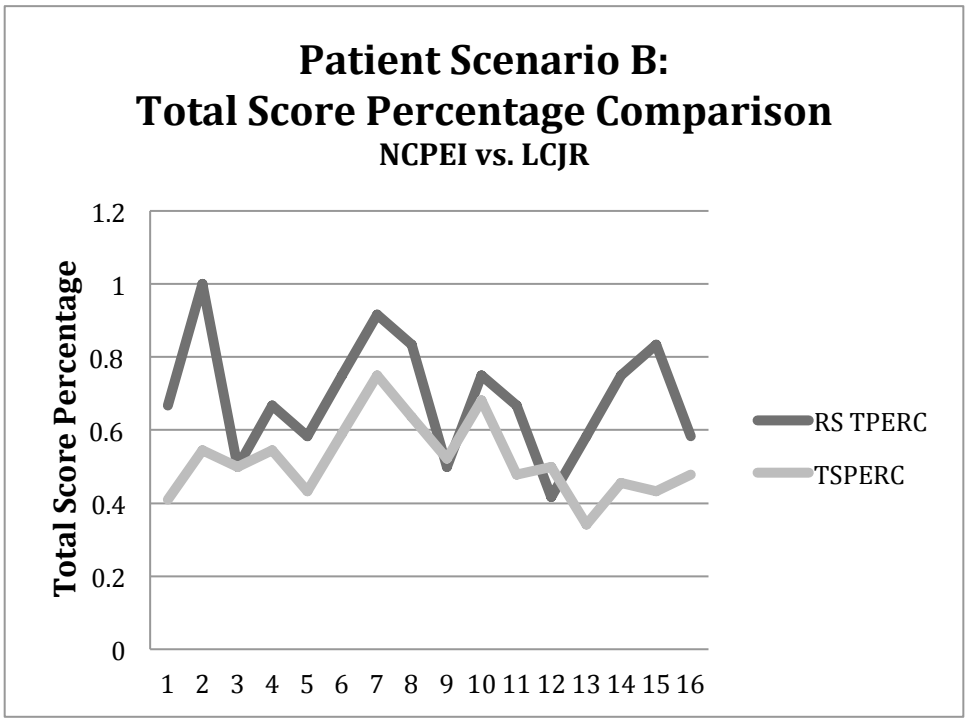

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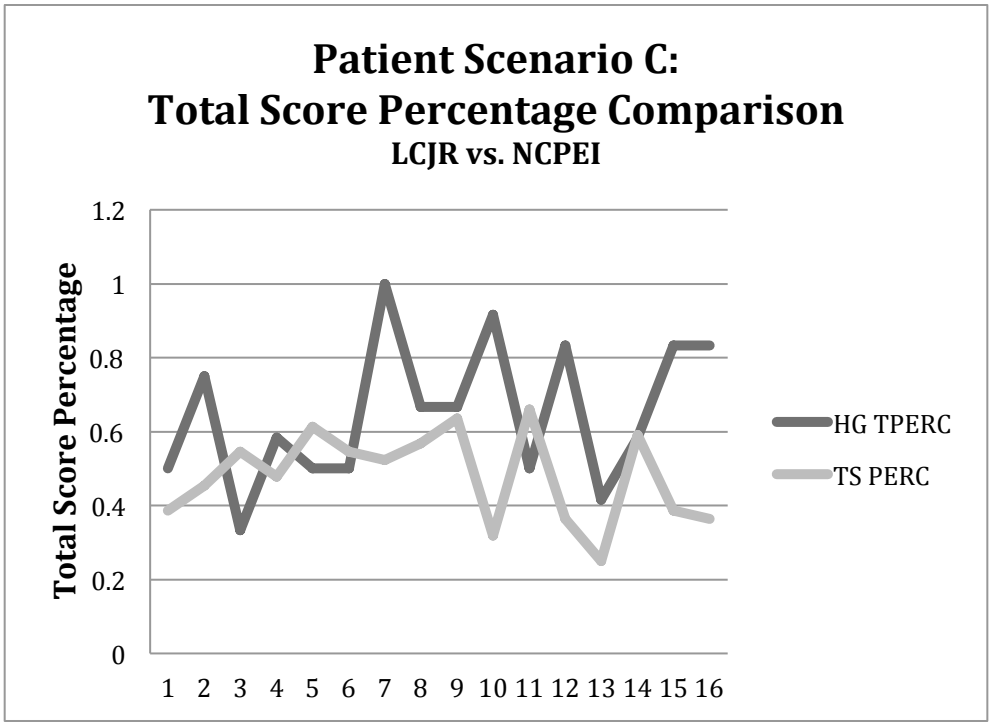
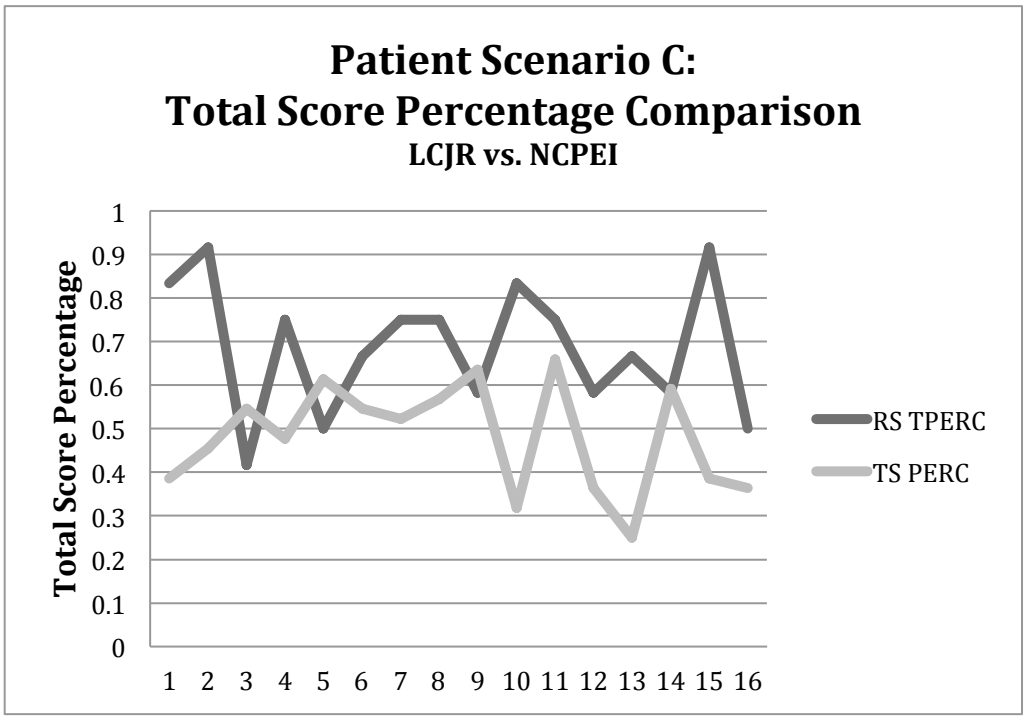


Figure 4.32


Patient Scenario C:
Total Score Percentage Comparison
LCJR vs. NCPEI
Total Score Percentage
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
RS TPERC
TS PERC

CHAPTER V

DISCUSSION

Overall, patient scenario B appeared to have the greatest amount of correlation between raters and patient scenario C had the smallest. The highest agreement reached was substantial agreement between Rater 2 and Rater 3B within patient scenario B reflecting domain (Kappa=0.636, $p<0.05$). Patient Scenario C revealed low agreement among raters, excluding fair agreement in the interpreting domain between Rater 2 and 3A (Kappa=0.564, $p<0.0001$ and r_s=0.695, p=0.012). Viewing the data graphically (Figure 1.0) reaffirms the notion that patient scenario B had the greatest agreement among Rater 2, 3A, and 3B with curves and trends closely mimicking one another, though scenario A and C do not drastically differ. Patient scenario B required the students provide diabetes diet education to a newly diagnosed Type I Diabetes Mellitus patient. The checklist for this patient was highly detailed, specific, and low in subjectivity. In patient scenario C, students were consulted to provide colostomy diet education to an elderly patient and were expected to reveal a malnutrition diagnosis through nutrition-focused physical findings. Patient scenario C was undoubtedly the most complicated and varying patient scenario presented to students and therefore higher disagreement between raters in scoring is not surprising.

The most agreed upon section appeared to be the noticing domain with one to three positive correlations within each patient scenario. Unfortunately, some comparisons revealed high correlation without statistical significance, i.e. patient scenario B, Rater 2 and Rater 3B had high correlation (r_s= 0.833) but with p=0.111. As sample size becomes smaller the corresponding p-value becomes larger, which can impede statistical significance.(28) Likely, the small sample size Rater 3B completed (n=4) inhibited statistical significances in this case but the correlations may still be considered.(28, 30)

The least agreed upon section appeared to be the responding domain with no significant correlations within patient scenario B or C, and only two within patient scenario A (Rater 2 and Rater

3A $p<0.05$, Rater 2 and SE ($p<0.05$). Notably, the responding domain contains subjective language and therefore previous knowledge of participating students may have caused an unconscious bias in scoring resulting in inter-rater error.(30) For example, raters must have determined if a student used a "calm, confident and professional approach" in order to have established performance placement. What might have appeared "confident and professional" to one rater might possibly not have met the expectations of another. This limitation was addressed by requiring training on use of the tool as well as providing other markers for student domain placement; however, a certain level of subjectivity likely still existed.(30) Preferably, future studies would be blinded and use raters whom are previously unfamiliar with participants and have similar student observation backgrounds.

Rater 2 was positively and significantly correlated with Rater 3A within many domains which may be attributed to their similarities as raters. Both were professors at the University of Kansas and familiar with participants' clinical abilities at the time of this study. Rater 2 was also positively correlated with Rater 3B on many occasions, though statistical significance was not always established (i.e. patient scenario A total scores $r_s=0.949$, $p=0.051$). A Spearman rho of 0.949 signifies almost perfect agreement within that domain and a p-value of 0.051 is incredibly close to being considered statistically significant. Again, the small sample size Rater 3B completed (n=4) likely inhibited statistical significance but the correlation none-the-less existed.

Rater 2 positively correlated with the students' SE most notably in the noticing, responding, and total score domains of patient scenario A ($p<0.01$, $p<0.05$, $p<0.01$, respectively) and within the noticing and total scores domain of patient scenario B ($p<0.01$, $p<0.05$, respectively.) Due to the nature of Rater 2's relationship with participating students, it was believed Rater 2 would have higher expectations of the students during simulations. When comparing Rater 2's scores to the student's self-evaluation scores it was found that there was slight or poor agreement in all domains, excluding fair agreement within the noticing domain of patient scenarios A and B ($p=0.54$ and $p<0.05$, respectively.) Although it was expected the self-

evaluations would correlate with faculty rating, we acknowledge it was possible that students did not see themselves in the same way faculty did.

Correlation between the Nutrition Care Process Evaluation Instrument and the Lasater Clinical Judgment Rubric was revealed within Patient Scenario B when comparing total weighted scores (Kappa=0.630, $p<0.01$). However, no other correlations were found, likely due to the vastly differing content of the tools. Additionally, when viewed graphically (Figure 3.1-3.32), the total score percentage comparison of the LCJR versus the NCPEI showed the LCJR provided overall lower scores than the NCPEI for all patient scenarios. Though the Nutrition Care Process Evaluation Instrument was modeled after the Lasater Clinical Judgment Rubric, the Lasater was originally developed to evaluate nursing students in clinical scenarios. The Lasater contained broader expectations of student performances based solely on observation and some domains exclusively focused on nursing-related tasks, i.e. "shows mastery of necessary nursing skills." Specifically created to assess clinical judgment in dietetic students, the Nutrition Care Process Evaluation Instrument contained detailed explanations of performance domains as well as checklists encompassing components of the Nutrition Care Process students were expected to accomplish. Observing the clinical judgment of nurses may be too different than observing clinical judgment in dietitians. For example, much of the scoring of clinical judgment in the present study was based upon nutrition care plan documentation, whereas the LCJR for nursing involved more patient contact observation and less documentation, though both aspects can reflect clinical judgment. Furthermore, dietetic students were able to improve upon their care plans utilizing information obtained during debriefing sessions after each patient encounter. Not dissimilar from clinical practice, many components of the ADIME documentation could be corrected before student submission excluding some aspects of the noticing/assessment domain (i.e. introducing themselves to the patient.) Since no validated tool currently exists to exclusively measure clinical judgment of dietetic students, future work in establishing validity of the new tool may prove difficult. To mimic the study in which the LCJR's reliability and validity was

established (as cited in the literature review of this study), future research of the NCPEI should require preliminary testing utilizing recorded scenarios as "anchor" or standardized performances.(9) A larger sample size would also be warranted and raters may be required to watch video-recordings of observations prior to finalizing scores assigned for each student.(9)

Overall, reliability of the Nutrition Care Process Evaluation Instrument was not fully established, possibly due to the vast differences in raters, issues with scheduling raters, and the subjective nature of the assessment. The lack of statistical significance within many domains may be attributed to the smaller sample sizes Rater 3A (n=12) and 3B (n=4) examined. Additionally, correlation between the Nutrition Care Process Evaluation Instrument and the Lasater Clinical Judgment Rubric was revealed within Patient Scenario B, however, no other correlations were found. This may be due to the vastly differing contents of the Nutrition Care Process Evaluation Instrument compared with the Lasater Clinical Judgment Rubric.

Limitations

The researcher identified several limitations to the simulations and this study. Due to the Dietetic Internship Program schedule, at the time of the simulations roughly half of the students' had little to no clinical experience whereas the other half had completed 16 weeks of clinical rotations. It was anticipated that this could cause greater intimidation and stress in individuals who had not completed clinical rotations preceding the simulations, having little prior knowledge of clinical scenario workflow. In the study this research amends, however, no statistical difference in grades was seen between students who had completed clinical rotation versus those who had not at the time of the simulations.(27) Furthermore, anecdotes from those without clinical experience found the simulations to be a good transition from the classroom into clinical rotations. One student stated, "In the simulation, I had to have a much deeper thought process [than in the classroom.]" As expected however, most students, including both those who had and had not completed clinical rotations, found the simulations somewhat daunting and difficult to

navigate initially. Many of the aspects students' found frustrating were intentionally performed to emulate real-life clinical scenarios. By the end of the debriefing discussion students agreed they might rely on an itemized checklist or detailed explanation too much, which could have taken away from the simulation experience and not allowed them to "learn on their own." Though a small amount of stress was expected, ideally, future research or clinical use of the Nutrition Care Process Evaluation Instrument would control for participants' degree of prior clinical experience.

Additionally, notable differences existed among raters that may have effected reliability in this study; Rater 1 and Rater 3B were both second-year Masters students who had completed the simulation scenarios as participants one year prior and had no previous experience observing students in an educational setting; Rater 2 was the participating students' Medical Nutrition Therapy professor, observed simulation scenarios one year prior, and was most in-tune with students' background knowledge on the topics presented during simulation; Rater 3A did not teach or practice clinical nutrition at the time of the simulations, though Rater 3A was the Dietetic Internship Director and familiar with students' performances during dietetic internship clinical rotations. This study was not blinded due to raters' history with participating students and their ability to identify students simply through observation. This limitation was addressed by using student identifiers, rather than names, though the researcher acknowledges the effort might have been futile.

Next, scheduling conflicts required the rating positions to be occupied by more than one rater, and at times, prevented an eyewitness account of students' performances. During these times and due to additional time constraints, Rater 3A completed the Nutrition Care Process Evaluation Instrument exclusively using the documentation notes submitted by students. All components of the Nutrition Care Process Evaluation Instrument may be evaluated solely from the documentation notes, possibly excluding some components of the assessment/noticing domain. Notably, within the assessment/noticing domain Rater 3A was found to have significant moderate agreement with Rater 2 in patient scenario A ($p<0.0001$), significant fair agreement in

patient scenario B ($p<0.05$), and slight agreement in patient scenario C ($p=0.0894$, not statistically significant.) Conversely, total scores given by Rater 2 and 3A were found to have slight agreement in patient scenario A ($p=0.075$) but poor agreement in patient scenarios B and C. Therefore it appears the absence of an eyewitness account of student performances may not significantly alter scores within the assessment domain, though it may still significantly affect overall scores. In order to appropriately determine this, future research should compare scores provided through eyewitness accounts versus those based solely off documentation notes.

Most evaluations were returned within one to two weeks of the simulations while some were completed up to two months after. The large time-lapse between simulation occurrence and completion of the evaluations likely caused a strain in memory of actual events that took place and possibly effected scores given to those students. Overall, fluctuation of raters and large time-lapse between initial simulation occurrence and completion of the evaluation undoubtedly interfered with the consistency of evaluations between students and potentially limited the accuracy of the reliability statistics. Future research may choose to focus on larger and more diverse samples and require total participation of raters to improve consistency within the study.

Moreover, due to limitations with sample size and study design the researcher could not draw conclusions regarding the validity of the Nutrition Care Process Evaluation Instrument. Only one rater completed the validated assessment tool, the Lasater Clinical Judgment Rubric, and the researcher was therefore unable to determine validity of the Nutrition Care Process Evaluation Instrument. In order to properly validate the Nutrition Care Process Evaluation Instrument, a much larger sample size would be warranted. Ideally, future research would require all raters to complete both the validated assessment tool and the newly developed tool in order to appropriately determine the validity of the Nutrition Care Process Evaluation Instrument.

Lastly, patient-scenario simulations using high-fidelity mannequins require a significant amount of time for preparation and operation of the simulations. An extensive commitment is required from the researcher, committee, faculty and students. Educational institutions with

limited time and fiscal resources may find this environment difficult to emulate however, as mentioned, the tool has utility beyond simulated settings.

Implications

Strengths of this study included the use of mannequin-based simulation and incorporation students of other professions into the simulation. Moderate-fidelity mannequins provided students the opportunity to practice and refine clinical management and counseling techniques on a standardized patient. Distinctive clinical conditions otherwise difficult to assess outside of real-life cases were presented to students through the use of high-fidelity mannequins. These included but were not limited to tube-feedings, colostomies, and presentation of disease state and deficiency signs and symptoms. Additionally, patient-provider interaction allowed students to practice and refine counseling techniques discussed in the classroom. To effectively assess and prioritize care of patients in the workplace, dietitians are required to communicate with other health professions to gather pertinent patient information. Registered Dietitians commonly consult with doctors, nurses, respiratory therapists, social workers and pharmacists to gather patient family history, medical history, medications, laboratory values, diet history, diet recalls and anthropometric measurements. Addition of nursing students to the simulations allowed dietetic students to practice interprofessional communication and learn the roles and responsibilities of nurses and vice versus.

Overall, students found the simulations enjoyable, informative, and helpful in the transition from the classroom into clinical practice. Students specifically appreciated the immediate feedback provided during debriefing sessions. Though students are routinely observed during clinical rotations, many do not receive extensive critiques on their performance. Students often elaborated on their own clinical judgment processes during debriefing and frequently answered their own questions during this time, demonstrating enhanced critical thought

processes. Largely, students felt the scenarios were realistic and that they would utilize the knowledge gained in future clinical practice establishing the benefits of incorporating simulation into dietetics education.

In March of 2013, the Academy of Nutrition and Dietetics (AND) released a report from the collaborative meeting of Accreditation Council for Education in Nutrition and Dietetics (ASCEND), Commission on Dietetic Registration (CDR), Council on Future Practice, Education Committee and Nutrition and Dietetics Educators and Preceptors Dietetics Practice Group.(32) The visioning report detailed expectations for the future of dietetics practice including incorporating "experiential learning" into undergraduate degree programs. The contributors agreed integrating realistic learning opportunities into existing plans would enhance students' critical thinking, communication, and management skills and better prepare them for the workplace, as demonstrated in this study.(32) The council recommended ACEND revise curriculum to include requirements for experiential learning outside of the classroom, specifically noting simulations as a method to do so.(32) Moving towards practice-based competencies opens a field of questions as to how to evaluate performance. If and when these changes occur, the Nutrition Care Process Evaluation Instrument would provide a standardized assessment of student performance during experiential learning opportunities.

In an effort to mirror the Lasater Clinical Judgment Rubric, the Nutrition Care Process Evaluation Instrument utilized three domains of student placement starting with "beginner," "meets expectations," and ending with "exemplary." A "beginner" was defined as someone who identified less than sixty percent of expected pertinent information, was confused by the clinical situation and had difficulty with or did not interact with the patient or healthcare professionals. They might have required frequent prompting and had difficulty focusing and distinguishing appropriate diagnosis and interventions. This person was expected to be in the educational process towards becoming a Registered Dietitian but most likely had not yet practiced independently in a clinical setting. A person who "met expectations" identified sixty to seventy-

five percent of pertinent information but might not have recognized some obvious patterns. They addressed and implemented relevant interventions and monitoring and evaluation methods but could have improved speed or accuracy. This person generally communicated well with patients and healthcare providers but did miss some interprofessional opportunities. A person who "met expectations" was expected to be in the end process of their Dietetic Internship, Registered Dietitian-eligible, or a newly Registered Dietitian in the beginning process of working independently in a clinical setting. Lastly, an "exemplary" person included more than seventy-five percent of important information, recognized and analyzed major changes in patient conditions and responded appropriately. This person communicated effectively with the patient and other healthcare providers and was calm and confident in their approach. An "exemplary" performance would be expected from seasoned Registered Dietitians in the workplace.

For future research or use, modification of these placement domains may be warranted. As the CDR moves towards competency-based evaluation, utilization of the Nutrition Care Process Evaluation Instrument may need to align with AND's terminology.(32) As defined by AND, there are three levels of practice: a competent practitioner, a proficient practitioner, and an expert practitioner.(33) A "competent practitioner" aligns with the Nutrition Care Process Evaluation Instrument's "meets expectations" in that it may be a newly registered or entry-level Dietitian in the workplace.(33) This person requires on-the-job training and continuing education to develop their knowledge and skills.(33) A person who is a "proficient practitioner" has been a Registered Dietitian for more than three years and is practiced in their current position.(33) A proficient practitioner aligns best with the Nutrition Care Process Evaluation Instrument's "exemplary" domain, as this person is required to be well established as a Registered Dietitian in the workplace. AND further categorizes practitioners into a third and final domain, an "expert practitioner."(33) They define an expert practitioner as a Registered Dietitian who has mastered their particular area of practice and demonstrates leadership and ingenuity within the field.(33) An expert may have special certifications or advanced degrees in their focus area.(33) Since the

Nutrition Care Process Evaluation Instrument was developed to measure clinical judgment of dietetic students during simulation scenarios, it was not believed to be necessary to expand the domains beyond a competent and proficient practitioner. For this reason, it may be necessary to incorporate those two terms (competent, proficient) to replace "meets expectations" and "exemplary", respectively, while maintaining a "beginner" category to capture student performances the tool was originally developed for.

Though reliability was not fully established, future research may ascertain reliability and possibly validity of the Nutrition Care Process Evaluation Instrument. In case of this, the Nutrition Care Process Evaluation Instrument would be the first validated assessment tool specifically developed to assess clinical judgment of dietetic students. The tool could be used to assess and better understand dietetic students' clinical judgment and communication skills in both simulated and clinical settings. Dietetic Internship Directors, professors, and preceptors alike may utilize the tool as a formative and/or summative evaluation method for students and dietetic interns. The tool leaves room for adaptation to varying patient situations and is not strictly limited to simulated scenarios. Additionally, with the proposed domain name changes to the Nutrition Care Process Evaluation Instrument, employers may use the tool as a benchmark for appropriate interprofessional and clinical nutrition care expected from new-to-seasoned Registered Dietitians in the workplace. Further studies are needed in order to validate and prove reliability of the Nutrition Care Process Evaluation Instrument before incorporating its use into everyday practice, though the current study shows a promising future.

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APPENDIX A

IRB APPROVAL

The University of Kansas Medical Center

Human Research Protection Program

APPROVAL OF PROTOCOL

January 5, 2015

Heather Gibbs: hgibbs@kumc.edu

Dear Heather Gibbs:

On 1/5/2015, the IRB reviewed the following submission:

Type of Review:	Modification
IRB#:	STUDY00000616
Title:	Incorporating Interprofessional Simulations in Dietetics Education
Investigator:	Heather Gibbs
IRB ID:	MOD00004654
Funding:	None
Exemption Category:	Other
Documents submitted for the above review:	• Dietetics Simulation Protocol • Nutrition Care Process Evaluation • Lasater Clinical Judgment Rubric Final • Nursing Consent Letter • Dietetics Consent Letter
Additional Study Personnel:	Stephanie Garver

The IRB approved the study as of 1/5/2015. In conducting this protocol, you are required to follow the requirements and Standard Operating Procedures posted on our website at: http://www.kumc.edu/compliance/human-research-protection-program/institutional-review-board.html

Sincerely,

Karen Blackwell

APPENDIX B

PRE-SURVEY FOR DIETETIC STUDENTS[4]

Roles of Healthcare Professionals and Confidence in Communicating with Others Healthcare Professionals (Pre-Test for Dietetics Students)

1. All dietetics students in DN 826 are required to participate in the simulations as part of the curriculum; however, participation in the research component is voluntary. Students will be video-recorded for educational purposes related to the simulation exercise. The researchers will protect your information, as required by law. Absolute confidentiality cannot be guaranteed because persons outside the study team may need to look at your study records. The researchers may publish the results of the study. If they do, they will only discuss group results. Your name will not be used in any publication or presentation about the study. Video recording of the simulations will be labeled with your participant number. They will be encrypted, password protected for sharing purposes within the research team. Video recordings will be stored on a separate USB or data device. The data device(s) will be kept in a locked drawer for a maximum of 3 years and then will be destroyed. The data will be encrypted, coded and password protected for sharing purposes with the research team. I consent to be video-recorded during the simulation exercise:
    a. Yes
    b. No
2. I give my consent freely to participate in this study.
    a. Yes
    b. No
3. Which of the following statements is NOT true regarding the patient assignment process for Nurses:
    a. Each patient is assigned to a Nurse
    b. Patients may be assigned to both an RN and Unlicensed nursing personnel (CNA, PCT)
    c. There is a screening process by which patients are determined to be at risk and then a nurse is assigned to care for them.
    d. Patients with lower acuity may be cared for by a CNA only.
4. Sometimes the roles of the interprofessional team members overlap. Identify the situation where there is role overlap
    a. The nurse has never suctioned a patient's airway so he/she asks the respiratory therapist to do it.
    b. The nurse and the dietitian provide diabetes education.
    c. The physician orders a dietitian consult.
    d. The dietitian is consulted for tube feeding recommendations.
5. A nurse recognized the dietitian had not been consulted by the physician to see a patient who was newly diagnosed with diabetes. The nurse contacted the dietitian and asked if she could make time to provide nutritional education before the patient was discharged. The nurse demonstrated which of the following?
    a. Used the full scope of knowledge, skills, and abilities of available health professionals and healthcare workers to provide care that is timely and efficient.
    b. Improper delegation of tasks.

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[4] Gibbs H, George K, Barkley R, Meyer M. Using Multiple Patient Simulations to Facilitate Interprofessional Communication Between Dietetic and Nursing Students and Improve Nutrition Care Process Skills. Topics in Clinical Nutrition (Under Review April 2015).

    c. Gave timely, sensitive, instructive feedback to others about their performance on the team.
    d. Was careful not to use jargon when communicating with patients and families.
6. There is role overlap between the dietitian and the RN related to the administration of tube feeding. Which of the following statements is correct?
    a. Making specific tube feeding recommendations is central to the role of the dietitian.
    b. It is the responsibility of the RN to assess for complications and patient intolerance of the tube feeding.
    c. Dietitians commonly administer intermittent tube feedings.
    d. Nurses are responsible for monitoring nutrients provided.
7. I understand the role of RNs and unlicensed nursing staff in patient care.
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
8. The role of other healthcare professionals has been addressed in my coursework?
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
9. How many weeks of clinical rotations have you had in your dietetic internship?
    a. 0 weeks
    b. 1-6 weeks
    c. 6-12 weeks
    d. 12 weeks or more
10. I am confident in my ability to effectively gather patient information from a medical chart and understand what other healthcare professionals are communicating.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
11. I am confident in my ability to communicate patient care information to other healthcare professionals via the electronic medical record.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
12. I am confident in my ability to communicate patient care information to other healthcare professionals via face to face interactions or on the phone.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
13. I am confident in communicating my role as the nutrition expert to other professionals on the healthcare team.

a. Strongly Agree
b. Agree
c. Neutral
d. Disagree
e. Strongly Disagree

14. It is important to collaborate with other healthcare professionals to provide effective patient care.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
15. I have had opportunities during my dietetic education to reflect on team performance with other professionals in order to determine how and where improvements in patient care can be made.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree

What do you see as barriers to effectively communicating with other professionals?

APPENDIX C

POST-SURVEY FOR DIETETIC STUDENTS[5]

Roles of Healthcare Professionals and Confidence in Communicating with Others Healthcare Professionals (Post-Test for Dietetics Students)

1. Which of the following statements is NOT true regarding the patient assignment process for Nurses:
    a. Each patient is assigned to a Nurse
    b. Patients may be assigned to both an RN and Unlicensed nursing personnel (CNA, PCT)
    c. There is a screening process by which patients are determined to be at risk and then a nurse is assigned to care for the patient.
    d. Patients with lower acuity may be seen by a CNA only.
2. Sometimes the roles of the interprofessional team members overlap. Identify the situation where there is role overlap
    a. The nurse has never suctioned a patient's airway so he/she asks the respiratory therapist to do it.
    b. The nurse and the dietitian provide diabetes education.
    c. The physician orders a dietitian consult.
    d. The dietitian is consulted for tube feeding recommendations.
3. A nurse recognized the dietitian had not been consulted by the physician to see a patient who was newly diagnosed with diabetes. The nurse contacted the dietitian and asked if she could make time to provide nutritional education before the patient was discharged. The nurse demonstrated which of the following?
    a. Used the full scope of knowledge, skills, and abilities of available health professionals and healthcare workers to provide care that is timely and efficient.
    b. Improper delegation of tasks.
    c. Gave timely, sensitive, instructive feedback to others about their performance on the team.
    d. Was careful not to use jargon when communicating with patients and families.
4. There is role overlap between the dietitian and the RN related to the administration of tube feeding. Which of the following statements is correct?
    a. Making specific tube feeding recommendations is central to the role of the dietitian.
    b. It is the responsibility of the RN to assess for complications and patient intolerance.
    c. Dietitians commonly administer intermittent tube feedings.
    d. Nurses are responsible for monitoring nutrients provided.
5. I understand the role of RNs and unlicensed nursing staff in patient care.
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
6. The role of other healthcare professionals has been addressed in my coursework?

[5] Gibbs H, George K, Barkley R, Meyer M. Using Multiple Patient Simulations to Facilitate Interprofessional Communication Between Dietetic and Nursing Students and Improve Nutrition Care Process Skills. Topics in Clinical Nutrition (Under Review April 2015).

    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
7. Overall, the simulation was a valuable experience in helping me learn the role of other healthcare professionals in patient care.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
8. The simulation enhanced my appreciation for interprofessional teamwork.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
9. How did this experience help you learn more about your role within in the healthcare team?
10. How does interprofessional teamwork enhance quality patient care?
11. How will you apply what you learned during the simulation in your future career?
12. I am confident in my ability to effectively gather patient information from a medical chart and understand what other healthcare professionals are communicating.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
13. I am confident in my ability to communicate patient care information to other healthcare professionals via the electronic medical record.
    a. a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
14. I am confident in my ability to communicate patient care information to other healthcare professionals via face to face interactions or on the phone.
    a. a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
15. I am confident in communicating my role as the nutrition expert to other professionals on the healthcare team.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree

16. It is important to collaborate with other healthcare professionals to provide effective patient care.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
17. I have had opportunities during my dietetic education to reflect on team performance with other members of the healthcare team in order to determine how and where improvements in patient care can be made.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
18. This activity enhanced my interprofessional communication skills.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree
19. What do you see as barriers to effectively communicating with other professionals?

Additional feedback you would like to share

APPENDIX D

INTERPROFESSIONAL SIMULATION ASSIGNMENT SHEET[6]

Interprofessional Simulation Assignment Sheet

100 points total

Purpose: The purpose of the interprofessional simulations is to practice clinical skills in a safe environment, while working collaboratively with students in other healthcare disciplines. The simulations will increase exposure to the roles of other members of the healthcare team and facilitate the development of communication skills amongst healthcare professionals. Students will be debriefed as a team to provide the opportunity to reflect on the patient cases and ask questions that may arise regarding the care of the simulated patients. Following the simulations, students will prepare an ADIME note for each patient in order to demonstrate professional skill, efficiency in communication, and understanding of the nutrition care process. In participating in the simulations, students will fulfill competencies laid out by the Commission on Dietetic Registration and University of Kansas Interprofessional Competencies.

Student Learning Objectives:
Student will be able to:

1. Review the electronic medical record and obtain information pertinent to nutrition care from the EMR, patient, family, and other health professionals.
2. Utilize standardized language and the Nutrition Care Process to document (ADIME format, Academy of Nutrition and Dietetics) the patient's nutritional assessment and nutrition diagnosis.
3. Communicate with other health professionals to plan dietary interventions that are expected to effectively address the nutrition diagnosis and document accordingly (ADIME).
4. Apply appropriate nutritional interventions and counsel patients, as determined by the dietetic student.
5. Determine monitoring and evaluation methods that will ensure continuation of nutritional care and document/communicate accordingly (ADIME).

Tasks:

1. Sign up for a simulation during the two-week block in January/February. If you have started your internship rotations, you will need to let your preceptor know you will be absent. Rachel Barkley has agreed to allow you to count 3 hours toward your internship hours for the simulation. Note that the January 21 and 22 simulations are prior to the beginning of classes for the semester.
2. Complete the Simulation Pre-Test Evaluations in Blackboard prior to your simulation.
3. Log into your SEEDS account to obtain information for these three patients: Millie Thompson, Greg Peterson, and Parker Richards. SEEDS is the electronic medical record used for the simulated patients. You should feel as though you are a dietitian logging into the EMR at the beginning of the day to look up your patient information.

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[6] Gibbs H, George K, Barkley R, Meyer M. Using Multiple Patient Simulations to Facilitate Interprofessional Communication Between Dietetic and Nursing Students and Improve Nutrition Care Process Skills. Topics in Clinical Nutrition (Under Review April 2015).

    a. Here is a HINT: Please come prepared with enteral nutrition recommendations for Greg Peterson based on needs you calculate. This will be an important part of the simulation and help things run more smoothly.
4. Prepare any educational materials you anticipate you may need in caring for the patients. For example, you may need educational handouts for counseling on diabetes and for counseling a patient with a colostomy. The Nutrition Care Manual is a good source for these handouts. I would also suggest reviewing the nutrition-focused physical exam, as this may come in useful.
5. Prior to the simulations, please review the Nutrition Care Process Evaluation Instrument (available in Blackboard). The evaluators will be using this tool to grade your performance. Additionally, you will use this instrument to perform a self-evaluation after the simulations. Please contact Stephanie Garver (sgarver@kumc.edu) with any questions regarding the evaluation instrument.
6. Arrive to the simulation prepared to participate in the care of the three patients and interact with other students in the healthcare professions. Please bring calculators! Clipboards should be provided. You will participate in the group debriefing sessions. You will also be debriefed as a group in class once all dietetic students have had a chance to participate in the simulations.
7. Fill out the Simulation Post-test Evaluations in Blackboard by February 9.
    a. You will be required to fill out these pre-test and post-test evaluations in Blackboard. These surveys will measure your knowledge of the roles of other healthcare professionals and confidence in communicating with the professionals before and after the simulation. You will have the option of allowing us to use this data for research that will help us analyze the outcomes of incorporating this type of learning activity into the curriculum for future dietetics students. We REALLY appreciate your feedback!
8. You will be required to create an ADIME note for each patient that you cared for during the simulation. The ADIME note will be graded on the Nutrition Care Process Evaluation Instrument provided. Documentation notes must be completed and submitted to the professor within 2 hours of the conclusion of the simulations.
9. Complete the Nutrition Care Process Evaluation Instrument for self-evaluation by February 9. Nutrition Care Process Evaluation Instrument forms may be completed online or hard copies will provided at the time of the simulations. Forms must be submitted to the professor by email or blackboard.
    a. To aid in completion, recordings of simulation debriefing sessions will be provided for each student. Other students will not have access to your individual recording. Please evaluate yourself as honestly as possible; your self-score is strictly for research purposes and will not affect your overall grade.

Grading

Participation in the simulation will be on a pass/fail basis. In order to pass, students must arrive on time and demonstrate they have prepared for the simulation (i.e. have EN recommendations and educational materials). Students must also be actively engaged in the care of the patients during the simulation and be involved in the debriefing period. Students are also required to fill out the pre-test and post-test evaluations in Blackboard and complete a self-evaluation using the Nutrition Care Process Evaluation Instrument. (70 pts)

You will also receive a grade on each of your ADIME notes. They will be graded on the Nutrition Care Process Evaluation Instrument. ADIME notes should be submitted within two hours after completing the simulations (30 pts)

If you have any questions regarding the simulations or find out you will not be able to be present at the time you have signed up for, please contact Dr. Gibbs or Stephanie Garver (sgarver@kumc.edu) as early as possible.

APPENDIX E

SIMULATION PATIENT CASES[7]

DN 826 Interprofessional Simulations

Notes:

- Make sure students bring calculators, bring educational materials (diabetic, colostomy), review nutrition focused physical exam, bring EN recommendations for Greg Peterson.

Before the simulation:

- RD students will be oriented. Then I will prebrief the RD student and ask them what they found out and plan for each patient. Steer them in the right direction.

Greg Peterson:

- 60 y/o male admitted with aspiration pneumonia. Patient is paraplegic d/t MVA. He had a tracheostomy and PEG placed 10 years ago. He receives bolus feedings TID at the nursing home where he resides. He does have a speaking valve for communication. He experiences episodes of delirium.
    - Order for EN in chart, but it is unclear what he was getting at the nursing home.
        - RN holding EN until RD's rec's are in because of consult in EMR for RD rec
- EN: Patient receives boluses TID of 250 mL + 100 mL water via PEG tube
    - Provides 795 kcal, 300 mL free water + 626 mL water in formula = 926 mL water; 33 g protein
        - Does not meet DRI's (needs 1321 mL)
    - Unspecific tube feeding formula is in the ORDERS. i.e. "receives bolus feeds tid at nursing home"
        - RD student should ask patient what he is given at nursing home
        - RD student should make the calculations to determine appropriate TF recommendation
            - RD student communicate final recs to physician and RN
    - Multivitamin not in medications section of chart.
        - RD student must identify need for MVI and recommend to physician.
- Incorporating Dietetics (Round 1):
    - To start the simulation out, there should be a consult in the EMR from the physician for the RD student to provide enteral nutrition recommendations. Cue is that RN's are waiting for RD recommendations to give tube feeding.
    - Weight should be in chart so dietetics student can assess needs:
        - Patient is 5'10" and weighs 154 lbs.
            - RD student will use to calculate EN needs & make rec's.

[7] Gibbs H, George K, Barkley R, Meyer M. Using Multiple Patient Simulations to Facilitate Interprofessional Communication Between Dietetic and Nursing Students and Improve Nutrition Care Process Skills. Topics in Clinical Nutrition (Under Review April 2015).

- RD student will come prepared with their recommendations and do an assessment on the patient. They will then call the physician with their recommendations. If the RD student does not call, the physician should call the RD to ask for rec's. The RD student should then communicate these recommendations to the RN so the RN can provide the tube feeding.
    - If RD student interviews the patient, see script for patient.
        - In most clinical settings, the RD would like to see the patient first if possible before making recommendations.
            - Please prompt for this to happen if the RD student does not pick up on it.
        - RD student should ask what TF patient is receiving at nursing home, determine it is inadequate.
    - RD student should recommend switching to continuous feeding and considering feeding into the intestine (d/t aspiration) and make recommendations appropriate to energy and protein needs.

- <u>Debriefing #1:</u>
    - Let RN students know that RD sees patient due to screening process or if consulted by the doctor to see the patient.
        - This should cue the RN students to ask the doctor for a consult for Parker Richards since he was asking VERY SPECIFIC questions to the diet tech during round 1 when his breakfast was delivered.
        - The diet tech needs to communicate to the RN that the patient was asking questions.
            - Please make sure tech communicates with RN that Parker Richards was wanting diet education.

<u>Parker Richards:</u>

- 26 y/o male admitted to ICU with DKA. BG >500 with increased anion gap. PMH includes T1DM. He is on diabetic diet (unspecified kcal) with ACHS finger sticks and SS insulin. Discharge tomorrow.
- Patient Chart:
    - Height included (5'9"), weight omitted.
        - RD student must ask RN for weight so they can figure out CHO exchanges needed.
        - RN should know patient is 5'9" 142 pounds.
    - Meds: Insulin Regular 5 units with meals; long-acting insulin (Lantus).
        - Parker Richards will ask specific questions regarding insulin regimen
            - Prompt RD to refer to pharmacy, physician, or RN for questions regarding insulin
- <u>Incorporating Dietetics (Round 2):</u>
    - RD Student will provide diet education.
        - Student should come prepared with any educational materials needed.
    - See script for questions the student (patient) will ask the RD
    - GTA will listen to the education to evaluate the student

- Debrief #2:
  - GTA will give the RD student feedback individually regarding the education provided in round 2.
  - RD student may let RN and RT students know what he/she discussed during education.

Millie Thompson:

- 70 y/o female admitted with ischemic bowel confirmed by KUB and CT.
- Currently POD #4 s/p bowel resection with permanent colostomy.
- Chart states on broad spectrum antibiotics prior to surgery
  - Should prompt RD student to recommend probiotics.
- PMH: Crohn's CHF with murmur, arthritis, chronic back pain, anxiety, depression, numbness and tingling of extremities, fatigue
    - Fatigue: additional cue for the RD student to suspect B12 deficiency
- Diet: clear liquid
- During simulation (round 3) she tests positive for C. diff
- Incorporating Dietetics (Round 3):
  - RD is prompted to see patient due to a screening process that alerts the RD the patient is at risk.
    - Screen that shows the patient has had unintentional weight loss of ~7 lbs in 3 months
      - RD student should interview patient to confirm weight loss
        - Actual weight loss of 13 pounds in last 3 months → concerning, severe
        - This should prompt the RD student to assess for malnutrition and dehydration
      - RD student should also find out that patient has had poor appetite and decreased intake prior to coming to the hospital
  - Anthropometrics: Patient is 5'2" and weight is omitted
    - Prompt RD to consult RN who will know patient weights 102 lbs.
    - RD student to calculate BMI and % weight loss
      - BMI: 18.7 (low normal)
      - % weight loss: 11.3% in 3 mo = severe
  - RD student should interview patient to find out about weight loss.
  - RD to advance diet d/t diarrhea and severe wasting.
  - RD student could counsel patient on colostomy diet.
    - The NCM has handout and guidelines (i.e. avoid practices that contribute to swallowed air and gas formation; small bites and chew thoroughly; avoid odor and gas-causing foods and foods that could cause obstruction; add foods that may decrease odor; add foods that may thicken stool).
      - If RD student interviews patient or provides diet education, a script will be provided for patient.
    - RD student could assess patient and do nutrition focused physical exam.

- In this case, sticky notes will be placed on patient regarding physical S/S of nutrient deficiencies:
    - Could be done while setting up for round 3.
    - B12: angular stomatitis around mouth, glossitis of tongue
    - Iron: nail onycholysis, pale on inside of eyelid
    - Dehydration: decreased skin turgor; dry eyes, lips, skin
- RD student should recommend probiotics and communicate with the physician. May alert RN.
- RD student may recommend nutrition support; include as part of ADIME note

- Debrief #3
    - GTA will give the RD student feedback individually regarding the education provided in round 3.
    - RD student may let RN and RT students know what he/she discussed during education.

Final debriefing:

- Discuss:
    - How RN's and aids work together with patient care
    - RD's see patients due to screening process and physician consults usually.
        - If RN sees patient needs diet education, ask physician to consult RD.
    - Role of RD and RN in tube feeding administration
        - RD primarily makes specific recommendations
        - RN can make broad rec's and administers the feeding
    - RD may or may not write diet orders
        - May monitor them and makes recommendations to the physician.
        - Physician has final say of diet order
    - RDs may not write tube feeding recommendations, must consult physician
        - Usually notify RN of plans for TF
    - Clinical RD is usually not involved with preparing or serving patient meals, but works closely with the foodservice division to ensure diet and food served is accurate.
    - RD needs accurate anthropometrics measurements to make correct estimates for energy and protein needs, especially for tube feeding.

RD student role in educating diabetic patient usually does not involve specific insulin regimens, but focuses on CHO counting, hypoglycemia mgmt., and may refer to outpatient RD.

APPENDIX F

PATIENT SCRIPTS FOR GTA[8]

Script for Parker Richards and Diet Tech (Round 1):

- Patient will be asking diet tech specific questions regarding diabetes and diet. Diet tech is dropping off breakfast.

Diet Tech: Hello, here is your breakfast; I will just sit it here on your table.
PR: Thanks. I had some questions about what I am supposed to be eating. I was confused when I placed my order because they told me I ordered too many carbohydrates. I don't even know what a carbohydrate is or why I should care about them.
Diet Tech: Well, they are limiting the carbohydrates you can order so that you can better control your blood sugars. Most diabetics that are in the hospital are placed on a diabetic diet. Has the dietitian talked to you yet?
PR: No. The doctor told me I would have to follow a particular diet, but no one has talked to me about it yet. I am really worried about going home and continuing to eat the things I have been. I will probably end up back here again.
Diet Tech: Let me speak with you nurse and see if we can get someone in here to give you more information.

Script for Diet Tech and RN (Round 1):

- Diet tech is communicating with RN about Parker Richards' concerns:

Diet Tech: Hi, are you the nurse who is taking care of Parker Richards?
RN: Yes, he is one of my patients today. How can I help you?
Diet Tech: Well, I was dropping off his breakfast and he was very confused about his diabetic diet. There are several questions he needs answered. I think it might be best if the dietitian speaks with him. Can you ask the patient's doctor to contact the RD for this floor?
RN: Sure, I will see if I can get ahold of them.

Cue in Round 1 for RD Student to see patient and make EN recommendations:

- RN is waiting for enteral nutrition recommendations before giving the bolus tube feeding to the patient.

Call from physician to RD (Round 1):

- This should occur AFTER the RD has interviewed the patient.
- Physician wants tube-feeding recommendations for Greg Peterson.

Physician: Hello, this is Dr. XX. I was wondering if I could get tube feeding recommendations for Greg Peterson. I believe he has been receiving bolus feedings through his PEG tubes previously.
RD Student: answer with recommendations

[8] Gibbs H, George K, Barkley R, Meyer M. Using Multiple Patient Simulations to Facilitate Interprofessional Communication Between Dietetic and Nursing Students and Improve Nutrition Care Process Skills. Topics in Clinical Nutrition (Under Review April 2015).

Script for Greg Peterson (Round 1):

- Patient is interacting with RD student during assessment so RD can make EN rec's. GP has speaking valve.

RD Student: (should introduce herself)

This will really depend on the RD student, so here is a list of answers to questions that might come up:

What tube feeding formula (enteral formula) were you on before you came in?
GP: I'm not sure. They fed it to me through my PEG tube at meal times.
Were you having any difficulty tolerating the tube feeding at the nursing home?
GP: No, not that I can remember. I've had my PEG tube for almost 10 years. Recently I have started coughing a little bit after they feed me though. They say I might be aspirating.
Have you experienced any weight loss lately?
GP: I don't think so, but I'm not sure. I lost weight after my accident and couldn't eat.
Can you tell me your usual body weight?
GP: Oh, I'm not sure, I think it might be somewhere around 160 pounds.
Are you having any GI symptoms such as nausea, vomiting, diarrhea, etc. currently?
GP: No, I'm just hungry because they haven't fed me since I got here.
** Make sure GP communicates that he IS feeling hungry and that he was starting to choke after feedings at the nursing home. Also, he wasn't sure what formula he was getting at the nursing home, but they fed him at meal times through his PEG.

Script for Parker Richards (Round 2):

- Patient is receiving diabetes education from RD.

RD: (introduces herself)
This will depend on the RD student, but here is a list of questions that may come up:
How long ago were you diagnosed with diabetes?
PR: just when I came into the hospital.
What would you like to get from me today?
PR: I was just diagnosed with diabetes and am feeling confused about all of it. The doctor told me I am going to have to follow a certain diet to control my blood sugars, but I have never followed a diet before. I don't really even want to be on a diet. I don't want to end up back here though.
What can you tell me about diabetes?
PR: I don't know a whole lot, but I know my blood sugars are high because of my insulin or something. The doctor said I will be getting an insulin pump, are you going to show me how to use it? I'm really confused about how much insulin I should be taking and when.
Have you experienced any weight loss recently?
PR: I have always had trouble keeping weight on, but yeah, I'd say I have lost a few pounds in the last several months. Not a whole lot though.
Do you know what a carbohydrate is?
PR: I'm not really sure. Is it in pasta?
Tell me what you would eat in a typical day.
PR: Well, for breakfast I usually eat a sausage, egg, and cheese biscuit with some orange juice and coffee. Then for lunch I usually eat out with coworkers. I have to admit that it is usually fast food and I usually get a cheeseburger and fries. Sometimes I get a sandwich and

chips somewhere though. Then at dinner we usually have some meat with potatoes and vegetables and bread. I like to have a few beers with my dinner most nights.
Do you snack at night time?
PR: I like to eat ice cream while I am watching tv before bed most nights.
Do you drink anything throughout the day?
PR: In the afternoon I usually have a can of Pepsi from the vending machine. I don't like diet soda.
Do you do any kind of physical activity?
PR: I don't work out if that's what you mean. I do like to play basketball with my friends a couple nights a week. We'll play a couple games usually.
Will you be following any kind of insulin regimen at home?
PR: The doctor said I will be getting an insulin pump, are you going to show me how to use it? I'm really confused about how much insulin I should be taking and when.

Script for Millie Thompson (Round 3):

- Patient is being interviewed/assessed by RD

RD: (introduces themselves to patient)
This will depend on the student, but here are some questions that may be asked:
How are you feeling today?
MT: Not very good, just trying to recover from this surgery. I had a colostomy done and now I have terrible diarrhea. I'm just so tired; all I want to do is sleep. I can't seem to get this numbness and tingling in my hands and feet to go away either. (it has lasted ~1 mo)
Have you ever had B12 injections?
MT: The doctor has mentioned it before, but I never have actually had one.
Do you take any kind of vitamins or supplements?
MT: No, I usually try to eat pretty healthy.
Have you had any weight loss recently?
MT: Yes. I have Crohn's disease and it has been getting worse in the last year or so. They told me when I came in before my surgery that my weight was 102#. I haven't been very hungry lately and don't seem to eat as much as I used to.
What is your normal weight?
MT: At a doctor's visit three months ago it was 115#, which is usual. That is when I felt my best.
Are you tolerating the clear liquid diet okay?
MT: I was just fine until this diarrhea started up. I am hungry and feel like eating, but then afterward it goes right through me.
Do you prepare your own meals?
MT: Well, I had been before I came to the hospital. I get pretty tired when I cook, so I usually eat pretty simple meals. My daughters is going to help me when I leave.
If RD asks for typical diet or 24 hour recall:
MT: Well, I have only been eating jello and broth in the hospital.
What is a typical diet at home?
MT: I usually have a piece of toast with jam at breakfast and some tea. For lunch I usually have tomato soup and saltine crackers. At dinner time my daughter usually makes something. Sometimes we have chicken and rice or she will make spaghetti. It just really varies from day to day.
** Make sure she says she has lost weight (usual weight is 115 pounds) and that she is having diarrhea.

APPENDIX G

SIMULATION CHECKLIST[9]

INTERPROFESSIONAL SIMULATION DIETETIC STUDENT CHECKLIST

GREG PETERSON

_____ Comes prepared with EN recommendations for patient

_____ Student introduces themself as RD or dietetic intern and explains purpose for visit.

_____ Assesses tube feeding regimen and tolerance prior to coming to hospital

_____ Asks about weight loss/usual weight

_____ Communicates recommended tube feeding regimen/multivitamin to physician/nurse.

PARKER RICHARDS

_____ Consults RN for patient weight

_____Determine patient's CHO exchanges

_____Asks about current diet and knowledge of diabetic diet

_____Asks about weight loss/usual weight

_____Discusses typical day or 24 hour recall

_____Addresses carbohydrates and carbohydrate counting

_____Discusses goals for glycemic management and lab values (A1c, pre-prandial and post-prandial glucose)

_____Asks about physical activity and exercise

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_____Asks about insulin regimen or plans for insulin at home

_____Educates on hypoglycemia management

_____Educates on sick day management

_____Referral to outpatient dietitian and MD/RN/pharmacy for insulin regimen

MILLIE THOMPSON

_____ Consults RN for patient weight

_____ Determines BMI, actual % weight loss

_____ Assesses tolerance of current diet/GI symptoms

_____ Asks for diet history/typical diet/24 hour recall

_____ Addresses weight loss and usual weight

_____ Educates on colostomy diet

_____ Addresses components of nutrition-focused physical exam (B12, iron, hydration)

_____ Discusses protein for healing from surgery

_____ Consults RN/MD to advance diet, add probiotics, recommend nutrition support

APPENDIX H

FINAL ADIME DOCUMENTATION[10]

Greg Peterson

A: Patient is a 60 y/o male admitted with aspiration pneumonia. Patient is paraplegic d/t MVA. He had a tracheostomy and PEG placed 10 years ago, but can communicate with a speaking valve. He receives bolus feedings TID at the nursing home where he resides, although he is unsure of the formula. He reports that he had recently began choking on feedings after meals. He is alert and oriented but experiences episodes of delirium. RD consulted to make EN recommendations.
Current Diet Order: NPO
Current EN Order: 250 mL bolus of Jevity 1 Cal TID via PEG, flush with 100 mL flushes water at feedings. Provides 795 kcal, 33 g protein, 926 mL total water, and 54% of amount to meet RDI's.
Anthropometrics: Ht. 5'10" (177.8 cm) Wt. 154 lb. (70 kg) BMI: 22.1 Normal Range UBW (per patient report): 160 lb. (72.7 kg)
Labs: Unavailable; BP 135/82 mmHg (pre-hypertensive)
Kcal needs: 1890-2100 kcal (27-30 kcal/kg); MSJ x 1.25 = 1900 kcal
Protein needs: 56-84 g (0.8 – 1.2 g/kg)
Fluid needs: 2100 mL (30 mL/kg)

D: NI 2.3 Inadequate enteral nutrition infusion related to poor feeding tolerance as evidenced by patient reports he has not received EN feeding since being admitted to hospital. Also, current EN order only meets 42% kcal, 59% protein, and 44% fluid needs.

NI 2.1 Inadequate oral intake related to feeding intolerance and aspiration pneumonia evidenced by need for nutrition via PEG and feedings currently being held.

I: Switch from bolus gastric feedings via PEG to continuous small bowel feedings. Suggest placing nasoenteric tube. Change EN order to: Jevity 1.5 @ 55 mL/hr continuous feeds, flushing with 275 mL water q 6 hrs. At goal, will provide 1980 kcal, 84 g protein, 2103 mL total water, 100% RDI's vitamins/minerals. Initiate at 20 mL/hr and increase by 20 mL/hr q 4 hrs until goal rate is achieved. Also, maintain head of bed elevated at least 30 to 45 degrees. If patient not tolerating EN due to fiber content, recommend Osmolite 1.5 @ 55 mL/hr continuous feeds, flushing with 275 mL water q 6 hrs.
M/E: This RD will monitor for placement of tube, initiation, and route of feeding. Once feedings begin, will monitor for signs of intolerance such as n/v/c/d, and further choking. Also monitor I/O, hydration status, weight/weight change, labs (Na, K, Mg, Phos, Alb).

Parker Richards

A: Patient is a 26 y/o male/female (depends on student) with newly diagnosed Type 1 DM. He was admitted to the ICU with DKA with BG 500 mg/dL and anion gap. Patient is currently stable and plans to d/c tomorrow; he requested nutrition education. RD was consulted for diabetic education.

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[10] Gibbs H, George K, Barkley R, Meyer M. Using Multiple Patient Simulations to Facilitate Interprofessional Communication Between Dietetic and Nursing Students and Improve Nutrition Care Process Skills. Topics in Clinical Nutrition (Under Review April 2015).

Current Diet Order: Diabetic (unspecified)
Anthropometrics: Ht. 5'9" (175.3 cm) Wt. 142 lbs. (64.5 kg) BMI 21 (normal range)
UBW: ~145-150 lbs. per patient report
Labs: BG currently in normal range (was 500 mg/dL on admission)
Medications: Lantus, Regular Insulin with meals, SS insulin regimen (2-6 units)
Kcal Needs: male: 2480 – 2650 kcal (Harris-Benedict with AF 1.5-1.6); female; 2172 to 2315 (H-B for female with AF 1.5 to 1.6)
Protein: 93-133 g (15-20% kcal); will accept 1.0 to 1.3 g/kg = 64-83 g
Fluids: 1935 mL (30 mL/kg)

Diet History: Diet is high in processed and refined carbohydrates and in low-quality fats, while it is low in fruits, vegetables, whole grains, lean sources of protein, and higher quality fats such as omega-3's and MUFA. Patient eats out frequently and includes fast food.
Typical Day (per patient report):
Breakfast: sausage, egg and cheese biscuit with orange juice and coffee
Lunch: (eaten out with coworkers) cheeseburger and french fries or sub sandwich and chips
Dinner: meat, potatoes, vegetable, bread, and 2 or 3 beers
Snack: ice cream
Beverages: 12 oz. Pepsi in the afternoon

Physical Activity: Patient plays basketball 2 x/week with friends for 2 hours.

D: Impaired nutrient utilization related to insulin deficiency as evidenced by elevated glucose levels and DKA on admission.
Food and nutrition-related knowledge deficit related to lack exposure to diet education as evidenced by new diagnosis of Type 1 Diabetes and patient request for education.
Less than optimal intake of refined carbohydrates related to lack of knowledge about nutrition as evidenced by patient reports eating several servings of processed, refined, and high sugar foods in a typical day.

I: Goal in hospital will be to optimize glycemic control and provide adequate energy for metabolic needs. Recommend changing diet order from diabetic diet to: 2400-2700 kcal consistent carbohydrate diet (90 g/meal) if male; 2100 to 2400 kcal consistent carbohydrate diet (75 g/meal) if female.
This RD educated patient on carbohydrate counting, food/meal planning, management of short term illness, treatment of hypoglycemia, physical activity/exercise, and use of alcohol.

This RD assisted patient in setting goals for managing disease: Patient will monitor blood glucose 3-8 times per day with goal of pre-prandial glucose 70-130 mg/dL and peak post-prandial glucose <180 mg/dL. Discussed A1c goal of <7%. Patient will consume meals and snacks at consistent times throughout the day with meal plan to include 5 carbohydrate choices at breakfast, 6 carbohydrate choices at lunch and dinner, and 2 carbohydrate choices for an afternoon and evening snack. Evening snack is to contain a source of protein. RD also discussed low glycemic index foods, whole grains, increasing fiber (25-30 g), and increasing good quality fats (omega-3's, MUFA). Patient will dose bolus insulin accordingly (1 unit per 15 g/carb choice).
Patient will follow-up with outpatient dietitian (contact information provided). Suggest more in-depth education on carbohydrate counting and education on heart healthy eating pattern to reduce risk for CVD.

M&E: Future follow-ups: will monitor adherence to diet, ability to self monitor, weight, and labs (A1c, fasting blood glucose).

Millie Thompson

A: 70 y/o female admitted with ischemic bowel confirmed by KUB and CT. Currently POD #2 s/p bowel resection with permanent colostomy. Noted patient tested positive for C. Diff earlier this morning. PMH includes Crohns disease, CHF with murmur, arthritis, chronic back pain, anxiety, and depression. Patient has history of 11.3% weight loss in last couple months due to Crohns disease and recent surgery. She stated she was tolerating clear liquid diet until diarrhea started up.
Diet: clear liquid x 3 days
Anthropometrics: Ht. 5'2" (157.5 cm) Wt. 102 # (46.7 kg) BMI 18.7 (low normal)
UBW 115 lbs. (52.3 kg) per patient report
Labs:
Meds: has been on broad spectrum abx, lasix
Colostomy Output: varies
Nutrition Focused Physical Findings: Suspect B12 deficiency due to angular stomatitis, glossitis of tongue, patient report of tingling and numbness in extremities, and feeling of fatigue. Also noted patient with pale pallor and inner eyelids, indicative of iron deficiency. Patient's skin is dry with poor turgor, indicating dehydration.
Kcal Needs: 1400-1635 kcal (30-35 kcal/kg)
Protein: 61-79 g/day (1.3-1.7 g/kg)
Fluids: 1400 mL (30 mL/kg)

Diet History: Patient currently eating only jello and broth. Typical day at home per patient is low in calories, protein, and most essential nutrients.
Breakfast: piece of toast with jam and tea
Lunch: tomato soup and saltine crackers
Dinner: Patient's daughter usually prepares dinner. Sometimes they have chicken and rice or spaghetti.

D: Unintentional weight loss related to poor appetite and history of Crohn's disease as evidenced by 11% (5.3 kg) weight loss in last couple months and patient report of poor appetite.

I: Recommend advancing to full liquid diet with goal of low-fiber diet while in hospital. Educated patient on colostomy diet to decrease risk of obstruction, decrease output, and minimize flatulence. Also, discussed consuming adequate fluids for hydration and protein for healing. Suggested oral nutrition supplements for increased protein once diet is advanced from clear liquids. Recommend probiotic supplementation due to C. Diff infection. Also recommend B12 injection, iron supplementation, and multivitamin/mineral. If patient not able to consume adequate kcal and protein due to diet intolerance/C. Diff infection, recommend starting enteral feedings via nasojejunal tube.
M&E: Will follow up in 2 days to monitor diet tolerance and nutritional intake/need for enteral feedings. Will also monitor weight, weight loss, labs, colostomy output, and tolerance to iron and MV supplement.

APPENDIX I

NUTRITION CARE PROCESS EVALUATION INSTRUMENT[11]

A B C ASSESSMENT ☐ ☐ ☐ Introduces self to patient ☐ ☐ ☐ Assess wt loss, appetite, chewing/swallowing difficulties ☐ ☐ ☐ Pertinent diet hx information ☐ ☐ ☐ Establishes nutrient needs (EER & pro) ☐ ☐ ☐ Diet order ☐ ☐ ☐ Ht, wt, UBW, %UBW, %IBW, diet-related medications, labs	**NOTICING**		
	Includes >75% of pertinent information in patient assessment. Student recognizes changes in patient's condition and responds appropriately. Communicates effectively with patient and health professionals to obtain pertinent information.	Includes 60-75% of pertinent information in patient assessment but recognizes most obvious signs of patient condition. Communicates with patient and health professionals but may miss some interprofessional opportunities. Requires but responds to prompts on patient care.	Includes <60% of pertinent information in patient assessment. Important data missed and/or assessment errors present. Confused by clinical situation and data. Difficulty interacting with patient or health professionals. Requires frequent prompting and response may not be initiated.
	Exemplary 5 ☐ ☐ ☐ **4** ☐ ☐ ☐	**3 Meets Expectations 2** ☐ ☐ ☐ ☐ ☐ ☐	**1** ☐ ☐ ☐ **0** ☐ ☐ ☐ **Beginner**
A B C DIAGNOSIS ☐ ☐ ☐ Written in PES statement(s) using standardized language for the Nutrition Care Process	**INTERPRETING**		
	Student fully analyzes patient information and appropriately prioritizes care for the patient. Utilize standardized language and the Nutrition Care Process to document (ADIME format, Academy of Nutrition and Dietetics) the patient's nutritional assessment and nutrition diagnosis.	Student analyzes patient information and attempts to prioritize care, possibly missing important information. Student may misuse some standardize language for the Nutrition Care Process.	Difficulty focusing and distinguishing among appropriate diagnosis. Requires assistance both in diagnosing the problem and prioritizing care. Student does not use standardized language for the Nutrition Care Process.
	Exemplary 5 ☐ ☐ ☐ **4** ☐ ☐ ☐	**3 Meets Expectations 2** ☐ ☐ ☐ ☐ ☐ ☐	**1** ☐ ☐ ☐ **0** ☐ ☐ ☐ **Beginner**
A B C INTERVENTIONS ☐ ☐ ☐ Aimed at etiology of nutrition dx ☐ ☐ ☐ Directed at reducing signs/symptoms ☐ ☐ ☐ Define nutrition rx ☐ ☐ ☐ Prioritize nutr dx ☐ ☐ ☐ Carrying out and communicating plan of care	**RESPONDING**		
	Student addresses and implements >75% of appropriate interventions that effectively address the nutrition diagnosis and documents accordingly. Student uses a calm, confident and professional approach to communicate with patient and health professionals.	Student addresses and implements 60-75% of relevant interventions but could improve speed or accuracy. Student generally communicates well with other professionals.	Student addresses and implements <60% of appropriate interventions and may provide misinformation. Student is stressed, disorganized and lacks control. Inappropriate or lack of communication with patient or other professionals.
	Exemplary 5 ☐ ☐ ☐ **4** ☐ ☐ ☐	**3 Meets Expectations 2** ☐ ☐ ☐ ☐ ☐ ☐	**1** ☐ ☐ ☐ **0** ☐ ☐ ☐ **Beginner**
A B C MONITORING/EVALUATION ☐ ☐ ☐ Determines progress made by pt and if goals are being met ☐ ☐ ☐ Tracks patient outcomes relevant to nutrition dx ☐ ☐ ☐ Outpatient referrals given ☐ ☐ ☐ Signature & credentials provided	**REFLECTION**		
	Student determines >75% of appropriate monitoring and evaluation methods that will ensure continuation of nutritional care and document/communicate accordingly with patient and other health professionals.	Student determines 60-75% of monitoring and evaluation methods and document/communicates appropriately with patient and other health professionals.	Student determines <60% of appropriate monitoring and evaluation methods. Student does not coordinate care with patient or other health professionals.
	Exemplary 5 ☐ ☐ ☐ **4** ☐ ☐ ☐	**3 Meets Expectations 2** ☐ ☐ ☐ ☐ ☐ ☐	**1** ☐ ☐ ☐ **0** ☐ ☐ ☐ **Beginner**

[11] Garver S, Gibbs H, Barkley R, Meyer M. Determination of Reliability of the Nutrition Care Process Evaluation Instrument. Masters Thesis (Defended April 29th, 2015).

APPENDIX J

CORE COMPENTENCIES AND OBJECTIVES[12]

Dietetics Competencies Fulfilled

i. CRD 1.2: Apply evidence-based guidelines, systematic reviews and scientific literature (such as the Academy's Evidence Analysis Library and Evidence-based Nutrition Practice Guidelines, the Cochrane Database of Systematic Reviews and the U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, National Guideline Clearinghouse Web sites) in the nutrition care process and model and other areas of dietetics practice
ii. CRD 2.4: Use effective education and counseling skills to facilitate behavior change
iii. CRD 2.5: Demonstrate active participation, teamwork and contributions in group settings
iv. CRD 2.10: Establish collaborative relationships with other health professionals and support personnel to deliver effective nutrition services

University of Kansas Interprofessional Competencies Fulfilled (Panel IPECE)

i. TT3: Engage other health professionals in shared patient-centered problem-solving
ii. TT5: Apply teamwork principles that support collaborative practice and team effectiveness
iii. TT8: Reflect on individual and team performance for individual, as well as team, improvement
iv. VE4: Respect the unique cultures, values, roles/responsibilities, and expertise of other health professions
v. VE5: Work in cooperation with those who receive care, those who provide care, and others who contribute to or support the delivery of prevention and health services
vi. VE10: Maintain competence in one's own profession appropriate to scope of practice
vii. RR1: Communicate one's roles and responsibilities clearly to patients, families, and other professionals
viii. RR4: Identify the roles and responsibilities of other care providers and how the team works together to provide care
ix. CC1: Choose effective communication tools and techniques, including information systems and communication technologies, to facilitate discussions and interactions that enhance team function
x. CC2: Organize and communicate information with patients, families, and healthcare team members in a form that is understandable, avoiding discipline-specific terminology when possible
xi. CC3: Express one's knowledge and opinions to team members involved in patient care with confidence, clarity, and respect, working to ensure common understanding of information, treatment and care decisions
xii. CC6: Use respectful language appropriate for a given difficult situation, crucial conversation, or interprofessional conflict

Student Learning Objectives Student will be able to:

i. Review the electronic medical record and obtain information pertinent to nutrition care from the EMR, patient, family, and other health professionals.

[12] Gibbs H, George K, Barkley R, Meyer M. Using Multiple Patient Simulations to Facilitate Interprofessional Communication Between Dietetic and Nursing Students and Improve Nutrition Care Process Skills. Topics in Clinical Nutrition (Under Review April 2015).

ii. Utilize standardized language and the Nutrition Care Process to document (ADIME format, Academy of Nutrition and Dietetics) the patient's nutritional assessment and nutrition diagnosis.
iii. Communicate with other health professionals to plan dietary interventions that are expected to effectively address the nutrition diagnosis and document accordingly (ADIME).
iv. Apply appropriate nutritional interventions and counsel patients, as determined by the dietetics student.
v. Determine monitoring and evaluation methods that will ensure continuation of nutritional care and document/communicate accordingly (ADIME).

APPENDIX K

ADIME CHECKLIST[13]

ADIME Checklist: Greg Peterson

Assessment:
_____ Admitting dx aspiration pneumonia
_____ Trach and PEG Tube placed
_____ Receives bolus feedings (TID) at nursing home
_____ RD consulted to make EN Rec's
_____ Current Diet Order: NPO
_____ Current EN Order: 250 mL bolus Jevity 1 Cal TID; flush w/ 100 mL water @ feedings

What does current EN order provide (as amt or % of needs):
_____ Kcal (795) _____ Protein (33 g)
_____ Fluid (926 mL) _____ RDI Vitamins/minerals (54%)

_____ Height 5'10" (177.8 cm)
_____ Weight 154 # 70 kg
_____ BMI 22.1
_____ Kcal needs using MSJ x 1.2 to 1.4 OR 27-30 kcal/kg (189-2100 kcal)
_____ Protein needs using 0.8 to 1.2 g/kg = 56 to 84 g
_____ Fluid needs using 30 mL/kg or 1 mL/kcal

Diagnosis:
_____ Diagnosis: Inadequate Enteral Nutrition Infusion
_____ Diagnosis: Inadequate oral intake

Interventions:
_____ Switch from bolus gastric feedings to continuous post-pyloric feeds
_____ Change EN Order to: (has to make sense regarding needs)
_____ Lists what new EN order would provide
_____ Elevate HOB 30 to 45 degrees

Monitoring/Evaluation:
_____ Monitor for placement of tube/route of feeding
_____ Monitor for initiation of EN
_____ Monitor I/O's
_____ Monitor Weight
_____ Monitor Labs
_____ Monitor tolerance to EN

ADIME Checklist: Parker Richards

Assessment:
_____ Newly diagnosed Type I DM
_____ Admitted with DKA
_____ Current Diet Order Diabetic
_____ Height 5'9" 175.3 cm
_____ Wt 142 # 64.5 kg
_____ BMI 21
_____ Labs
_____ Medications lantus, SS insulin
_____ Kcal needs using H-B x 1.4 to 1.7 OR MSJ equation x 1.4 to 1.7 (Should be ~ 2400 to 2700 kcal for male and 2100 to 2400 for female)

[13] Gibbs H, George K, Barkley R, Meyer M. Using Multiple Patient Simulations to Facilitate Interprofessional Communication Between Dietetic and Nursing Students and Improve Nutrition Care Process Skills. Topics in Clinical Nutrition (Under Review April 2015).

_____ Protein needs as 15 to 20% kcal or 1.2 to 1.5 g/kg
_____ Fluids as 30 mL/kg or 1 mL/kcal
_____ Evaluative statement of typical diet (does not just list diet hx)
_____ Physical Activity

Diagnosis:
_____ Diagnosis: Food and nutrition-related knowledge deficit

Interventions:
_____ Educated on CHO Counting
_____ Educated on treatment of hypoglycemia
_____ Educated on Physical activity/exercise
_____ Set goals for monitoring blood glucose/Self-Monitoring
_____ Lists meal plan with CHO choices/meal and snack
_____ Follow up with outpatient RD or provided contact information
_____ Referral to RN/MD/Pharmacy for insulin regimen or provide contact information

Monitoring/Evaluation:
_____ Monitor adherence to diet
_____ Monitor weight _____ Monitor labs
_____ Monitor ability to self-monitor

ADIME Checklist: Millie Thompson

Assessment:
_____ POD #2
_____ Colostomy in place
_____ PMH includes Crohn's, etc.
_____ Tested positive for C. Diff/C. Diff pending
_____ Meds: broad spectrum antibiotics, Lasix
_____ Current diet order: clear liquid
_____ Height 5'2" 157.5 cm _____ Wt 102# 46.7 kg
_____ BMI 18.7 _____ ~11% weight loss
_____ Kcal needs as 30 to 35 kcal/kg (1400 to 1650)
_____ Protein needs as 1.3 to 1.7 g/kg
_____ Fluid needs as 30 mL/kg or 1 mL/kcal
_____ Evaluative Statement of Typical Diet
_____ Colostomy Output
_____ Suspect B12 deficiency
_____ Suspect Iron deficiency
_____ Suspect Dehydration

Diagnosis:
_____ Diagnosis: Unintentional weight loss

Interventions:
_____ Recommend diet advancement (can be specific or not)
_____ Educated on colostomy diet
_____ Encouraged fluids for hydration
_____ Discussed protein for healing after surgery
_____ Probiotic Supplement
_____ Oral Nutrition Supplements
_____ B12 injection or Supplement; or Rec checking levels first
_____ Iron supplement; or Rec checking levels first
_____ Multivitamin/Mineral
_____ Follow up in 1 to 3 days

Monitoring/Evaluation:
_____ Monitor weight
_____ Monitor labs
_____ Monitor colostomy output
_____ Monitor intake/diet tolerance

APPENDIX L

LASATER CLINICAL JUDGMENT RUBRIC[14]

TABLE 2

Lasater Clinical Judgment Rubric

Dimension	Exemplary	Accomplished	Developing	Beginning
Effective noticing involves:				
Focused observation	Focuses observation appropriately; regularly observes and monitors a wide variety of objective and subjective data to uncover any useful information	Regularly observes and monitors a variety of data, including both subjective and objective; most useful information is noticed; may miss the most subtle signs	Attempts to monitor a variety of subjective and objective data but is overwhelmed by the array of data; focuses on the most obvious data, missing some important information	Confused by the clinical situation and the amount and kind of data; observation is not organized and important data are missed, and/or assessment errors are made
Recognizing deviations from expected patterns	Recognizes subtle patterns and deviations from expected patterns in data and uses these to guide the assessment	Recognizes most obvious patterns and deviations in data and uses these to continually assess	Identifies obvious patterns and deviations, missing some important information; unsure how to continue the assessment	Focuses on one thing at a time and misses most patterns and deviations from expectations; misses opportunities to refine the assessment
Information seeking	Assertively seeks information to plan intervention: carefully collects useful subjective data from observing and interacting with the patient and family	Actively seeks subjective information about the patient's situation from the patient and family to support planning interventions; occasionally does not pursue important leads	Makes limited efforts to seek additional information from the patient and family; often seems not to know what information to seek and/or pursues unrelated information	Is ineffective in seeking information; relies mostly on objective data; has difficulty interacting with the patient and family and fails to collect important subjective data
Effective interpreting involves:				
Prioritizing data	Focuses on the most relevant and important data useful for explaining the patient's condition	Generally focuses on the most important data and seeks further relevant information but also may try to attend to less pertinent data	Makes an effort to prioritize data and focus on the most important, but also attends to less relevant or useful data	Has difficulty focusing and appears not to know which data are most important to the diagnosis; attempts to attend to all available data
Making sense of data	Even when facing complex, conflicting, or confusing data, is able to (a) note and make sense of patterns in the patient's data, (b) compare these with known patterns (from the nursing knowledge base, research, personal experience, and intuition), and (c) develop plans for interventions that can be justified in terms of their likelihood of success	In most situations, interprets the patient's data patterns and compares with known patterns to develop an intervention plan and accompanying rationale; the exceptions are rare or in complicated cases where it is appropriate to seek the guidance of a specialist or a more experienced nurse	In simple, common, or familiar situations, is able to compare the patient's data patterns with those known and to develop or explain intervention plans; has difficulty, however, with even moderately difficult data or situations that are within the expectations of students; inappropriately requires advice or assistance	Even in simple, common, or familiar situations, has difficulty interpreting or making sense of data; has trouble distinguishing among competing explanations and appropriate interventions, requiring assistance both in diagnosing the problem and developing an intervention
Effective responding involves:				
Calm, confident manner	Assumes responsibility; delegates team assignments; assesses patients and reassures them and their families	Generally displays leadership and confidence and is able to control or calm most situations; may show stress in particularly difficult or complex situations	Is tentative in the leader role; reassures patients and families in routine and relatively simple situations, but becomes stressed and disorganized easily	Except in simple and routine situations, is stressed and disorganized, lacks control, makes patients and families anxious or less able to cooperate

[14] Lasater K. Clinical judgment development: using simulation to create an assessment rubric. Journal of Nursing Education 2007;46(11):496-503.

TABLE 2 (Continued)

Lasater Clinical Judgment Rubric

Dimension	Exemplary	Accomplished	Developing	Beginning
Clear communication	Communicates effectively; explains interventions; calms and reassures patients and families; directs and involves team members, explaining and giving directions; checks for understanding	Generally communicates well; explains carefully to patients; gives clear directions to team; could be more effective in establishing rapport	Shows some communication ability (e.g., giving directions); communication with patients, families, and team members is only partly successful; displays caring but not competence	Has difficulty communicating; explanations are confusing; directions are unclear or contradictory; patients and families are made confused or anxious and are not reassured
Well-planned intervention/flexibility	Interventions are tailored for the individual patient; monitors patient progress closely and is able to adjust treatment as indicated by patient response	Develops interventions on the basis of relevant patient data; monitors progress regularly but does not expect to have to change treatments	Develops interventions on the basis of the most obvious data; monitors progress but is unable to make adjustments as indicated by the patient's response	Focuses on developing a single intervention, addressing a likely solution, but it may be vague, confusing, and/or incomplete; some monitoring may occur
Being skillful	Shows mastery of necessary nursing skills	Displays proficiency in the use of most nursing skills; could improve speed or accuracy	Is hesitant or ineffective in using nursing skills	Is unable to select and/or perform nursing skills
Effective reflecting involves:				
Evaluation/self-analysis	Independently evaluates and analyzes personal clinical performance, noting decision points, elaborating alternatives, and accurately evaluating choices against alternatives	Evaluates and analyzes personal clinical performance with minimal prompting, primarily about major events or decisions; key decision points are identified, and alternatives are considered	Even when prompted, briefly verbalizes the most obvious evaluations; has difficulty imagining alternative choices; is self-protective in evaluating personal choices	Even prompted evaluations are brief, cursory, and not used to improve performance; justifies personal decisions and choices without evaluating them
Commitment to improvement	Demonstrates commitment to ongoing improvement; reflects on and critically evaluates nursing experiences; accurately identifies strengths and weaknesses and develops specific plans to eliminate weaknesses	Demonstrates a desire to improve nursing performance; reflects on and evaluates experiences; identifies strengths and weaknesses; could be more systematic in evaluating weaknesses	Demonstrates awareness of the need for ongoing improvement and makes some effort to learn from experience and improve performance but tends to state the obvious and needs external evaluation	Appears uninterested in improving performance or is unable to do so; rarely reflects; is uncritical of himself or herself or overly critical (given level of development); is unable to see flaws or need for improvement