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The Impact of Clinical Reasoning Seminars on Medical-Surgical Specialty HESI Exam Scores

Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Nursing

Practice at the University of Kentucky

By

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Lexington, Kentucky

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Abstract

Background: Clinical reasoning and clinical judgement have been identified as essential skills for the delivery of quality patient care. Nursing education relies heavily on standardized exams like the HESI to predict success on the national licensure exam.

Purpose The purpose of this study was to determine the impact of clinical reasoning seminars (CRS) on medical-surgical specialty HESI exam scores of first semester junior BSN nursing students.

Methods: A retrospective correlational design was used for this study, which involved a review of medical-surgical HESI scores for 115 junior level baccalaureate nursing students who were identified as academically *high-risk* and who participated in a series of clinical reasoning seminars.

Results: The participation in CRS by high-risk students was not found to have a statistically significant impact on the medical-surgical HESI scores. Eighty percent of high-risk students who participated in at least one CRS scored greater than an 850 on the medical-surgical HESI. Students who attended CRS had a higher mean medical-surgical HESI score than students that did not attend any CRS.

Discussion: Although CRS did not have a statistically significant impact on medical-surgical HESI scores, 80% of students who scored below an 850 on the fundamental HESI, an assessment that takes place the sophomore year, scored above an 850 on the junior year medical-surgical HESI, which indicates that CRS may have enhanced students reasoning skills.

Conclusion. Though statistical differences were not found, it appears that high-risk students may have benefitted from participation in CRS. Further research is recommended.

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Dedication

I would like to dedicate this project and my DNP to those friends and family members who have supported me tirelessly through this entire program and saw in me the potential for furthering my education and influencing my career passions: nursing and nursing education. Specifically, to my husband and son who allowed me to make my work a priority and brought joy and fun to the moments that were not consumed with assignments and deadlines. To my parents who have never doubted my ability to succeed even in moments where things seemed overwhelming. Their words of encouragement and guidance throughout my life and during this endeavor are invaluable. Finally, to my sister: without the unconditional love and support of the most special person I know in the world, I would truly not be who I am, and able to achieve the goals I set out for myself. It is through her that I have learned the things that truly matter in life. She has inspired in me a desire to push myself to find ways to support the nursing profession and practice at the highest level possible to improve outcomes for those we serve. I hope that each of these people can appreciate the role they played in inspiring and supporting me and can see that any vision, through hard work and dedication, can be achieved. Thank you all!

Table of Contents

Acknowledgements	3
Dedication.....	4
List of Appendices	6
List of Tables	7
Background and Significance of Intervention	8
Theoretical Framework	9
Review of Literature	10
Purpose	13
Methods	14
Design	14
Agency Description/Setting	14
Sample	14
Procedures.....	16
Measures.....	17
Data Analysis.....	17
Results	18
Sample Description	18
Findings	18
Discussion	19
Implication for Practice, Education, and Future Research	21
Limitations	22
Conclusion	23
References	24

List of Appendices

Appendix 1: Clinical Reasoning Seminar (CRS).....	26
Appendix 2: CRS Process Algorithm.....	27

List of Tables

Table 1: Demographic Information.....28

Table 2: Number of CRS Attended and Medical-Surgical HESI scores >850.....28

Table 3: Mean Score of HESI exams for Participants With and Without CRS.....29

The Impact of Clinical Reasoning Seminars on Medical-Surgical Specialty HESI Exam Scores

Background and Significance of Intervention

Healthcare organizations have identified clinical reasoning as an essential nursing skill required for the delivery of quality patient care (Benner, Hughes, & Sutphen, 2008).

Administrators and managers of healthcare organizations have reported that some new graduates lack the ability to use good clinical judgement and effectively communicate clinical findings; only 23% of new graduate nurses, in their first 6-12 months of practice, demonstrated entry-level competencies and practice readiness (Kavanagh & Szweda, 2017).

The National Council of State Boards of Nursing (NCSBN) developed a licensure exam that is being utilized throughout the United States and Canada. This exam is the National Council Licensure Examination (NCLEX) designed to determine if nursing school graduates have a minimally acceptable level of knowledge to enter the workforce as a nurse and deliver safe care to patients (Woo, & Dragan, 2012). The NCSBN works with nurse educators, practicing nurses, healthcare administrators, and statisticians to create an exam that is a valid measurement of the competency level of entry-level nurses (Woo, & Dragan, 2012). In 2018, over a quarter of a million nursing students passed the NCLEX (NCLEX, 2019) and were issued a license and deemed *ready* to begin their nursing careers.

Once novice nurses have passed the NCLEX and begin their professional practice, a time of learning and orientation begins. There is an expectation that novice nurses will enter into that time with a basic level of readiness. The ability to clinically reason and apply clinical judgement to patient scenarios is a critical skill for providing safe and effective care (Carvalho, Oliveria-Kumakura, & Morais, 2017; Papathanasiou, Kleisiaris, Fradelos, Kakou, & Kourkouta, 2014).

Unfortunately, many managers and administrators in healthcare do not believe that the majority of new nurses meet the expectations for being practice ready. Surveys have illustrated that only 20-50% of employers felt that novice nurses demonstrated satisfactory abilities to clinically reason (Brown & Crookes, 2016; Kavanagh, & Szweda, 2017; Muntean, 2012).

Nurse educators must acknowledge the disconnect between what the NCLEX exam states novice nurse practice readiness to be (roughly 100% for those that pass the exam) and the perception of healthcare organizations to novice nurse practice readiness (between 20-50% acceptable). The measurement of NCLEX pass rates as a single program outcome for nursing school could lead to a false sense of success in equipping new graduate nurses with the clinical reasoning skills required in their career (Kavanagh, & Szeda, 2017).

Theoretical Framework

The framework used as the basis for development of the clinical reasoning seminars (CRS) was Constructivist Learning Theory. In Constructivist Learning Theory, learners are active and must take a more reflective role in forming new knowledge (Constructivism Learning Theory, 2019). The learner must assimilate and accommodate information (Constructivism Learning Theory, 2019). According to this theory, assimilation is when the learner incorporates the new information into their old experiences; this allows them to rethink any misconceptions they had or prioritize information in a different way. Accommodation means that they must take the information and allow it to reframe and influence their current understanding of their world and their experiences up to this point; accommodation involves using information to form new understanding and perceptions (Constructivism Learning Theory, 2019). For this project, the

application questions in the CRS build on the fundamental knowledge that students acquired during their sophomore year in the nursing program and then moved those concepts forward. This required them to build new understanding and perceptions on the foundation that they had already established.

Review of Literature

Nurses and nurse educators agree that clinical judgement is at the core of safe and competent care and that it requires a higher level of clinical reasoning to master. Defining and identifying ways to measure clinical judgement is difficult. Clinical judgement is the ability to recognize key elements/data in a clinical situation, synthesize that information and give it meaning from which a decision and an appropriate response will be made (Carvalho, Oliveria-Kumakura, & Morais, 2017; Muntean, 2012; Phaneuf, 2008). Nursing students must develop essential professional skills such as clinical judgement.

Educators in nursing schools utilize various metrics to evaluate the academic success of baccalaureate nursing students. One largely used evaluation tool is the Health Educational System, Inc. (HESI) exam. The HESI exam is widely accepted and supported as a valid and reliable tool with a Kuder Richardson Formula 20 (KR-20) ranging from 0.90-0.94 (Elsevier White Paper, 2018). Formative evaluation can take place by incorporating specialty HESI exams throughout a program of study. Summative evaluation occurs by utilizing the E2 exit HESI exam near the end of the nursing program.

A literature review was conducted to see what educational initiatives have been implemented to enhance clinical reasoning and what tools are available to measure clinical

judgement. The on-line databases of CINAHL and PubMed were utilized in the search with key words of: clinical judgement model, clinical reasoning, practice ready, novice nurses, and tools for measurement. The following limits were placed on all searches: academic journal articles between 2010-2020 and full text availability. The search resulted in 32 articles to review.

Three paradigms have been widely accepted as models to guide educators in supporting students in their development of clinical judgement (Dickison, Haerling, & Lasater, 2019). These paradigms are the Intuitive-Humanistic Model, Dual Process Reasoning Theory, and Information Processing Model. The NCSBN, the developer of the national licensing exam, utilized components from each of these paradigms to create the NCSBN Clinical Judgement Model (NCSBN-CJM) that is being utilized to develop the next generation of the NCLEX exam. In this updated version of the exam, graduates will need to demonstrate the ability to recognize, analyze, hypothesize, and respond to various clinical situations in order to demonstrate novice competency and pass the examination (Dickison, Haerling, & Lasater, 2019).

No specific process for introducing or teaching clinical reasoning to nursing students has been outlined in the literature. However, research has identified aspects deemed essential in the design of any clinical reasoning activity to include: learners must have foundational knowledge and skill to build upon, there have to be required elements where information is synthesized and brought together to mean something, and there have to be multiple choices or options that the learner has to decide upon (Carvalho, Oliveria-Kumakura, & Morais, 2017; Muntean, 2012; Papathanasiou, et al., 2014; Phaneuf, 2008). Additional key aspects of clinical reasoning design include the necessity to communicate clinical decisions in a clear, concise, and efficient manner

(Muntean, 2012), as well as the inclusion of a time for debriefing about best choices and processing through aspects that make the other options less optimal (Muntean, 2012; Papathanasiou, et al., 2014).

Teaching activities to help students develop clinical reasoning is imperative to the development of sound clinical judgement in practice. While the literature review did not offer advice related to one specific way to enhance student's clinical reasoning, there were varieties of styles that have been utilized. These styles ranged from practice questions, case study work, on-line resources, concept mapping, and simulation activities (Carvalho, Oliveria-Kumakuara, & Morais, 2017; Koharchik, Caputi, Robb, & Culleiton, 2015; Shelestak, Meyers, Jarzembak, & Bradley, 2015). Although no one format was found to be the most successful way to teach clinical reasoning, any activity designed to develop clinical reasoning skills must include four aspects: (1) learners must have foundational knowledge and skill to build upon; (2) learners must require elements where information is synthesized and brought together to mean something, (3) there needs to be multiple choices or options that the learner has to decide among, and (4) a time of debriefing and reflection is provided (Carvalho, Oliveria-Kumakura, & Morais, 2017; Muntean, 2012; Papathanasiou, et al., 2014; Phaneuf, 2008).

The design of any activity needs to provide ample time for debriefing and thinking through the rationale behind the best decisions and less than optimal choices (Muntean, 2012; Papathanasiou, et al., 2014). Debriefing needs to be organized and allow time to explain the pros and cons for each choice, as well as how the choices could be prioritized for example (describing the utilization of Maslow's Hierarchy). It is important to determine if any of the choices could be

delegated and thus would not be the best answer. Finally, the discussion should highlight that clinical judgement is learner's determination of what should be doing in the clinical setting (Papathanasiou et al., 2014).

Another aspect highlighted in the research was the importance of the clinical reasoning activities to incorporate an element where learners must communicate their decisions in concise and efficient ways (Muntean, 2012). This is a critical part of being practice ready since effective communication is crucial for healthcare team members (Brown & Crookes, 2016).

Purpose

The purpose of this study was to determine the impact of clinical reasoning seminars on medical-surgical specialty HESI exam scores of first semester junior BSN nursing students.

Specific objectives include:

- Review HESI scores of students before and following attendance at CRS to determine the impact of the seminars on medical-surgical HESI exam scores
- Compare the HESI scores of students who participated in the CRS to those who did not participate to identify differences on the medical-surgical HESI exam scores
- Analyze the impact of attendance at a series of multiple CRS on medical-surgical HESI scores compared to those students who only completed one series (3 seminars)

- Use information from the analysis to make decisions about the value of continuation of clinical reasoning seminars

Methods

Design

The study was a retrospective descriptive correlation review approved by the researcher's university Institutional Review Board. The Institutional Review Board approved a waiver of documentation of informed consent as the data for the study was previously obtained over multiple semesters.

Agency Description/Setting

The CRS were held at a College of Nursing (CON) at a land grant university in the southcentral part of the United States. The CON is one of sixteen colleges at the University that offers an undergraduate degree. Undergraduate enrollment at the study setting was over 22,000 students (UK Stats, 2019). The CON has classrooms and lecture halls within the building that were utilized to hold the CRS. Each room was equipped with a computer and projection system that supported an audience response system (ARS) which was used for student engagement during the CRS.

Sample

The CON has a current enrollment of 1,569 students (781 undergraduate). The CON employs 180 full and part-time faculty and staff to serve the students and accomplish the mission

of the college of promoting health and well-being by upholding a standard of excellence in nursing education, research, and practice (College of Nursing, 2019). The CON currently has three tracks where students can obtain a Bachelor of Science in Nursing (BSN) degree: a traditional track, a track for second degree and med veteran students, and a RN-BSN track. The traditional track is comprised of pre-licensure students who do not have another type of degree. The majority of the students are between 18-22 years old, but about 20% are non-traditional students who fall outside that age range. The second degree and med veteran track consists of students who currently have a bachelor's degree in another field of study or have served as med veterans in a branch of the armed services. The RN-BSN track is comprised of post-licensure students that have an associate degree in nursing, and have already passed the NCLEX, which excluded them from this study.

The CRS were held for students entering their first medical-surgical course in the program, which occurs at the start of the junior year. Approximately 125 students enter this course each semester. Students who were offered the option to attend the CRS were identified as high-risk students for failure. High-risk is defined as any student who received an 850 or below on their fundamental HESI exam. The HESI exam is a standardized exam that has been shown to be a reliable and valid tool to predict NCLEX success (Elsevier White Paper, 2018). HESI exams are given periodically to all students in the traditional track as a way to gauge their preparedness for the NCLEX exam. At the time of the review, many of the students had graduated from the program.

Procedures

Clinical reasoning seminars (CRS) were designed so that first semester junior students would reflect on nursing information they had received in their didactic course work and from there form connections about how that information was utilized and the impact it had in patient care scenarios. Students were asked application questions about nursing care to evaluate if they had reflected on the situation in a meaningful and correct way. Once they had answered these questions, they were provided time to discuss their answers with others in the CRS. This time was allotted as there is learning from collaborative sharing of ideas and reasoning for conclusions that are drawn (Duane & Satre, 2014). A rationale was provided regarding the correct or incorrect responses after the questions were answered, and the collaboration period was ended (see Appendix 1).

The junior level students identified as *high-risk* were provided an opportunity to participate in a series of at least three face-to-face clinical reasoning seminars that were approximately one hour in length. High-risk was defined as students who received a score of 850 or below on the fundamental HESI exam. Students were required to participate in a one-hour on-line learning session related to the core course material, in addition to the clinical reasoning process utilized in the face-to-face sessions. Students who were successful on the course exam (passed with an 80% or greater) following attendance of the CRS were not required to attend additional seminars. However, if students were not successful on course exams, they could continue the clinical reasoning seminars for another three consecutive sessions. This process continued for the duration of the semester until the final exam. At the end of the semester, all students completed a medical-surgical HESI exam (see Appendix 2).

Measures

Two HESI exam scores were collected and compared: the fundamental HESI exam taken at the end of the sophomore year and prior to attendance of any CRS sessions, and the medical-surgical HESI exam taken at the end of the junior year. Demographic information was also collected for all students in the junior level course, to include gender, ethnicity, and if the students was classified as a non-traditional student (defined as a student that had a bachelor's degree from another field of study or were med veterans).

Data Analysis

A list of all students who had completed their sophomore fundamentals course and had taken the fundamental HESI was obtained. Demographic data were analyzed using descriptive statistics, including means, standard deviations, ranges, and percentages. A cross tabulation was preformed to compare the scores of those who scored less than adequately on the fundamental HESI exam and those that subsequently scored adequately on the medical-surgical HESI. A Levene's Test for Equality of Variances and *t*-test for equality of means was performed to determine if there were significant differences between the medical-surgical HESI scores of those that had participated in at least one CRS and those that had not attended any of the sessions. A Levene's Test for Equality of Variances and *t*-test for equality of means was performed to determine if there was any significance between the number of seminars the students attended. Data were analyzed using Statistical Program for the Social Sciences (SPSS) version 26 (2019).

Results

Sample Description

A total of 115 participants were identified as having a HESI score of less than 850. Of these participants, 61 participated in at least one CRS and 54 did not participate in any CRS. Of those in the group that attended CRS, 56 (91.8%) were Caucasian of non-Hispanic descent and 58 (95.1%) were female. Of those in the group that did not attend CRS, 49 (90.7%) were Caucasian of non-Hispanic descent and 52 (96.3%) were female. The group of participants that attended the CRS were from various academic tracks: 57 (93.4%) were in the traditional track, meaning this was their first bachelor's degree program; 1 (1.6%) was in the second-degree track, meaning they had a previous bachelor's degree from another field of study; and 3 (4.9%) were med veterans who had served in a branch of the armed services (see Table 1).

Findings

Number of CRS Attended

Students attended a range of one to five CRS. A CRS is defined as one, one-hour seminar. The CRS's were designed in a series of 3 seminars, but only 20 (32.8%) of participants completed at least one complete series. The mean number of one-hour CRS that were attended was 1.98 (*SD* 10.72). Refer to Table 2 for a breakdown of the number of seminars attended.

HESI Scores After Attendance to CRS

For those students who attended CRS, 49 (80.3%) scored above an 850 on the "end of the junior semester" medical-surgical HESI. Twenty (74.1%) of students that attended one seminar scored above 850. Of the students that attended four or five seminars, 4 (100%) scored above

850. Further information about the number of seminars attended and the medical-surgical HESI scores can be seen in Table 2.

Comparison of HESI Scores for Students Who Did or Did Not Participate in CRS

The mean fundamental and medical-surgical HESI scores for both groups were obtained. For the group that participated in CRS, the mean fundamental HESI score (completed at the end of the sophomore year) was 732.02 (*SD* 79.16) with a range of scores from 498-841. The mean fundamental HESI score was 768.26 (*SD* 69.22), with a range of 606-852, for the group that did not participate in CRS. The scores between the two groups of students were significantly different ($p = 0.011$) see Table 3.

For the group that participated in CRS, the mean medical-surgical HESI (end of the junior semester) was 935.66 (*SD* 111.83) with a range of 661-1204. The mean medical-surgical HESI score was 929.04 (*SD* 115.24) with a range of 703-1220 for the group that did not attend CRS. There were no statistical differences between the medical-surgical HESI scores for the two groups ($p = 0.755$). The difference between the HESI scores for the group that attended CRS was 206.64 compared to a difference of 160.78 for the group that did not attend CRS. The difference in scores between the two groups was not found to be statistically significant ($p = 0.334$) see Table 3.

Discussion

The focus of this study was to evaluate the impact of participation in CRS on medical-surgical HESI exam scores. Nurse educators commonly use standardized testing as a way of

predicting student success, not only in a baccalaureate nursing program, but also on the NCLEX exam. The HESI exam is widely accepted as a highly accurate predictor of NCLEX success (Barton, Wilson, Langford & Schreiner, (2014). While there were no significant differences in the medical-surgical HESI scores for students who did and did not attend the CRS, greater increases in HESI scores were noted for students who attended the CRS when compared to scores from students who did not.

Minimal differences in demographics were noted for participants who did or did not attend the CRS. The sample was a small and largely composed of Caucasian females. Thus, demographic differences between the groups do not appear to have impacted HESI scores.

Research has indicated that students need repeated instruction and practice in clinical reasoning activities to develop clinical judgement (Carvalho, Oliveria-Kumakura, & Morais, 2017). Every student who attended four or five CRS scored greater than 850 on the medical-surgical HESI, although the sample size was low. Between 81 to 86% of students who attended two to three CRS's scored above 850 on the HESI, while only 74.1% of students who attended one CRS made an 850 or above on the HESI. This seems to support the findings of Carvalho et al. (2017) that repeated instruction and practice may improve clinical reasoning. Due to a relatively low sample size in relation to the number of students that attended four or five CRS, it is unclear if this pattern would have continued; thus, more research is needed in this area. Since more complex clinical scenarios are taught in subsequent seminars, attendance to only one seminar is not likely to improve clinical reasoning.

Students who scored less than 850 on their fundamental HESI exam were considered high-risk students entering their junior year medical-surgical course. The group of students that attended CRS had a lower mean score on their fundamental HESI (732.02) than did students who did not attend (768.26), and this group had a higher mean score on the medical-surgical HESI (935.66) than did students who did not attend (929.04). Additionally, the group that participated in the CRS demonstrated a greater improvement in scores. Although multiple variables may have influenced this, the findings illustrate that participation in CRS sessions may have had a positive impact on clinical reasoning.

Implications for Practice, Education, and Future Research

Clinical judgement is an essential skill for practicing nurses, and yet healthcare organizations feel that novice nurses graduate without the ability to demonstrate this skill at the bedside (Kavanagh & Szweda, 2017). The NCSBN strongly supports the need for better evaluation of this skill, as illustrated by the plan to redesign the national licensure exam with the incorporation of clinical reasoning (Dickison, Haerling, & Lasater, 2019). It is important for educational institutions to develop ways to improve the clinical reasoning and clinical judgement of graduates to better prepare them for their careers. This study supports the need for future research that aims to identify effective tools and strategies for teaching nursing students how to develop and use clinical judgement.

Additional research also is needed to determine the amount of clinical reasoning activities necessary to support the development of maximal clinical reasoning during a course or specialty.

Clinical judgement requires practice and needs time to develop. This need for repeated engagement in clinical reasoning activities highlights a potential barrier to successful implementation of clinical reasoning activities. That barrier is the motivation of students to be fully engaged in the activity. It is ultimately up to the student to utilize opportunities to enhance their clinical judgement. It is important for students to have a level of accountability for their participation in activities that are designed to improve their ability to “think like a nurse.”

What is taught or the structure of clinical reasoning seminars may also impact whether they will result in improved judgement. Researchers have indicated that how clinical reasoning seminars are conducted is important, and adequate time needs to be provided for debriefing and thinking through the rationale for decisions which are made (Muntean, 2012; Papathanasiou, et al., 2014). Assessing whether or not the structure of the clinical reasoning seminars was in alignment with the best evidence was not the focus of this study, but the results of this study illustrate that this should be addressed in the future. Research to determine the scalability of incorporating CRS across a nursing curriculum would be valuable. Evaluation of the impact of CRS in a multi-site comparison would be important to see if the preliminary finding that were seen in this project would be replicated on a larger scale.

Limitations

This study had several limitations. The study sample was small and non-diverse, as it was largely comprised of Caucasian women who were in their first bachelor’s degree program. A significant limitation was the accountability of the students to attend the CRS and record their attendance. As the CRS was a component of a previously established course, the researcher was

limited to imposing a consequence upon students who did not attend three CRS in a series. This made it difficult for the researcher to fully assess the impact that attendance to multiple CRS may have had on the medical-surgical HESI scores as compared to attendance to only one or two seminars.

Another limitation was the use of the single outcome, the HESI specialty exams, to determine the impact of the CRS. Although both exams were developed and nationally normed, they were not the same exam and not testing the exact same information. It is reasonable to assume that multiple factors can influence a students' performance on either of the HESI exams. This makes it difficult to compare the clinical reasoning skills from one semester to another as content changes.

Conclusion

Nursing is a complex profession that deals with clinical situations that require clinical decision-making. Developing strategies to improve the clinical judgement of undergraduate nursing students is very important as this will be a skill set that is not only required for them to provide safe and effective care to their patients but will be expected by healthcare organizations. Specific and intentional activities must be incorporated into curriculum to promote this skill prior to entering the workforce (Tanner, 2006). Although this study did not demonstrate that CRS significantly impacted scores on HESI exams, findings illustrated that CRS may be one of those activities that could benefit students during their course of study and help them be better prepared upon graduation as they enter their first nursing position.

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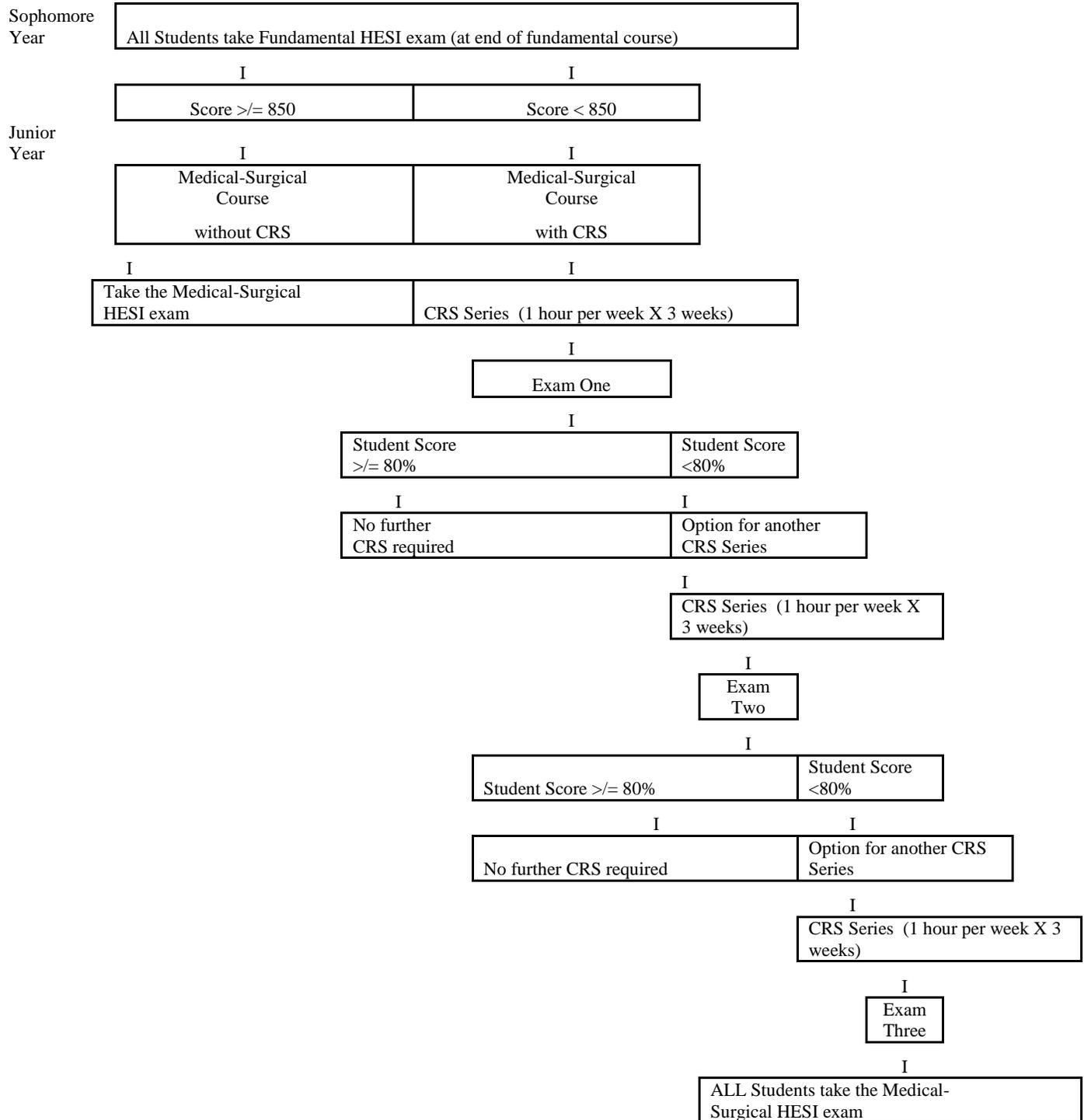
Appendices

Appendix 1: Clinical Reasoning Seminar (CRS)

Time Frame (minutes)	Activity Description
Starting the Seminar	Students received clinical application questions in a handout format with one question per page to allow for space for writing and notes
3-4	Students worked independently, utilizing a clinical reasoning process they had been taught, to answer the questions and choose the best answer
<1	Students provided confidential responses via an audience response system (ARS) that provides feedback on percentage of students that chose each answer
4-6	Debriefing allowing for student group engagement and discussion, with a focus on the critical cues the students identified, the questions they were answering, and the rationale provided for why each of the answers was chosen/not chosen
Total Time: Approx. 7-10 minutes/question (allowing for 6-8 questions per CRS)	

Appendix 2: CRS Process Algorithm

Clinical Reasoning Seminar (CRS) Process Algorithm



Tables

Table 1. Demographic Information

	Group With CRS (<i>N</i> =61) <i>n</i> (%)	Group Without CRS (<i>N</i> = 54) <i>n</i> (%)	<i>p</i>
Sex			
Male	3 (4.9)	2 (3.7)	0.558
Female	58 (95.1)	52 (96.3)	
Ethnicity			
White, non-Hispanic	56 (91.8)	49 (90.7)	0.549
Black	5 (8.2)	5 (9.3)	
Academic Track			
Traditional	57 (93.4)	n/a	
Second Degree	1 (1.6)		
Med Vet	3 (4.9)		

Table 2. Number of CRS Attended and Medical-Surgical HESI Scores > 850

Number of CRS completed <i>n</i>	Number of Participants (<i>N</i> = 61) <i>n</i> (%)	Medical-Surgical HESI scores > 850 (<i>N</i> = 49) <i>n</i> (%)
1	27 (44.3)	20 (74.1)
2	14 (22.9)	12 (85.7)
3	16 (26.2)	13 (81.3)
4	2 (3.3)	2 (100)
5	2 (3.3)	2 (100)

Table 3. Mean Score of HESI Exams for Participants With and Without CRS

	Group Who Did Not Attend CRS (<i>N</i> = 54) Mean (<i>SD</i>) Range	Group Who Attended CRS (<i>N</i> = 61) Mean (<i>SD</i>) Range	<i>p</i>
Fundamental HESI	768.26 (69.22) 606-852	732.02 (79.16) 498-841	0.011
Medical- Surgical HESI	929.04 (115.24) 703-1220	935.66 (111.83) 661-1204	0.755
Difference in mean score between Medical Surgical and Fundamental HESI	160.78	206.64	0.334
# of CRS Completed	n/a	1.98 (1.072) 1-5	