Assessment Year: 2018

Bachelor of Science in Radiologic Sciences

College: Nursing and School of Allied Health

Prepared by: Dr. Kelli Haynes Date: June 7, 2019

Approved by: Dr. Dana Clawson, Dean Date: June 10, 2019

Northwestern State University Mission Statement: NSU is a responsive, student-oriented institution that is committed to the creation, dissemination, and acquisition of knowledge through teaching, research, and service. The University maintains as its highest priority excellence in teaching in graduate and undergraduate programs. Northwestern State University prepares its students to become productive members of society and promotes economic development and improvements in the quality of life of the citizens in its region.

College of Nursing and School of Allied Health Mission Statement: NSU CONSAH serves the people of Louisiana and in so doing improves the health of its citizens while advancing the mission of Northwestern State University through excellence in accessible undergraduate, graduate, and continuing education programs that are designed to assist individuals in achieving their professional goals as responsible and contributing members of their profession and society.

School of Allied Health Mission Statement: The SAH at NSU provides high quality undergraduate and graduate programs that prepare individuals for a variety of professional healthcare roles and to be conscientious, contributing members of their profession and society.

BSRS Mission. The mission of the Radiologic Sciences Program is to provide students with advanced knowledge and skills through guided experiences and clinical practice that culminates in professional radiologic technologists becoming an integral part of the healthcare community and society.

Bachelor of Science in Radiologic Sciences Purpose and Objectives:

BSRS Program Purpose. To provide students with the education and skills to function as an integral part of the health care community and the opportunity for advancement in the allied health professions.

- To provide opportunities which will enhance the development of roles in the radiologic sciences professions
- To provide a foundation for radiologic science professionals to become lifelong learners and to strive for continued professional growth

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BSRS Program Objectives. Graduates of the BSRS program should be able to:

- Perform quality radiographic procedures.
- Develop assessment skills of a radiographer.
- Evaluate a clinical situation and perform accordingly using critical thinking skills.
- Propose a plan to respond to imaging department scenarios.
- Demonstrate service to the profession and the community.
- Integrate adherence to professional behaviors.
- Develop oral communication skills.
- Develop written communication skills.

Methodology

1. Data from assessment tools are collected and sent to the program director.
2. Data is collected during the spring, summer, and fall semesters of a calendar year.
2. The program director enters the data into the tables for each SLO.
3. The results are shared with the BSRS Assessment Committee. The committee discusses data analysis, interpretation, actions, trends, results, and future plans.
4. The BSRS Assessment committee findings are discussed in the School of Allied Health faculty meetings. Additional insights and actions are added to the assessment plan as necessary.

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<tr><th></th><th>2019</th><th>2018</th><th>2017</th><th>2016</th><th>2015</th></tr>
<tr><td>N</td><td></td><td>41</td><td>24</td><td>25</td><td>32</td></tr>
<tr><td>Met</td><td></td><td>41</td><td>24</td><td>24</td><td>32</td></tr>
<tr><td>Mean</td><td></td><td>4.56</td><td>5</td><td>3.96</td><td>4.25</td></tr>
<tr><td>Range</td><td></td><td>3.5-5</td><td>5</td><td>3-4</td><td>4-5</td></tr>
<tr><td>%</td><td></td><td>100</td><td>100</td><td>96</td><td>100</td></tr>
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<tr><td>B. RADS 3310 (Positioning I): Comprehensive Lab Final Exam</td><td>100% of students will score 85 or higher</td><td>
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<tr><th></th><th></th><th>2019</th><th>2018</th><th>2017</th><th>2016</th></tr>
<tr><td>N</td><td></td><td></td><td>45</td><td>54</td><td>35</td></tr>
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<tr><td>Mean</td><td></td><td></td><td>81.24</td><td>81.59</td><td>82.2</td></tr>
<tr><td>Range</td><td></td><td></td><td>59-93</td><td>65-95</td><td>17-98</td></tr>
<tr><td>%</td><td></td><td></td><td>62</td><td>42</td><td>51</td></tr>
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<tr><td>C. RADS 3820 (Positioning II): Comprehensive Lab Final Exam</td><td>100% of students will score 85 or higher</td><td>
<table>
<tr><th></th><th></th><th>2019</th><th>2018</th><th>2017</th><th>2016</th></tr>
<tr><td>N</td><td></td><td></td><td>33</td><td>43</td><td>26</td></tr>
<tr><td>Met</td><td></td><td></td><td>15</td><td>14</td><td>21</td></tr>
<tr><td>Mean</td><td></td><td></td><td>83.03</td><td>80.6</td><td>81.76</td></tr>
<tr><td>Range</td><td></td><td></td><td>70-95</td><td>37-92</td><td>43-100</td></tr>
<tr><td>%</td><td></td><td></td><td>45</td><td>32</td><td>81</td></tr>
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<tr><td>1.2 Students will develop assessment skills of a radiographer.</td><td>A. ALHE 3840 (Advanced Patient Care): Overall Assessment Test</td><td>100% of students will score 85 or higher</td><td>
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<tr><td>N</td><td>32</td><td>43</td><td>21</td><td>35</td><td>32</td></tr>
<tr><td>Met</td><td>30</td><td>30</td><td>17</td><td>30</td><td>30</td></tr>
<tr><td>Mean</td><td>95</td><td>88</td><td>90</td><td>92</td><td>87</td></tr>
<tr><td>Range</td><td>60-100</td><td>45-83</td><td>65-96</td><td>72-100</td><td>68-100</td></tr>
<tr><td>%</td><td>94</td><td>69</td><td>81</td><td>86</td><td>94</td></tr>
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	B. **RADS 3820** (Positioning 2): Trauma lab scenario	100% of students will score 85 or Higher.		**2018**	**2017**	**2016**	**2015**	**2014**	
			N	33	43	26	36	30	
			Met	30	38	22	35	29	
			Mean	97	93	92	93	90	
			Range	77-100	75-100	82-100	81-100	76-100	
			%	91	88	91	95	97	

SLO: 1.1 Students will perform quality radiographic procedures.

Findings:

Measure A: RADS 4611: Clinical Instructor Evaluation of Student Q16: Quality of work and performance

2018: Met—100% of students achieved a 3.5 or higher.
2017: Met—100% of students achieved a 3.5 or higher.
2016: Unmet—only 96% of students achieved 3.5 or higher.
2015: Met—100% of students achieved 3.5 or higher.
2014: Data not available.

Measure B: RADS 3310 (Positioning I): Comprehensive Lab Final Exam

2018: Unmet—Only 62% of students achieved 85% or higher.
2017: Unmet—only 42% of students achieved 85% or higher.
2016: Unmet—only 51% of students achieved 85% or higher.
2015: Data not available.
2014: Data not available.

Measure C: RADS 3820 (Positioning II): Comprehensive Lab Final Exam

2018: Unmet—only 45% of students achieved 85% or higher.
2017: Unmet—only 32% of students achieved 85% or higher.
2016: Unmet—only 81% of students achieved 85% or higher.
2015: Data not available.
2014: Data not available.

Analysis: SLO: 1.1 Students will perform quality radiographic procedures.

The first goal, to produce a clinically competent radiologic science student, is assessed by three measures. The first SLO evaluates whether the student can perform quality radiographic procedures. Two of the three measures improved from the 2017 Assessment Year (AY) to the 2018 AY, while the remaining measure stayed the same, which was met, however, there was a decrease in the mean for the 2018 AY.

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Measure A: RADS 4611: Clinical Instructor Evaluation of Student Q16: Quality of work and performance: This measure is stemmed from the evaluation of clinical students and quantifies the student's quality of work and performance in the clinical setting. In the 2018 AY, this measure was met. Based on the analysis of the 2017 assessment cycle results, faculty continued a campaign to reinforce to the students the importance of improving their clinical skills and performance. This movement included the following: advising students regarding clinic expectations; increase the incidence of student/faculty evaluations, so the student is aware of his/her standing; and meeting with clinical faculty to ensure consistency in evaluations of students. For the 2018 AY, this measure was met, with 100% of the students scoring a 3.5 or higher on a 5-point Likert scale referring to student work and performance, indicating that all students were demonstrating a suitable quality of work and performance.

Measure B: RADS 3310 (Positioning I): Comprehensive Lab Final Exam: This measure concentrates on the students' ability to perform quality radiographic procedures through a simulated positioning lab exam. In the 2018 AY this measure was unmet, as only 62% of the students scored an 85 or higher on this exam. Based on the analysis of the 2017 assessment cycle results, faculty increased the number of practice labs for students, to work on their radiographic procedures skills, and implemented a virtual positioning software called "Shaderware." "Shaderware" allows the student the opportunity to practice radiographic skills using an assimilated virtual software. In the 2018 AY, Shaderware assignments were added to the course syllabus. Even though the benchmark was not met, there was an increase in compliance. The mean for the two years remained relatively unchanged, however: 2018-81.24 vs 2017-81.59.

Measure C: RADS 3820 (Positioning II): Comprehensive Lab Final Exam: This measure focuses the students' ability to perform quality radiographic procedures through a simulated positioning lab exam in the students' second level of radiographic procedures course. In the 2018 AY, this measure was unmet, as only 45% of the students scored an 85 or higher, specifying that 55% of the students did not successfully display the performance of quality radiographic procedures. Based on the analysis of the 2017 assessment cycle results, faculty implemented several learning strategies. In addition to extra practice labs, Shaderware was implemented as a graded assignment. Students were encouraged to use this software, and several grades were associated with this new software. Also, faculty provided feedback frequently to students in the actual clinic setting. Unfortunately, the results of these plans were not encouraging. Faculty implemented student learning contracts, which will be implemented in 2019 AY. The contracts will require students to attend tutoring, remedial sessions and extra lab practice time if they are unsuccessful on a test.

Action Plan: Only one of the three measures used to assess SLO 1.1 were met, therefore, there is still much room for improvement for this learning outcome. Performing quality radiographic procedures is one of the dominant skills of any radiologic science professional, and, based on the analysis of the 2018 assessment cycle results, several items will be implemented for the 2019 AY in anticipation of continued improvement in the 2019 AY.

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For Measure A, frequent interaction between faculty members and students will continue to be utilized. This interaction will reinforce to the student the importance of producing quality work. In addition to the typical student/faculty interaction, faculty will create a discussion board post in Moodle. This post will ask about clinical procedures and create dialog about performing quality procedures. This discussion board will provide another mechanism for students to discuss their work and performance with both faculty and peers. Positive dialog and constructive criticism can then be offered to help the student perform better in the clinical setting.

Measure B is an important gauge of how the student may function in the clinical setting. To improve student performance faculty implemented learning contracts, peer-to-peer mentoring, additional “practice” labs, and expanded the use of virtual positioning software (Shaderware). The learning contracts, which include students attend peer-to-peer tutoring, were used for students who were not successful on the first exam in the course. The peer-to-peer tutoring sessions employed a senior student to assist the junior students in the review of key radiologic science material. Additional “practice” labs provide opportunities to perform the procedures learned in the course. Finally, shaderware assignments provide opportunities for students to practice without the risks of radiation exposure. Even though these measures were implemented, the benchmark was still unmet. Faculty discussed this measure at length. Ultimately, it was decided this measure does not accurately evaluate the potential performance of the student because all the experiences in the course are simulated patient experiences and not actual experiences. Therefore, this measure will be discontinued.

Measure C measures the student’s ability to perform quality radiographic procedures at the end of the second positioning course. There was an increase in the number of students who successfully scored the 85% benchmark. Taking into consideration the importance of the student’s ability to perform quality radiographic procedures, faculty implemented several strategies. First, faculty have added quizzes, to be taken at each class session, to the course grade. This should reinforce material taught in lecture and lab. Also, students are advised to review missed test questions ask for clarification from faculty if needed. Additionally, faculty have added additional lab practice opportunities, to be offered after lecture tests and before lab tests. Furthermore, students are advised to attend free tutoring sessions. Also, as stated in the course syllabus, students are required to complete remediation, with faculty, for all tests in which they are unsuccessful. Faculty will schedule a comprehensive review at end of the semester before finals. In addition, these students will also participate in the peer-to-peer tutoring sessions. Through faculty discussion, it was determined that 40% of the final exam is image critique. Students are more successful on the lecture component of the test versus the image critique component. Faculty will add additional film critique criteria during lecture and lab sessions.

Decisions: It is imperative that radiologic science students are able to perform radiographic procedures in a quality manner. This SLO focuses on this skill through three methods. While there was an improvement in two of the three measures for this outcome, signifying that students are developing in their skills to complete radiographic procedures with quality, it is vital that all three measures are constantly met. To tackle that goal, the following activities will be implemented in the 2019 AY:

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- Faculty will meet with students often to discuss students' clinical performance. These informal meetings will also function to emphasize expected student behaviors regarding clinical performance and quality of work.
- Begin a clinical discussion in Moodle for students, allowing the students the opportunity to discuss their clinical experiences. This post will ask students about clinical procedures and create dialog between faculty and students regarding performing procedures in a quality manner.
- Addition of assignments utilizing virtual positioning software. This software will require students to practice radiologic procedures through simulation, without the need for radiation.
- Learning contracts will be introduced for students who are not performing well in the positioning course(s). These contracts will include requirements of students to attend tutoring sessions and faculty remediation sessions.
- Additional "practice" labs will be offered for extra opportunities for students learning to perform clinical procedures.
- Tutoring sessions will be emphasized. JR level students will benefit from the review of radiographic procedure content.

SLO: 1.2 Students will develop assessment skills of a radiographer.

Findings:

Measure A: ALHE 3840 (Advanced Patient Care): Comprehensive Final Exam

2018: Unmet—only 94% of students achieved 85% or higher.
2017: Unmet—only 69% of students achieved 85% or higher.
2016: Unmet—only 81% of students achieved 85% or higher.
2015: Unmet—only 86% of students achieved 85% or higher.
2014: Unmet—only 94% of students achieved 85% or higher.

Measure B: RADS 3820 (Positioning 2): Trauma lab scenario

2018: Unmet—only 91% of students achieved 85% or higher.
2017: Unmet—only 88% of students achieved 85% or higher.
2016: Unmet—only 91% of students achieved 85% or higher.
2015: Unmet—only 95% of students achieved 85% or higher.
2014: Unmet—only 97% of students achieved 85% or higher.

Analysis: SLO: 1.2 Students will develop assessment skills of a radiographer.

This SLO is designed to determine the student's ability to evaluate a patient as if he/she were a practicing radiographer. This is part of the larger goal of ensuring students are clinically competent. Two measures are used to evaluate this outcome, and in 2018, neither measure was met.

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Measure A: ALHE 3840 (Advanced Patient Care): Comprehensive Final Exam: This measure is from the comprehensive final exam in the advanced patient care class, which is used to gauge the student's ability to assess a patient. In the 2018 AY, this measure was not met, as only 94% of the students scored an 85 or higher on the final exam. However, this is an improvement from 2017 assessment cycle, which was 69%. Based on the analysis of the 2017 assessment cycle results, additional resources were added to the course to further explain the patient assessment material. Additionally, faculty complemented PowerPoints by recording audio to explain difficult content in a more learner friendly manner. Lastly, through faculty discussion, it was realized that the course changed from a Radiologic Science prefix (RADS) to an Allied Health prefix (ALHE). The grading scale for allied health courses is a 10-point scale versus radiologic science courses, which is a 7-point scale. Therefore, for the 2019AY, the benchmark will be changed to 80%.

Measure B: RADS 3820 (Positioning II): Trauma lab scenario: The trauma lab scenario assignment requires students to perform a radiologic examination on a simulated "trauma" patient. The evaluation includes assessing the patient's ability to move, breathe, cooperate, and assessing pain levels. Students must conduct the assessment and perform the examination in a timely manner. This situation is an indication of the student's mastery of patient assessment. In the 2018 AY, this measure trended up, however, it remained unmet. In 2018, the number of students who met the threshold of an 85 was 91%, also, the mean increased from a 93 (2017) to a 97 (2018). Based on the analysis of the 2017 assessment cycle results, faculty felt that certain learning strategies could be employed to help improve the scores and thus, student's knowledge of patient assessment in the trauma setting. These learning strategies included extra practice labs and included additional trauma scenarios.

Action Plan: Neither of the two measures used to evaluate SLO 1.2 were met in 2018 AY. Based on the findings of the 2018 assessment cycle results, faculty have applied several strategies to achieve the inclusive goal of the student becoming a clinically competent radiologic technologist.

For Measure A, the five-year unmet benchmark dictated noteworthy changes. The course was revised to include external links to assist the student in his/her study of patient assessment. Also, the traditional textbook was eliminated. Instead, the course now utilizes open resource materials and is much more specific to the radiologic science profession. The final exam was also eliminated. As an alternative, assignments are used to appraise the student's ability to assess patients. These changes correlate with the overall goal of the program of producing a clinically competent radiologic technologist. Faculty discussion brought the realization that the course changed from a Radiologic Science prefix (RADS) to an Allied Health prefix (ALHE), which has a different grading scale. The grading scale for allied health courses is a 10-point scale versus radiologic science courses, which is a 7-point scale. Therefore, for the 2019AY, the benchmark will be changed to 80%.

Measure B supports the overall goal of producing a clinically competent radiologic technologist by evaluating the student in a simulated trauma setting. This SLO was not met in 2018. To improve the student's ability to assess patients', faculty will complement lectures with supplemental videos that demonstrate proper trauma assessment. These videos will be posted in

Moodle. Also, faculty will record the trauma practice labs so students can evaluate their assessment skills. Faculty will review and critique the videos with the students. After much discussion from faculty, it was decided to lower the benchmark from 85% to 77%. The new benchmark (77%), is a passing grade for students.

Decisions: For students to become clinically competent radiologic technologists, it is imperative that they develop patient assessment skills. This SLO assesses this occurrence using two measures. Unfortunately, neither of the measures were met for AY2018. Therefore, a series of actions will take place prior to AY 2019 to ensure that students develop the essential assessment skills. These actions include:

- Course revision of ALHE (formerly RADS) 3840 to incorporate patient assessment skills specific to radiologic sciences, rather than a broad-based approach.
- Use of an open resource material, specific to radiologic sciences.
- Creation of multiple assignments to determine the student's assessment skills, rather than one exam. This approach is a more comprehensive evaluation of assessment skills.
- Include additional videos depicting radiographer's assessment of patients in the trauma setting.
- Record and post videos of students as they participate in trauma practice labs. This will allow students to be able to critique themselves in their assessment abilities.
- Grading scale revised.
- New benchmark established.

Summary of Goal 1: Students will be CLINICALLY COMPETENT radiologic technologists.

The first goal of the Bachelor of Science in Radiologic Science (BSRS) program is that students will be clinically competent radiologic technologists. Two SLOs are used to evaluate this goal. First, students must be able to perform quality radiographic procedures. Two of the measures used to assess this SLO revealed that many students were not performing quality radiographic procedures. Based on the examination of the 2018 assessment cycle results, multiple measures have been implemented to various courses to strengthen the significance of this outcome and these measures will be reevaluated in 2019. Of note, these two measures assess student abilities in the classroom, while the third measure assesses the student's ability in the clinical setting. Based on the analysis of the 2018 assessment cycle results of the students' abilities in the clinical setting, all students were evaluated and found to be performing quality radiographic procedures.

The second SLO for this goal is that students will develop assessment skills essential to be a radiographer. Neither measure was met in 2018. Based on the evaluation of the 2018 assessment cycle outcomes, there were some positive findings, and areas to improve upon. First, most students were able to properly assess patients in a simulated trauma setting (RADS 3820-91% scored an 85 or higher). Faculty will continue to reinforce trauma assessment to further develop this skill in students. The other measure provided room for improvement. Primarily, it was realized that the existing course focused on nursing assessment skills, which

are different than the assessment skills essential to radiographers. To combat this issue, a course revision, including open resource materials, a revised grading scale and new assignments, will be used to address the assessment skills needed by radiographers.

Goal 2: Students will demonstrate CRITICAL THINKING skills.

Student Learning Outcomes	Tool	Benchmark	Results
2.1 Students will evaluate a clinical situation and perform accordingly using critical thinking skills.	A. **RADS 3820** (Positioning 2): Trauma lab scenario	100% of students will score 85 or higher	
	B. **RADS 4510** (Professional Imaging Practices): Clinical Scenario Assignment	100% of students will score 85 or higher	
2.2 Students will propose a plan to respond to imaging department scenarios.	A**. ALHE 4610** (Healthcare Quality): QC project	100% of students will score 85 or higher	
	B. **ALHE 4630** (Healthcare Organization and Management): Mgmt. Case Study Project	100% of students will score 85 or higher	

A. RADS 3820 (Positioning 2): Trauma lab scenario

	2018	2017	2016	2015	2014
N	33	43	26	36	30
Met	30	38	22	35	29
Mean	97	93	92	93	90
Range	77-100	75-100	82-100	81-100	76-100
%	91	88	91	95	97

B. RADS 4510 (Professional Imaging Practices): Clinical Scenario Assignment

	2018	2017	2016	2015	2014
N	41	24	33	31	24
Mean	99.8	100	98	96	97.5
Range	95-100	100	95-100	80-100	90-100
%	100	100	100	97	100

A. ALHE 4610 (Healthcare Quality): QC project

	2018	2017	2016	2015	2014
N	41	24	32	32	24
Met	33	23	23	28	19
Mean	88.7	93.4	88.8	93.5	89.2
Range	0-100	51-100	0-100	78-100	60-100
%	80	96	72	88	79

B. ALHE 4630 (Healthcare Organization and Management): Mgmt. Case Study Project

	2018	2017	2016	2015	2014
N	25	32	31	24	22
Met	25	31	31	24	22
Mean	88	95	93	97	92
Range	85-100	42-100	88-100	93-100	88-100
%	100	97	100	100	100

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SLO: 2.1 Students will evaluate a clinical situation and perform accordingly using critical thinking skills.

Findings:

Measure A: RADS 3820 (Positioning 2): Trauma lab scenario

2018 Unmet- only 91% of students achieved an 85% or higher.

2017: Unmet—only 88% of students achieved 85% or higher.

2016: Unmet—only 91% of students achieved 85% or higher.

2015: Unmet—only 95% of students achieved 85% or higher.

2014: Unmet—only 97% of students achieved 85% or higher.

Measure B: RADS 4510 (Professional Imaging Practices): Clinical Scenario Assignment

2018: Met—100% of students achieved 85% or higher.

2017: Met—100% of students achieved 85% or higher.

2016: Met—100% of students achieved 85% or higher.

2015: Unmet—only 97% of students achieved 85% or higher.

2014: Met—100% of students achieved 85% or higher.

Analysis: SLO 2.1: Students will evaluate a clinical situation and perform accordingly using critical thinking skills. The second SLO is envisioned to measure the student's ability to assess a clinical situation and respond using suitable critical thinking skills. Two measures are used to assess this skill. One measure was met, and the other was not. Based on the examination of the 2018 assessment cycle data, strategies have been developed to enhance the students' ability to use critical thinking skills.

Measure A: RADS 3820 (Positioning II): Trauma lab scenario: The trauma lab scenario assignment requires students to conduct an assessment and perform a radiologic examination on a simulated "trauma" patient. The evaluation includes assessing the patient's ability to move, breathe, cooperate, and assessing pain levels. Students must conduct the assessment and perform the examination in a timely manner. Trauma patients present differently than the typical patient. Therefore, students must use critical thinking skills to alter their routine and still produce quality images. In the 2018 AY, this measure trended up, however, it remained unmet. In 2018, the number of students who met the threshold of an 85 was 91%, also, the mean increased from a 93 (2017) to a 97 (2018). After much discussion from faculty, it was decided to lower the benchmark from 85% to 77%. The new benchmark (77%), is a passing grade for students. Based on the analysis of the 2018 assessment cycle data, faculty felt that strategies could be employed to further improve the scores and thus, student's critical thinking skills during a trauma situation. Plans include additional practice labs and expanding the trauma scenarios to offer more variety.

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Measure B: RADS 4510 (Professional Imaging Practices): Clinical Scenario Assignment: This assignment evaluates the student's capability to apply critical thinking skills in a variety of imaging scenarios. This measure was met in 2018. Based on the investigation of the 2018 assessment cycle results, and regardless of the fact that this measure was met, recognizing the importance of critical thinking in radiologic sciences, faculty decided that the scenarios should be revised and expanded to include more variety to continue the pattern of continuous improvement.

Action Plan: Based on the exploration of the 2018 assessment cycle findings, and even though one of the measures were met for this SLO, faculty felt inclined to confirm both measures were improved upon to promote a setting where critical thinking is the norm. To accomplish this, a variety of teaching strategies will be employed.

For Measure A, students are evaluated on their capacity to think critically during a simulated examination on a trauma patient. Even though the data trended up, this SLO was not met in 2018. Faculty have planned to supplement lecture content with videos that detail proper assessment with a trauma patient. Also, faculty will record the trauma practice labs so students can evaluate their assessment skills. Faculty will review and critique the videos with the students. After much discussion from faculty, it was decided to lower the benchmark from 85% to 77%. The new benchmark (77%), is a passing grade for students.

Measure B also measures the student's aptitude to think critically in a variety of clinical settings. This is the third year in a row that this measure has been met, however, but this skill needs to be improved upon. To do so, faculty will incorporate additional clinical scenarios in the course and an online discussion related to critical thinking. Also, clinical scenarios have been included in the Quality Enhancement Plan (QEP), *Learning for Life*. As students engage in the QEP, they will encounter additional critical thinking situations and continue to develop their response to critical thinking scenarios through action/reflection assignments.

SLO: 2.2 Students will propose a plan to respond to imaging department scenarios.

Findings:

Measure A: ALHE 4610 (Healthcare Quality): QC project

2018: Unmet—only 80% of students achieved 85% or higher.
2017: Unmet—only 96% of students achieved 85% or higher.
2016: Unmet—only 72% of students achieved 85% or higher.

Measure B: ALHE 4630 (Healthcare Organization and Management): Mgmt. Case Study Project

2018: Met—100% of students achieved 85% or higher.

2017: Unmet—only 97% of students achieved 85% or higher.

2016: Met—100% of students achieved 85% or higher.

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2015: Unmet—only 88% of students achieved 85% or higher.	2015: Met—100% of students achieved 85% or higher.
2014: Unmet—only 79% of students achieved 85% or higher.	2014: Met—100% of students achieved 85% or higher.

Analysis: SLO: 2.2 Students will propose a plan to respond to imaging department scenarios.

This SLO was designed meant to assess the student's capability to respond to diverse imaging department scenarios. This SLO contributes to the larger goal of developing critical thinking skills within radiologic science students. One of the two measures used to assess this SLO was met in 2018, while the other was not. Based on the investigation of the 2017 assessment cycle findings and the strategies enacted, there was positive change in measure B for the 2018AY. However, unfortunately, measure A showed a decline. Regardless these findings, however, supplementary teaching strategies will be utilized to influence growth and development in critical thinking skills in 2019.

Measure A: ALHE 4610 (Healthcare Quality): QC Project: For this measure, students must generate an action plan for a simulated quality management scenario in an imaging department. This measure facilitates the overall goal of developing critical thinking skills in radiologic science students. This measure was unmet in 2018, with only 80% of the students scoring an 85 or higher on this assignment. Also, this was a precipitous decrease in the number of students who did score an 85 or higher (96% in 2017). Faculty discussion brought forth the fact that the course changed from a Radiologic Science prefix (RADS) to an Allied Health prefix (ALHE). The grading scale for allied health courses is a 10-point scale versus radiologic science courses, which is a 7-point scale. Therefore, for the 2019AY, the benchmark will be changed to 80%.

Measure B: ALHE 4630 (Healthcare Organization and Management): Mgmt. Case Study Project: This measure asks students to generate a plan and respond to a simulated healthcare management scenario in an imaging department. This measure helps to assess the overall goal of producing students with critical thinking abilities. There was an improvement in meeting this benchmark this year. In the 2017 AY, 97% of the students scored an 85 or higher on this assignment. In 2018, this measure was met, with 100% of the students scoring an 85 or higher on this measure. Faculty discussion brought forth the fact that the course changed from a Radiologic Science prefix (RADS) to an Allied Health prefix (ALHE). The grading scale for allied health courses is a 10-point scale versus radiologic science courses, which is a 7-point scale. Therefore, for the 2019AY, the benchmark will be changed to 80%.

Action Plan: Critical thinking is an essential skill for radiologic technologists. This SLO, which evaluates students' capability to respond to diverse imaging department scenarios, is a useful method to measure whether the student possesses critical thinking skills. One of the measures for this SLO shows improvement from 2017, and the other shows a decrease in achieving the goal.

Assessment Year: 2018

Based on the investigation of the 2018 assessment cycle findings, however, and bearing in mind the critical nature of this SLO, faculty must remain conscientious in its assessment.

For Measure A, considering the examination of the 2018 assessment cycle findings, faculty will reassess the project description for this assignment. Additionally, faculty will post recurrent announcements and reminders in the course as to the due dates of assignments and a forum will be added for student's questions regarding assignments. The focus of QC has changed in Radiologic Sciences. Therefore, the course, and all assignments, was adjusted to coincide with the changes made in the profession. Now, the course centers on how quality is measured in healthcare. Faculty discussion brought forth the fact that the course changed from a Radiologic Science prefix (RADS) to an Allied Health prefix (ALHE). The grading scale for allied health courses is a 10-point scale versus radiologic science courses, which is a 7-point scale. Therefore, for the 2019AY, the benchmark will be changed to 80%.

For Measure B, based on the investigation of the 2018 assessment cycle results and despite this success, recognizing the importance of critical thinking in radiologic sciences, faculty sought methods to further improve this measure and thus, further increase student's abilities to think critically. Faculty will continue with frequent announcements and reminders in the class as to the due dates of assignments and create a discussion forum for questions related to assignments. Faculty discussion brought forth the fact that the course changed from a Radiologic Science prefix (RADS) to an Allied Health prefix (ALHE). The grading scale for allied health courses is a 10-point scale versus radiologic science courses, which is a 7-point scale. Therefore, for the 2019AY, the benchmark will be changed to 80%.

Decisions:
Regarding students' ability to think critically, there was indication that the bulk of students do have critical thinking skills. Despite the inspiring results obtained from the measures used to evaluate these outcomes, there are additional strategies that will be adopted to further refine these needed skills.

- Videos demonstrating trauma assessment were added to RADS 3820.
- Record students as they perform trauma assessments to allow the opportunity for reflection and self-critique.
- Revise assignments in ALHE 4610 to reflect changes in course content.
- Develop additional critical thinking scenarios in ALHE 4610.
- Critical thinking reflection was added to assignments, as part of the QEP process.
- Revise the course layout in ALHE 4630 to include reminders for assignment due dates and a forum for student questions.
- Change the benchmark for allied health courses to coincide with the 10-point grading scale.

Assessment Year: 2018

Summary of Goal 2: Students will demonstrate CRITICAL THINKING skills.

The second goal of the BSRS program is that students will demonstrate critical thinking skills. Again, two SLOs are used to assess this goal. The first SLO assesses this goal through two measures. The first measure established that most students were able to think critically during a simulation trauma scenario. Although this was encouraging, based on the investigation of the 2018 assessment cycle findings, faculty are investigating methods to further develop this measure though the use of trauma assessment videos to supplement faculty lectures. Faculty will also video the practice sessions of students so a self-critique can be performed by the student with a faculty member. The second measure for the first SLO established that every student was adequately assessing patients utilizing simulated scenarios. Again, despite this encouraging finding, and centered on the investigation of the 2018 assessment cycle findings, faculty continue to be vigilant in improving students' critical thinking skills. Faculty are revising and developing scenarios to offer more variety. Additionally, the reflection component of the BSRS Quality Enhancement Plan will be utilized to foster critical thinking skills.

The second SLO for this goal measures the student's critical thinking abilities in terms of managing an imaging department. One measure for this SLO was met, and the other measure was not met. Overall, from the analysis of the 2018 assessment cycle findings, faculty felt that students were displaying suitable critical thinking skills. Despite these inspiring findings, however, faculty will continue methods to boost critical thinking capabilities of each student. The first measure utilized for this SLO, has been revised to match the new focus in Radiologic Sciences. For the second measure used for this SLO, faculty will post reminders in the course pertaining to due dates for assignments and a forum will be added for students' questions regarding assignments.

Assessment Year: 2018

Goal 3: Students will demonstrate an understanding of PROFESSIONALISM.

<table>
<tr><th>Student Learning Outcomes</th><th>Tool</th><th>Benchmark</th><th>Results/Findings</th></tr>
<tr><td rowspan="2">3.1 Students will demonstrate service to the profession and the community.</td><td>A. ALHE 3840 (Advanced Pt. Care): Service-Learning Project</td><td>100% of students will score 85 or higher</td><td>
<table>
<tr><th></th><th>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td>32</td><td>32</td><td>21</td><td>35</td><td>32</td></tr>
<tr><td>Met</td><td>29</td><td>30</td><td>100</td><td>27</td><td>31</td></tr>
<tr><td>Mean</td><td>98</td><td>99</td><td>99</td><td>96</td><td>96</td></tr>
<tr><td>Range</td><td>80-100</td><td>80-100</td><td>90-100</td><td>0-100</td><td>80-100</td></tr>
<tr><td>%</td><td>91</td><td>94</td><td>100</td><td>77</td><td>98</td></tr>
</table>
</td></tr>
<tr><td>B. RADS 4511 (Clinic 4): RADS 3320 Reflection of Service-Learning Event</td><td>100% of students will score 85 or higher</td><td>
<table>
<tr><th></th><th>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td></td><td>24</td><td>33</td><td>25</td><td>24</td></tr>
<tr><td>Met</td><td></td><td>24</td><td>33</td><td>25</td><td>24</td></tr>
<tr><td>Mean</td><td></td><td>100</td><td>100</td><td>100</td><td>100</td></tr>
<tr><td>Range</td><td></td><td>100</td><td>100</td><td>100</td><td>100</td></tr>
<tr><td>%</td><td></td><td>100</td><td>100</td><td>100</td><td>100</td></tr>
</table>
</td></tr>
<tr><td rowspan="2">3.2 Students will integrate adherence to professional behaviors.</td><td>A. RADS 4611 (Clinic 5): Clinical Instructor Evaluation of Student Q2: Professional Behavior</td><td>100% of students will score an average of at least 4/5.</td><td>
<table>
<tr><th></th><th></th><th></th><th>2018</th><th>2017</th><th>2016</th></tr>
<tr><td>N</td><td></td><td></td><td>41</td><td>24</td><td>33</td></tr>
<tr><td>Met</td><td></td><td></td><td>40</td><td>24</td><td>33</td></tr>
<tr><td>Mean</td><td></td><td></td><td>4.71</td><td>4.79</td><td>4.74</td></tr>
<tr><td>Range</td><td></td><td></td><td>3-5</td><td>4-5</td><td>4.14-5.0</td></tr>
<tr><td>%</td><td></td><td></td><td>98</td><td>100</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>B. RADS 3911 (Clinic 3): Faculty Evaluation of Student Q2: Professional Behavior</td><td>100% of students will score an average of at least 4/5.</td><td>
<table>
<tr><th></th><th></th><th></th><th>2018</th><th>2017</th><th>2016</th></tr>
<tr><td>N</td><td></td><td></td><td>41</td><td>32</td><td>24</td></tr>
<tr><td>Met</td><td></td><td></td><td>40</td><td>32</td><td>24</td></tr>
<tr><td>Mean</td><td></td><td></td><td>4.88</td><td>5</td><td>5</td></tr>
<tr><td>Range</td><td></td><td></td><td>3-5</td><td>5</td><td>5</td></tr>
<tr><td>%</td><td></td><td></td><td>97</td><td>100</td><td>100</td></tr>
</table>
</td></tr>
</table>

Assessment Year: 2018

SLO: 3.1 Students will demonstrate service to the profession and the community.

Findings:

Measure A: ALHE 3840 (Advanced Pt. Care): Service-Learning Project

2018: Unmet—only 91% of students achieved 85 or higher.
2017: Unmet—only 94% of students achieved 85 or higher.
2016: Met—100% of students achieved 85 or higher.
2015: Unmet—only 77% of students achieved 85 or higher.
2014: Unmet—only 98% achieved 85 or higher.

Measure B: 3310 RADS 4511 (Clinic 4): LSRT Participation Project

2018: Data not available.
2017: Met—100% of students achieved 85 or higher.
2016: Met—100% of students achieved 85 or higher.
2015: Met—100% of students achieved 85 or higher.
2014: Met—100% of students achieved 85 or higher.

Analysis: SLO: 3.1 Students will demonstrate service to the profession and the community.
Professionalism is one of the most important components of any health science profession. Community service and professional service are both methods to evaluate the professionalism of an individual. The first SLO for this goal is that students will demonstrate service to the profession and the community and is measured in a variety of methods.

Measure A: ALHE 3840 (Advanced Pt. Care): Service-Learning Project: A service-learning project is used to evaluate this SLO. The service-learning project is performed during the ALHE 3840 Advanced Patient Care class. For the project, students volunteer their time at a local community facility. Once students have completed the required number of hours, they describe their experience through a narrated PowerPoint and a written paper. In 2018 AY, 91% of the students scored an 85 or higher on this assignment, which was a slight drop from 2017 AY. Due to the findings of the 2018 assessment cycle results, and in an effort to continually improve this outcome, faculty slightly revised the instructions of the assignment based on feedback from students. Faculty discussion brought forth the fact that the course changed from a Radiologic Science prefix (RADS) to an Allied Health prefix (ALHE). The grading scale for allied health courses is a 10-point scale versus radiologic science courses, which is a 7-point scale. Therefore, for the 2019AY, the benchmark will be changed to 80%.

Measure B: 3310 RADS 4511 (Clinic 4): LSRT Participation Project (changed to new measure): The second measure utilized to evaluate the students' service to the profession and community came via their participation in the Louisiana Society of Radiologic Technologists (LSRT) Annual Meeting. This participation included students engaging in a scientific research project. Students would research a radiologic science topic and present their research for their peers and other radiologic science professionals at the annual LSRT Research Poster competition. However, in compliance with University directives, this measure will be discontinued for the 2018 AY. A new measure will be added for the 2019 AY.

Assessment Year: 2018

Actions:
For Measure A, founded on the evaluation of the 2018 assessment cycle results**,** and in an effort foster additional development in this student outcome, faculty slightly revised the instructions for the assignment based on suggestions from student feedback. Also, faculty will increase communication with students, through frequent emails and announcements, to ensure students are able to comprehend the expectations for the assignment.

For Measure B, there is no data available for AY 2018. In compliance with University directives, attendance at the annual conference is no longer mandatory. Therefore, all students will not be attending the LSRT annual meeting. So, a new measure will be used in the 2019 AY. Faculty determined that the service-learning reflection assignment, that occurs in RADS 3320, will be utilized. In the course, RADS 3320, students volunteer at a local nursing home or long-term rehabilitation facility to improve communication skills and gain insight into working with elderly patients. Following this unique patient interaction event, students reflect on this occurrence and write a paper. This new measure will begin in 2019 AY.

Decisions:
Regarding students' displaying service to the profession and the community, based on the analysis of the 2018 assessment cycle results, there was indication that most students did demonstrate service to the profession and the community. Findings demonstrate a decrease for the measure utilized to evaluate this SLO. However, even though the decrease is due to students not submitting or submitting late assignments, there continues to be room for improvement. The following strategies will be applied:

- Students who do not submit assignments will be excluded from data set. This will ensure the data reflects only students who participated in service to the community and profession.
- Amend criteria and rubric for ALHE 3840 Service-Learning Project (measure A).
- Faculty to increase communication with students to ensure understanding of expectations for ALHE 3840 Service-Learning Project: (measure A).
- Implement new benchmark due to the 10-point grading scale.
- Implement new measure (B), reflection of patient interaction experience.

SLO: 3.2 Students will integrate adherence to professional behaviors.

Findings:

Measure A: RADS 4611 (Clinic 5): Clinical Instructor Evaluation of Student Q2: Professional Behavior
2018: Unmet—98% of students achieved 4.0 or higher.

Measure B: RADS 3911 (Clinic 3): Faculty Evaluation of Student Q2: Professional Behavior
2018: Unmet—97% of students achieved 4.0 or higher

Assessment Year: 2018

2017: Met—100% of students achieved 4.0 or higher.
2016: Met—100% of students achieved 4.0 or higher.
2015: Data not available.
2014: Data not available.

2017: Met—100% of students achieved 4.0 or higher.
2016: Met—100% of students achieved 4.0 or higher.
2015: Data not available.
2014: Data not available.

Analysis: SLO: 3.2 Students will integrate adherence to professional behaviors.
Professionalism is an essential component of any health science profession. Observance of professional behaviors is utilized to measure the professionalism of an individual. The first SLO for this goal is question two of the clinical instructor evaluations of the students' performance in the clinical setting. The clinical instructor completes an evaluation on the student's performance at the end of each clinical rotation. Normally, five evaluations are completed each semester. Question two speaks to the professional behavior of the student on a five-point Likert scale. Students observance of professional behaviors is assessed in a variety of methods. The second SLO for this goal is question two of the same clinical evaluation of the student, however, this evaluation is completed by a program faculty member. The faculty member completes an evaluation of the student and meets with the student to review the results. Faculty meet with students two times per semester to assess and review clinical performance. These conversations also include a discussion of expected professional behaviors. Radiologic Technologists' are expected to demonstrate professional behaviors, as outlined in the Code of Ethics and Practice Standards.

Measure A: RADS 4611 (Clinic 5): Clinical Instructor Evaluation of Student Q2: Professional Behavior. The first measure utilized to evaluate this SLO is adherence of professional behavior in senior level clinical students. The first SLO for this goal is question two of the clinical instructor evaluations of the student. Question two regards the professional behavior of the student, utilizing a five-point Likert scale. The clinical instructor at the clinical facility completes an evaluation on the students' clinical performance at the conclusion of the clinical rotation. Approximately five evaluations are completed on each student each semester. Next, faculty examine the evaluations, with the students, during the semester. Based on the investigation of the 2018 assessment cycle findings, this measure was found to be unmet, as only 98% of students scored 100% on question two of the clinical evaluation. To promote improvement in the education of professional behaviors, however, faculty continually accentuate the importance of the adherence to the American Society of Radiologic Technologists (ASRT) and the American Registry of Radiologic Technologists (ARRT) Codes of Conduct in various settings. In an attempt to foster continuous improvement in the development of professional behaviors in student's, and based on the analysis of the 2018 assessment cycle findings, faculty will remain vigilant in incorporating portions of the ASRT and the ARRT Codes of Conduct in a variety of settings to achieve positive results in the 2019 AY. Additionally, professional behavior has been included in the Quality Enhancement Plan, *Learning for Life*. Quite a few of the outcomes associated with the QEP communicate professional behaviors, and these behaviors are encouraged as part of the overall QEP.

Assessment Year: 2018

Measure B: RADS 3911 (Clinic 3): Faculty Evaluation of Student Q2: Professional Behavior. The second measure for this SLO is question two of the same clinical evaluation of the student, however, this time, the evaluation is completed by an NSU faculty member. Question two regards the professional behavior of the student on a five-point Likert scale. The faculty member completes the evaluation of the student and meets with the student to review the findings. The faculty members meet with each clinical student approximately two times per semester to assess and examine clinical performance. These meetings typically include a dialog regarding professional behaviors displayed by the student. Unfortunately, in 2018, this measure was unmet. In an effort encourage continual improvement in the maturity of professional behaviors among students, and based on the 2018 assessment cycle findings, however, faculty will continue to emphasize the importance of professional behaviors. Faculty continually stress the importance of the adherence to the American Society of Radiologic Technologists (ASRT) and the American Registry of Radiologic Technologists (ARRT) Codes of Conduct in various settings, including classroom, laboratory and clinical settings.

Actions:

Measure A was unmet, with 98% of the students achieving a score of 77% or above on the clinical instructor evaluation of student's professional behavior. Even though this measure was unmet in the 2018 AY, faculty members consistently stress the importance of adherence of professional behaviors to prepare students to enter the profession. Based on the analysis of the 2018 assessment cycle findings, and to continually improve the development of professional behaviors among students, faculty will continue to emphasize the importance of adherence of professional behaviors. The American Society of Radiologic Technologists (ASRT) and the American Registry of Radiologic Technologists (ARRT) Codes of Conduct are used as guiding documents for the profession of radiologic sciences. Faculty will ensure that students are familiar with these documents and ensure that students adhere to professional behaviors. Also, professional behaviors are emphasized through the reflection piece connected with the University QEP, *Learning for Life*.

Measure B was unmet, with 97% of the students achieving a 77% or above on the faculty assessment of student's professional behavior. Even though this measure was unmet in the 2018 AY, faculty continually stress the importance of adherence of professional behaviors to groom students for the profession. Based on the analysis of the 2018 assessment cycle results, and to foster continuous improvement in the growth and development of professional behaviors among students, faculty will continue to emphasize the importance of adherence to expected professional behaviors. The American Society of Radiologic Technologists (ASRT) and the American Registry of Radiologic Technologists (ARRT) Codes of Conduct are guiding documents for the radiologic sciences profession. Faculty will ensure that students are familiar with these documents and ensure that students adhere to professional behaviors. Also, professional behaviors are emphasized through the reflection piece connected with the University QEP, *Learning for Life*.

Assessment Year: 2018

Decisions:
Regarding students' adherence of professional behaviors, the findings demonstrate that, overall, students adhere to professional behaviors. Even though this measure was unmet, faculty will continue to emphasize the importance of the adherence of professional behaviors. The following actions will be implemented:

- Each semester, clinical instructors will receive a blast email reminding them of the importance of the adherence to the Code of Ethics and the Practice Standards.
- Provide a copy of the Code of Ethics and Practice Standards to students at the faculty evaluations.
- Post the Code of Ethics and the Practice Standards in Moodle.
- Each semester, in the clinical meeting prior to the first day of clinical, students will be reminded of the importance of the adherence to the Code of Ethics and the Practice Standards.

Summary of Goal 3:

The third goal of the BSRS program is that students will display an awareness and understanding of professionalism. Again, two SLOs are used to evaluate this goal. The first SLO assesses this goal through two measures. The first measure of this SLO established that most students were able to effectively complete the service-learning project. Even though this was encouraging, faculty are continuing to seek methods to further improve these findings through the use of course revisions. As always, students who do not submit assignments or submit assignments late are going to negatively influence the data. Faculty will increase communication with students by sending frequent emails to urge students to turn in assignments on time. However, in the future, students who do not submit assignments will not be included in the data since there can be no evaluation of their communication skills. The second measure used to evaluate the students' service to profession and community came via their participation in the Louisiana Society of Radiologic Technologists (LSRT). Due to University initiatives, attendance at the annual conference is now voluntary, meaning that not all students will be completing the assignment used for this measure. Therefore, this measure has been discontinued and a new measure will be used in the 2019 AY. Faculty determined that the service-learning reflection, that takes place in RADS 3320 will be utilized as the new measure. Overall, faculty felt that, based on these SLO results, students are displaying service to the profession and the community. However, in spite of these positive findings, however, faculty are continuing to bolster the professional behaviors of each student.

The second measure of this SLO is the incorporation of adherence to professional behaviors. Question two of the clinical evaluation of the student, is used for both measures. Both measures of this SLO established that the bulk of students follow professional expectations and behaviors in the clinical setting. Even though this was encouraging, faculty are continuing to seek strategies to further improve this measure by emphasizing the Code of Ethics and Practice Standards. Again, faculty remain adamant in making sure students follow expected professional behaviors as a future member of the radiologic sciences profession.

Assessment Year: 2018

<table>
<tr><th colspan="4">Goal 4: Students will demonstrate the ability to COMMUNICATE effectively.</th></tr>
<tr><th>Student Learning Outcomes</th><th>Tool</th><th>Benchmark</th><th>Results/Findings</th></tr>
<tr><td rowspan="4">4.1 Develop oral communication skills.</td><td>A. RADS 4611 (Clinic 5): Clinical Instructor Evaluation of Student Q4: Communication with patients</td><td>100% of students score an average of at least 4/5.</td><td>
<table>
<tr><th></th><th></th><th></th><th>2018</th><th>2017</th><th>2016</th></tr>
<tr><td>N</td><td></td><td></td><td>41</td><td>24</td><td>33</td></tr>
<tr><td>Met</td><td></td><td></td><td>39</td><td>23</td><td>32</td></tr>
<tr><td>Mean</td><td></td><td></td><td>4.64</td><td>4.62</td><td>4.93</td></tr>
<tr><td>Range</td><td></td><td></td><td>2-5</td><td>3.2-5</td><td>3.86-5</td></tr>
<tr><td>%</td><td></td><td></td><td>95</td><td>96</td><td>97</td></tr>
</table>
</td></tr>
<tr><td>B. RADS 4611 (Clinic 5): Clinical Instructor Evaluation of Student Q5: Communication with technologists</td><td>100% of students will score an average of at least 4/5.</td><td>
<table>
<tr><th></th><th></th><th></th><th>2018</th><th>2017</th><th>2016</th></tr>
<tr><td>N</td><td></td><td></td><td>41</td><td>24</td><td>33</td></tr>
<tr><td>Met</td><td></td><td></td><td>41</td><td>24</td><td>33</td></tr>
<tr><td>Mean</td><td></td><td></td><td>4.56</td><td>4.66</td><td>4.86</td></tr>
<tr><td>Range</td><td></td><td></td><td>4-5</td><td>4-5</td><td>4-5</td></tr>
<tr><td>%</td><td></td><td></td><td>100</td><td>100</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>C. RADS 4611 (Clinic 5): Faculty Eval of Student Q4: Communication with patients</td><td>100% of students will score an average of at least 4/5.</td><td>
<table>
<tr><th></th><th></th><th></th><th>2018</th><th>2017</th><th>2016</th></tr>
<tr><td>N</td><td></td><td></td><td>41</td><td>24</td><td>24</td></tr>
<tr><td>Met</td><td></td><td></td><td>39</td><td>24</td><td>24</td></tr>
<tr><td>Mean</td><td></td><td></td><td>4.63</td><td>4.45</td><td>4.67</td></tr>
<tr><td>Range</td><td></td><td></td><td>2-5</td><td>4-5</td><td>4-5</td></tr>
<tr><td>%</td><td></td><td></td><td>95</td><td>100</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>D. RADS 4611 (Clinic 5): Faculty Eval of Student Q5: Communication with technologists</td><td>100% of students will score an average of at least 4/5.</td><td>
<table>
<tr><th></th><th></th><th></th><th>2018</th><th>2017</th><th>2016</th></tr>
<tr><td>N</td><td></td><td></td><td>41</td><td>24</td><td>24</td></tr>
<tr><td>Met</td><td></td><td></td><td>41</td><td>23</td><td>24</td></tr>
<tr><td>Mean</td><td></td><td></td><td>4.7</td><td>4.74</td><td>5</td></tr>
<tr><td>Range</td><td></td><td></td><td>4-5</td><td>3-5</td><td>5</td></tr>
<tr><td>%</td><td></td><td></td><td>100</td><td>96</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>4.2 Demonstrate written</td><td>A. RADS 4510 (Professional</td><td>100% of students will score at least 85.</td><td>
<table>
<tr><th></th><th>2018</th><th>2017</th><th>2016</th><th>2015</th><th>2014</th></tr>
<tr><td>N</td><td>41</td><td>24</td><td>33</td><td>30</td><td>24</td></tr>
</table>
</td></tr>
</table>

communication skills.	Imaging Practices): Senior paper		
	B. **RADS 4530** (Radiation Protection): Brochure Assignment	100% of students will score at least 85.	

Met	38	17	25	26	21
Mean	93	90	91	90	98
Range	83-99	73-100	38-100	80-100	82-100
%	95	71	88	85	88

	2018	**2017**	**2016**	**2015**	**2014**
N	42	24	35	24	25
Met	42	23	34	24	23
Mean	88	97	98	95	94
Range	85-100	80-100	80-100	90-100	83-100
%	100	96	97	100	92

Goal 4: Students will demonstrate the ability to communicate effectively.

SLO: 4.1 Students will develop oral communication skills.

Findings:

Measure A: RADS 4611 (Clinic 5): Clinical Instructor Evaluation of Student Q4: Communication with patients

2018: Unmet—only 95% of students achieved 4.0 or higher.
2017: Unmet—only 96% of students achieved 4.0 or higher.
2016: Unmet—only 97% of students achieved 4.0 or higher.
2015: Data not available.
2014: Data not available.

Measure B: RADS 4611 (Clinic 5): Clinical Instructor Evaluation of Student Q5: Communication with technologists

2018: Met—100% of students achieved 4.0 or higher.
2017: Met—100% of students achieved 4.0 or higher.
2016: Met—100% of students achieved 4.0 or higher.
2015: Data not available.
2014: Data not available.

Measure C: RADS 4611 (Clinic 5): Faculty Evaluation of Student Q4: Communication with patients

2018: Unmet—95% of students achieved 4.0 or higher.

Measure D: RADS 4611 (Clinic 5): Faculty Evaluation of Student Q5: Communication with technologists

2018: Met—100% of students achieved a 4.0 or higher

Assessment Year: 2018

2017: Met—100% of students achieved 4.0 or higher.
2016: Met—100% of students achieved 4.0 or higher.
2015: Data not available.
2014: Data not available.

2017: Unmet—only 96% of students achieved 4.0 or higher.
2016: Met—100% of students achieved 4.0 or higher.
2015: Data not available.
2014: Data not available.

Analysis:

SLO: 4.1 Students will develop oral communication skills.

Effective communication is essential in all allied health professions. Oral and written communication are both methods to evaluate the communication skills of an individual. The first SLO for this goal assesses student oral communication skills. The events used to evaluate the SLO comprises communication with patients and technologists—two abilities that are indispensable in any clinical setting. For the 2018 AY, the findings for SLO 4.1 were mixed. Of the four measures, one measure improved, one measure decreased, and two measures remained the same, when compared to the 2017 assessment data. All four measures for SLO 4.1 were added to the assessment plan for the 2016 AY, therefore, there are only three years available for comparison. Because is it too early to confirm a trend in the findings, faculty will continue to evaluate oral communication skills utilizing these methods.

Measure A: RADS 4611 (Clinic 5): Clinical Instructor Evaluation of Student Q4: Communication with patients: The first measure utilized to evaluate this SLO is communication with patients in senior level clinical students. The first SLO for this goal is question four of the clinical instructor evaluations of the student. Question four regards the oral communication skills of the student, utilizing a five-point Likert scale. The clinical instructor at the clinical facility completes an evaluation on the students' clinical performance at the conclusion of the clinical rotation. The clinical instructors can observe student communication with patients. Approximately five evaluations are completed on each student each semester. Next, faculty examine the evaluations, with the students, during the semester. This measure was unmet in 2017 and 2018. Due to the findings of this measure, faculty realize the need for improvement concerning students' abilities to effectively communicate with patients. Therefore, faculty will engage in a renewed effort of the importance of effective communication skills with students in the laboratory settings of the positioning and patient care courses.

Measure B: RADS 4611 (Clinic 5): Clinical Instructor Evaluation of Student Q5: Communication with technologists: This measure is obtained from the same evaluation utilized in the previous measure. However, this measure speaks to student communication with radiologic technologists in the clinical environment. In 2018, this measure was met. However, the mean was slightly lower in 2018 than in the 2017 assessment cycle. Due to the findings of this measure, faculty realize the need for improvement concerning students' abilities to effectively communicate with fellow radiologic technologists. Therefore, faculty will engage in a renewed effort of the importance of effective communication skills with students in the laboratory settings of the positioning and patient care courses.

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Measure C: RADS 4611 (Clinic 5): Faculty Evaluation of Student Q4: Communication with patients: This measure is attained utilizing the same evaluation tool from measures A and B. However, for this measure, NSU faculty complete the evaluation. The assessment is derived from faculty observations of students in the clinical environment and technologists' observations of the student. The item on the assessment for this measure specifically evaluates student communication with patients. In 2018, this measure was unmet. Due to the findings of this measure, faculty realize the need for improvement concerning students' abilities to effectively communicate with fellow radiologic technologists. Therefore, faculty will engage in a renewed effort of the importance of effective communication skills with students in the laboratory settings of the positioning and patient care courses.

Measure D: RADS 4611 RADS 4611 (Clinic 5): Faculty Evaluation of Student Q5: Communication with technologists: This measure is obtained utilizing the same evaluation tool from measures A, B, and C. However, for this measure, students' communication with technologists is assessed. In 2018, this measure was met. Based on the analysis of the results from 2018, however, faculty endeavor to continue this trend of improvement in communication through a renewed emphasis on communicative abilities in various course lectures and laboratories. Based on the analysis of the results from 2018, faculty felt that there was a need to refine student communication skills with technologists. Therefore, faculty will engage in a renewed effort of the importance of effective communication skills with students in the laboratory settings of the positioning and patient care courses.

Action Plan: When comparing the findings for SLO 4.1 from 2017 AY and 2018 AY, student oral communication skills are consistent. Since all the measures for this SLO were still relatively new to the assessment plan, faculty evaluated the tools and determined the instruments were indeed valid and reliable measures of student performance. Therefore, in the upcoming year, faculty will continue to seek methods to help students improve their oral communication skills. Faculty agree that students' oral communication skills should be effective.

Students communication skills with patients is assessed with measures A and C. Findings indicate that neither of these measures met the benchmark. After closer evaluation, it was determined that the shortcoming was due to two students who are very shy. Even though the benchmark was not met, these two students have improved their communication skills during their time in the program. Additionally, there was a slight decrease in the mean score for both measures as compared to 2017. Faculty have identified the students that need improvement and will work with those students individually to improve their communication with patients.

Students communication skills with fellow technologists is evaluated by measures B and D. Findings indicate that both measures met the benchmark. Interestingly, the two students that missed the benchmark for communication with patients, met the

benchmark for communication with radiologic technologists. However, faculty will continue to emphasize the importance of communication with patients, technologists, and other healthcare professionals and this benchmark should continue to improve.

Decisions:
Regarding students' ability to communicate orally, evidence shows that students can effectively communicate with technologists. However, there is a need for improvement in communication skills with patients. Therefore, following actions will be implemented:

- Emphasize patient communication in patient care and positioning courses.

It is expected that these actions will improve students' ability to communicate orally.

SLO: 4.2 Students will develop written communication skills.

Findings:

Measure A: RADS 4510 (Professional Imaging Practices): Senior paper

2018: Unmet—only 95% of students achieved 85 or higher.
2017: Unmet—only 71% of students achieved 85 or higher.
2016: Unmet—only 88% of students achieved 85 or higher.
2015: Unmet—only 85% of students achieved 85 or higher.
2014: Unmet—only 88% achieved 85 or higher.

Measure B: RADS 4530 (Radiation Protection): Brochure Assignment

2018: Met—100% of students achieved 85 or higher.
2017: Unmet—only 96% of students achieved 85 or higher.
2016: Unmet—only 97% of students achieved 85 or higher.
2015: Met—100% of students achieved 85 or higher.
2014: Unmet—only 92% achieved 85 or higher.

Analysis:
SLO: 4.2 Students will develop written communication skills.
Effective communication is essential in all allied health professions. Oral and written communication are both methods to evaluate the communication skills of an individual. The second SLO for this goal assesses the students written communication skills. The events used to evaluate the SLO include a research paper (RADS 4510) and creation of a patient brochure regarding radiation protection (RADS 4530). The research paper is applied to gauge formal writing skills whereas, the brochure evaluates writing technical information in a manner that patients, and the general public, can comprehend. For the 2018 AY, the results for SLO 4.2 were mixed, one measure is met, while the other measure is unmet. Even though an electronic APA format resource

has been added in the course, very few students have utilized this resource. Also, faculty began to advise students to take a special section of ENGL 2110 that was designed specifically for nursing and allied health students. This section uses APA format in place of MLA to help students begin to learn to use this format correctly. However, it will take several years before students who took the special section of ENGL 2110 will be enrolled in RADS 4510. Lastly, faculty created research paper guidelines to aid students in their writing.

Measure A: RADS 4510 (Professional Imaging Practices): Senior paper: This measure evaluates students formal writing abilities. For the past 5 years, this measure has not met the benchmark. Even though an electronic APA format resource has been added in the course, very few students have utilized this resource. However, additional resources have been added to the course. These additional resources include OWL (online writing lab) and Turnitin. Based on the analysis of the results from 2018, faculty created research paper guidelines to aid students in their writing. Even though the measure was not met, there was considerable improvement. A peer-review process and submission of papers through Turnitin were implemented for the research paper in the 2018 AY. Faculty feel these new processes for research papers improved the findings for this benchmark. Also, the course was revised to require a submission of a rough draft of the paper. The student's peers will provide feedback on the draft to help students identify errors and make corrections prior to final submission. Additionally, there will be a lecture presented on APA format to provide students with instruction on properly using this format. Lastly, advising students to enroll in the special section of ENGL 2110, which incorporates APA format, instead of MLA, for allied health and nursing students will continue. This practice should show results in coming years.

Measure B: RADS 4530 (Radiation Protection): Brochure Assignment: This measure evaluates the student's ability to relate write technical information in a manner that patients, and the general public, can comprehend. Students create an educational brochure on a radiation protection topic to be distributed to patients. For 2018 AY, this measure was met. Based on the investigation of the 2018 assessment cycle results, and although this measure was met, recognizing the importance of written communication in radiologic sciences, faculty will continue to emphasize the importance of this skill to continue the pattern of continuous improvement.

Action Plan: The 2018 AY demonstrated slight improvement over the previous year's result. One measure was met and the other was not met. In the past, faculty have attempted many strategies to improve student writing skills. Many of these methods have included adding tutorials or other electronic resources for students to utilize. However, it is evident that students are not employing the tools they have been provided. Faculty will continue the proactive approach to improve student engagement in improving their writing skills. First, faculty will continue to advise students to enroll in the special section ENGL 2110 that incorporates APA format. It is projected that students will enter the program more prepared and with better writing and APA skills. Next, faculty will modify RADS 4510 to include a draft paper submission with peer feedback, the online writing lab and Turnitin. Students will benefit from peer feedback and the opportunity to learn from and correct their mistakes. Finally, faculty will provide written guidelines on proper APA format. These strategies should improve student writing.

Assessment Year: 2018

Decisions:
Regarding students' ability to effectively communicate in writing, the findings indicate an increase for both measures utilized to evaluate this SLO. Faculty will continue the tactics to improve this outcome. Based on the analysis of the 2018 AY findings, the following activities will be applied:

- Continue to advise students to enroll in the section of ENGL 2110 designed for allied health and nursing students
- Revise RADS 4510 to incorporate a draft research paper to provide students feedback.
- Incorporate the online learning lab.
- Require students to utilize Turnitin
- Provide written guidelines related to APA format.

It is anticipated that these activities will enhance students' ability to effectively communicate in a written format.

Summary: Goal 4: Students will demonstrate the ability to communicate effectively.
Effective communication is essential in all allied health professions. Oral and written communication are both methods to evaluate the communication skills of an individual. Goal 4 assesses students' ability to communicate effectively and utilizes two SLOs to evaluate the goal. The events used to evaluate the SLO comprises communication with patients and technologists—two abilities that are indispensable in any clinical setting. For the 2018 AY, the findings for SLO 4.1 were mixed. Of the four measures, one measure improved, one measure decreased, and two measures remained the same, when compared to the 2017 assessment data. All four measures for SLO 4.1 were added to the assessment plan for the 2016 AY, therefore, there are only three years available for comparison. Because is it too early to confirm a trend in the findings, faculty will continue to evaluate oral communication skills utilizing these methods. For SLO 4.2 written communication, the implemented actions did increase the results of the outcome. Moving forward, faculty will continue to emphasize the importance of effective written and oral communication skills.

The 2018 AY findings demonstrate that most students are able to effectively orally communicate—with patients and technologists. Even though the results were inspiring, improvement is warranted, and faculty will continue to advance student oral communication skills. For written communication, even though the benchmark was not met, the assessment results were drastically improved. Faculty have instigated methods to enhance student written communication and these strategies have improved the results. Faculty are confident that the action plan will continue to demonstrate improvement in student written communication skills. The inclusion of providing feedback on draft research papers, the online writing lab, Turnitin, and written guidelines for the research paper will involve students in enhancing their written communication skills.

Assessment Year: 2018

Comprehensive Summary of Key Evidence of Improvements Based on Analysis of Results.

Continuous improvement is an emphasis for the radiologic sciences program. The focus of continual improvement has brought forth many changes that have been executed, throughout the program, to positively affect student learning to meet the needs of the radiologic sciences student. Many of these changes were initiated from the assessment process. Below is the summary of changes that have occurred during the 2018 AY related to the student learning outcomes for the BSRS program.

The first goal of the BSRS program was that students will become competent radiologic technologists. To help achieve this goal, several changes were made to both SLOs.

- SLO 1.1: Students will perform quality radiographic procedures.
    - Faculty met with students often to discuss students' clinical performance. These informal meetings also functioned to emphasize expected student behaviors regarding clinical performance and quality of work.
    - A clinical discussion was started in Moodle for students, allowing the students the opportunity to discuss their clinical experiences. This post asked students about clinical procedures and created dialog between faculty and students regarding performing procedures in a quality manner.
    - Additional assignments utilizing virtual positioning software were integrated into courses. This software requires students to practice radiologic procedures through simulation, without the need for radiation.
    - Learning contracts were introduced for students who were not performing well in the positioning course(s). These contracts included requirements of students attending tutoring sessions and faculty remediation sessions.
    - Additional "practice" labs were offered for extra opportunities for students learning to perform clinical procedures.
    - Tutoring sessions were emphasized. Junior level students benefited from the review of radiographic procedure content.
- SLO 1.2: Students will develop assessment skills of a radiographer.
    - Course revision of ALHE (formerly RADS) 3840 to incorporate patient assessment skills specific to radiologic sciences, rather than a broad-based approach.
    - Use of an open resource material, specific to radiologic sciences.
    - Creation of multiple assignments to determine the student's assessment skills, rather than one exam. This approach is a more comprehensive evaluation of assessment skills.

- Included additional videos depicting radiographer's assessment of patients in the trauma setting.
- Recorded and posted videos of students as they participated in trauma practice labs. This allowed students to critique themselves in their assessment abilities.
- Grading scale revised.
- New benchmark established.

The second goal of the BSRS program was that students will demonstrate critical thinking skills. Based on the analysis of the 2018 AY results, several changes were made to the two SLOs.

- SLO 2.1: Students will evaluate a clinical situation and perform accordingly using critical thinking skills.
  - Additional supplemental videos were added to courses that demonstrate proper trauma assessment.
  - Record the trauma practice labs so students can do self-evaluation of their assessment and critical thinking skills.
  - Benchmark changed.
  - Incorporated more clinical scenarios into the course.
  - Clinical scenarios were added to the Quality Enhancement Plan (QEP), Learning for Life.
  - Created more critical thinking scenarios in RADS 4510.
  - Added critical thinking reflection, as part of the QEP process.
- SLO 2.2: Students will propose a plan to respond to imaging department scenarios.
  - Revised the assignment in ALHE 4610 (formerly RADS 4610).
  - Benchmarks changed to coincide with grading scale.
  - Revised the course layout in ALHE 4630 to include frequent announcements and reminders.

The third goal of the BSRS program was that students will demonstrate an understanding of professionalism. Based on the 2018 AY results, several changes were made to the two SLOs.

- SLO: 3.1: Students will demonstrate service to the profession and the community.
  - Excluded students who did not submit assignments from data set.
  - Revised guidelines and rubric for ALHE 3840 service-learning Project (measure A).
  - Faculty worked with students to assure understanding of expectations for ALHE 3840 service-learning Project.
  - Implemented a new measure (B), reflection of patient interaction experience.

- Implemented a new benchmark due to the 10-point grading scale.
- SLO: 3.2: Students will integrate adherence to professional behaviors.
  - Reminded clinical instructors, through a blast email, the importance of the adherence to the Code of Ethics.
  - Reminded clinical instructors, through a blast email, the importance of the adherence to the Practice Standards.
  - Provided a copy of the Code of Ethics to students at the faculty evaluations.
  - Provided a copy of the Practice Standards at the faculty evaluations.
  - Posted the Code of Ethics in Moodle.
  - Posted the Practice Standards in Moodle.

The fourth goal of the BSRS program was that students will effectively communicate with others. Based on the 2018 AY results, several changes were made to the four SLOs.

- SLO: 4.1: Students will develop oral communication skills.
  - Lectures added to positioning and patient care courses.
- SLO: 4.2: Students will develop written communication skills.
  - Continued to advise students to enroll in the section of ENGL 2110 designed for allied health and nursing students
  - Revised RADS 4510 to incorporate a draft research paper to provide students feedback.
  - Implemented peer review for research papers.
    - Provided written guidelines related to APA format.

Plan of Action Moving Forward.

Based on the evidence provided from the 2018 AY, the BSRS program will make the following changes for continuous program improvement:

Goal 1: Students will be clinical competent radiologic technologists.

- SLO 1.1: Students will perform quality radiographic procedures.
  - Faculty will meet with students consistently to keep students apprised of their clinical evaluations.
  - Faculty will begin a formal discussion forum for students in Moodle.
  - There will be increased usage of virtual positioning software.
  - Implementation of learning contracts in core classes.
  - Additional “practice” labs for students learning to perform clinical procedures.
  - Peer-to-peer mentoring sessions will be implemented. These sessions will be guided by faculty.

- Peer-to-peer tutoring sessions will be used.
- Benchmark changed for one measure.
- One measure discontinued.

- SLO 1.2: Students will develop assessment skills of a radiographer.
  - Course revision of ALHE 3840, including use of an open resource textbook.
  - Final exam eliminated.
  - Benchmark changed to coincide with grading scale.
  - Include more supplemental videos depicting patient assessment in the trauma setting.
  - Record and post videos of students as they participate in trauma practice labs.

Goal 2: Students will demonstrate critical thinking skills.

- SLO 2.1: Students will evaluate a clinical situation and perform accordingly using critical thinking skills.
  - Add additional supplemental videos that demonstrate proper trauma assessment.
  - Record the trauma practice labs so students can reflect on their assessment and critical thinking skills.
  - Benchmark changed to coincide with grading scale.
  - Additional clinical scenarios will be added to the Quality Enhancement Plan (QEP), Learning for Life.
- SLO 2.2: Students will propose a plan to respond to imaging department scenarios.
  - Supplemental videos will be added in RADS 3820 that demonstrate trauma assessment.
  - Record students as they perform trauma assessments.
  - Create additional critical thinking scenarios in RADS 4510.
  - Add critical thinking reflection, as part of the QEP process.
  - Revise assignment in ALHE 4610 (formerly RADS 4610).
  - Revise course layout in ALHE 4630 to include frequent announcements and reminders.
  - Benchmarks changed to coincide with grading scale.

Goal 3: Students will demonstrate an understanding of professionalism.

- SLO: 3.1: Students will demonstrate service to the profession and the community.
  - Exclude students who do not submit assignments from data set.
  - Revise guidelines and rubric for ALHE 3840 Service-Learning Project (measure A).
  - Implement new measure (B), reflection of patient interaction experience.
  - Benchmarks changed to coincide with grading scale.
  - New measure added.
- SLO: 3.2: Students will integrate adherence to professional behaviors.

- Remind clinical instructors, through a blast email, the importance of the adherence to the Code of Ethics and the Practice Standards.
- Provide a copy of the Code of Ethics and Practice Standards to students at the faculty evaluations.
- Post the Code of Ethics and Practice Standards in Moodle.

Goal 4: Students will demonstrate the ability to communicate effectively.

- SLO: 4.1: Students will develop oral communication skills.
  - Lectures added to positioning and patient care courses.
- SLO: 4.2: Students will develop written communication skills.
  - Continue to advise students to enroll in the section of ENGL 2110, designed for allied health students.
  - Revise RADS 4510 to incorporate a draft research paper to provide feedback for students.
  - Provide written guidelines related to APA format.
  - Implement peer review for research papers.