Assessment Cycle 2019

Post-Baccalaureate Certificate in Invasive Cardiovascular Technology

College: Nursing and School of Allied Health

Prepared by: Dr. Joel Hicks Date: June 10, 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.

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 Director of the School of Allied Health enters the data into the tables for each SLO.
3. The results are shared with the Post-Baccalaureate faculty. The faculty, along with the Director of the School of Allied Health, discuss data analysis, interpretation, actions, trends, results, and future plans.
4. 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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<table>
<tr><th>Student Learning Outcome</th><th>Tool</th><th>Benchmark</th><th>Results</th></tr>
<tr><td rowspan="2">1. Demonstrate advanced knowledge regarding cardiovascular procedures</td><td>A. ALHE 4910 (Invasive Cardiovascular Procedures): Module 5 Quiz “Interventional Procedures”</td><td>100% of students will score 75 or higher</td><td>
<table>
<tr><td></td><td></td><td></td><td></td><td></td><td>2019</td></tr>
<tr><td>N</td><td></td><td></td><td></td><td></td><td>1</td></tr>
<tr><td>Met</td><td></td><td></td><td></td><td></td><td>1</td></tr>
<tr><td>Mean</td><td></td><td></td><td></td><td></td><td>83.75</td></tr>
<tr><td>Range</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>%</td><td></td><td></td><td></td><td></td><td>100</td></tr>
</table>
</td></tr>
<tr><td>B. ALHE 4910 (Invasive Cardiovascular Procedures): Final Exam</td><td>100% of students will score 75 or higher</td><td>
<table>
<tr><td></td><td></td><td></td><td></td><td></td><td>2019</td></tr>
<tr><td>N</td><td></td><td></td><td></td><td></td><td>1</td></tr>
<tr><td>Mean</td><td></td><td></td><td></td><td></td><td>92.5</td></tr>
<tr><td>Range</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>%</td><td></td><td></td><td></td><td></td><td>100</td></tr>
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</td></tr>
</table>

Findings:

Measure A: ALHE 4910 (Invasive Cardiovascular Procedures): Module 5 Quiz “Interventional Procedures-Met—100% of students achieved a 75 or higher

Measure B: (Invasive Cardiovascular Procedures): Final Exam-Met- 100% of students achieved a 75 or higher

Analysis: The Post-Baccalaureate Certificate Program in Invasive Cardiovascular Imaging is a new certificate program begun in 2018. An evaluation of the program began in spring 2019. The primary goals of the certificate program are to prepare students to successfully pass an advanced certification in cardiovascular imaging. Each course within this program has been developed to meet the known requirements of the various advanced certification exams. Further, the SLOs that have been developed are meant to assess the student’s knowledge of specific certification requirements.

Anyone working in a cardiovascular imaging environment must be knowledgeable of the procedures performed. Further, this knowledge is necessary to successfully pass one of the national cardiovascular imaging certifications. The first SLO is meant to assess the student’s knowledge of cardiovascular procedures. Measure A measures the student’s specific knowledge of the interventional procedures performed in the cardiovascular laboratory, which is one of the largest subsets of procedures performed. After having multiple online lectures and having multiple resources made available, students are

given a quiz. In the first assessment period (spring 2019) this benchmark was met, with the student scoring a 83.75, above the threshold of 75.

Measure B used a comprehensive final examination to determine the student's understanding of cardiovascular procedures. The final exam was preceded by multiple weeks of online lectures and deliverable content. The final examination covered all procedures performed in the laboratory. The first assessment of this measure (spring 2019) found that the measure was met, with the student scoring a 92.5, well above the threshold of a 75.

Action Plan: Based on the results of the 2019 AY (spring 2019) results, faculty feel that the measures are accurately assessing the student's knowledge cardiovascular procedures and more specifically, cardiovascular imaging procedures. However, it is important that faculty continue to engage students with this content, as it is an important part of advanced certification examinations. For this reason, faculty will continue to review national certification requirements to stay abreast of any changes and edit lectures accordingly. Also, faculty will implement a discussion forum into the course to discuss the various procedures performed in the cardiovascular lab. Faculty feel that these discussions will make the understanding of the procedures more relevant; particularly as to the unique scenarios in which these procedures are performed. Finally, while students only self-report their advanced certification results, faculty will attempt to correlate certification results (as allowed) to the results of this measure to ensure that students were adequately prepared for the cardiovascular procedures portion of the various certification exams.

Decisions: Cardiovascular procedure knowledge is an important part of successfully passing an advanced certification examination in invasive cardiovascular imaging. Both tools used to assess this SLO are thought to be effective in determining the student's knowledge. While no trend is available for this data, faculty will engage in continuous quality improvement for this course. These improvement methods include:

- Review national certification requirements to ensure that they correlate with course objectives
- Implement forums to discuss common cardiovascular procedures and when and why those procedures are performed
- Reach out to students who have 1) completed the course, and 2) taken the national certification exam to determine if the course adequately prepared the student for success.

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<table>
<tr><th>Student Learning Outcome</th><th>Tool</th><th>Benchmark</th><th>Results</th></tr>
<tr><td rowspan="2">2. Demonstrate an advanced knowledge of cardiovascular imaging equipment</td><td>A. ALHE 4920 (Cardiovascular Imaging Equipment) Module 4 Quiz “Interventional Guide Catheters and Wires”</td><td>100% of students will score 75 or higher</td><td>
<table>
<tr><td></td><td></td><td></td><td></td><td></td><td>2019</td></tr>
<tr><td>N</td><td></td><td></td><td></td><td></td><td>1</td></tr>
<tr><td>Met</td><td></td><td></td><td></td><td></td><td>1</td></tr>
<tr><td>Mean</td><td></td><td></td><td></td><td></td><td>90</td></tr>
<tr><td>Range</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>%</td><td></td><td></td><td></td><td></td><td>100</td></tr>
</table>
</td></tr>
<tr><td>B. ALHE 4920 (Cardiovascular Imaging Equipment): Final Exam</td><td>100% of students will score 75 or higher</td><td>
<table>
<tr><td></td><td></td><td></td><td></td><td></td><td>2019</td></tr>
<tr><td>N</td><td></td><td></td><td></td><td></td><td>1</td></tr>
<tr><td>Met</td><td></td><td></td><td></td><td></td><td>1</td></tr>
<tr><td>Mean</td><td></td><td></td><td></td><td></td><td>93.33</td></tr>
<tr><td>Range</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>%</td><td></td><td></td><td></td><td></td><td>100</td></tr>
</table>
</td></tr>
</table>

Findings:

Measure A: ALHE 4920 (Invasive Cardiovascular Procedures): Module 4 Quiz Interventional Guide Catheters and Wires -Met—100% of students achieved a 75 or higher

Measure B: (Cardiovascular Imaging Equipment): Final Exam-Met- 100% of students achieved a 75 or higher

Analysis: The Post-Baccalaureate Certificate Program in Invasive Cardiovascular Imaging is a new certificate program begun in 2018. An evaluation of the program began in spring 2019. The primary goals of the certificate program are to prepare students to successfully pass an advanced certification in cardiovascular imaging. Each course within this program has been developed to meet the known requirements of the various advanced certification exams. Further, the SLOs that have been developed are meant to assess the student’s knowledge of specific certification requirements.

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Like an advanced knowledge of cardiovascular procedures, understanding the literally thousands of pieces of equipment used within the cardiovascular lab is essential to be an effective cardiovascular imaging specialist. This knowledge is also key to successfully passing a certification exam. Measure A assesses the student's knowledge of equipment used during interventional procedures, which is the largest subset of procedures performed in the cardiovascular lab. Following several weeks of online lectures and course material for the student to review, a quiz is used in the fourth week to assess the student's knowledge of interventional equipment. In the first assessment period (spring 2019) this benchmark was met, with the student scoring a 90, above the threshold of 75.

Measure B is a comprehensive final examination, assessing the student's knowledge of all equipment used within the cardiovascular lab. The final exam was preceded by eight weeks of online lectures, videos, and course materials. In the first assessment period (spring 2019) this benchmark was met, with the student scoring a 93.33, well above the threshold of 75.

Action Plan: Based on the results of the 2019 AY (spring 2019) results, faculty feel that the measures are accurately assessing the student's knowledge of cardiovascular imaging equipment. However, it is important that faculty continue to engage students with this content, as it is an important part of advanced certification examinations. For this reason, faculty will continue to review national certification requirements to stay abreast of any changes and edit lectures accordingly. Also, faculty will implement a discussion forum into the course to discuss the various pieces of equipment used in the cardiovascular lab. Faculty feel that these discussions will make the understanding of the equipment more attainable. The discussions will describe various scenarios in which different pieces of equipment can be used and the rationale as to what equipment is the most appropriate. Finally, while students only self-report their advanced certification results, faculty will attempt to correlate certification results (as allowed) to the results of this measure to ensure that students were adequately prepared for the cardiovascular procedures portion of the various certification exams.

Decisions: Knowledge of cardiovascular imaging and procure equipment is an important part of successfully passing an advanced certification examination in invasive cardiovascular imaging. Both tools used to assess this SLO are thought to be effective in determining the student's knowledge. While no trend is available for this data, faculty will engage in continuous quality improvement for this course. These improvement methods include:

- Review national certification requirements to ensure that they correlate with course objectives
- Implement forums to discuss common cardiovascular equipment and when and why those particular pieces of equipment are used
- Reach out to students who have 1) completed the course, and 2) taken the national certification exam to determine if the course adequately prepared the student for success.

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Student Learning Outcome	Tool	Benchmark	Results
3. Demonstrate knowledge of patient care skills as related to cardiovascular imaging.	A. ALHE 4930 (Cardiovascular Patient Care) Module 2 Quiz "Patient Care, Terminology, Education, and Lab Values"	100% of students will score 75 or higher	
	B. ALHE 4930 (Cardiovascular Patient Care) Final Exam	100% of students will score 75 or higher	

					2019
N					
Met					
Mean					
Range					
%					

					2019
N					
Met					
Mean					
Range					
%					

Findings:

Measure A: ALHE 4930 (Cardiovascular Patient Care) Module 2 Quiz "Patient Care, Terminology, Education, and Lab Values"-Measure will be assessed Fall 2019.

Measure B: ALHE 4930 (Cardiovascular Patient Care) Final Exam- Measure will be assessed Fall 2019.

Analysis: A cardiovascular imaging technologist must be acutely aware of the patient care skills necessary to safely operate within this unique setting. While all healthcare workers possess some patient care skills, the cardiovascular lab requires an advanced level of knowledge. This SLO is used to determine that knowledge; both to be successful in the cardiovascular lab, and successful on an advanced certification exam. Measure A will assess the student's knowledge of cardiovascular patient care and specific laboratory values. Measure B will assess the student's understanding of cardiovascular patient care using a comprehensive final exam. Both measures will be preceded by online lectures, videos, and deliverable material.

Action Plan: While these measures have yet to be assessed, it is important to know that the SLO and the two measures accurately reflect the most current content specifications as published by national radiologic science and cardiovascular

organizations. For this reason, faculty will continually monitor the published specifications to ensure that the course objectives and assessment materials closely correlate with the knowledge required to successfully pass an advanced cardiovascular certification exam.

Decisions: An advanced knowledge of patient care specific to cardiovascular imaging procedures is an important component for any competent cardiovascular technologist. Further, this knowledge is crucial to successfully passing an advanced certification in cardiovascular imaging. For this reason, this SLO will be carefully monitored moving forward with this certificate program. Until the first assessment, however, faculty will complete the following:

- Review national certification requirements to ensure that they correlate with course objectives

Student Learning Outcome	**Tool**	**Benchmark**	**Results**
4. Demonstrate an advanced knowledge of the measurement and importance of cardiovascular hemodynamics	A. ALHE 4940 (Cardiovascular Hemodynamics) Module 2 Quiz “Hemodynamics, Abbreviations, & Anatomical Location”	100% of students will score 75 or higher	
	B. ALHE 4940 (Cardiovascular Hemodynamics) Final Exam	100% of students will score 75 or higher	

					2019
N					
Met					
Mean					
Range					
%					

					2019
N					
Met					
Mean					
Range					
%					

Findings:

Measure A: ALHE 4940 (Cardiovascular Hemodynamics) Module 2 Quiz “Hemodynamics, Abbreviations, & Anatomical Location” Measure will be assessed Fall 2019

Measure B: ALHE 4940 (Cardiovascular Hemodynamics) Final Exam - Measure will be assessed Fall 2019

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Analysis: For many cardiovascular technologists, an understanding of hemodynamic monitoring proves to be the most challenging subject matter. A cardiovascular imaging technologist must be aware of the physics of hemodynamic monitoring, as well as the normal hemodynamic parameters. This SLO is used to determine that knowledge; both to be successful in the cardiovascular lab, and successful on an advanced certification exam. Measure A will assess the student's knowledge of hemodynamic language, physiologic and anatomical considerations of hemodynamic monitoring, and normal/abnormal hemodynamic values. Measure B will assess the student's understanding of hemodynamic monitoring using a comprehensive final exam. Both measures will be preceded by online lectures, videos, and deliverable material.

Action Plan: While these measures have yet to be assessed, it is important to know that the SLO and the two measures accurately reflect the most current content specifications as published by national radiologic science and cardiovascular organizations. For this reason, faculty will continually monitor the published specifications to ensure that the course objectives and assessment materials closely correlate with the knowledge required to successfully pass an advanced cardiovascular certification exam.

Decisions: A thorough knowledge of hemodynamic monitoring in the cardiovascular lab is an important component for any cardiovascular technologist. Further, this knowledge is crucial to successfully passing an advanced certification in cardiovascular imaging. For this reason, this SLO will be carefully monitored moving forward with this certificate program. Until the first assessment, however, faculty will complete the following:

- Review national certification requirements to ensure that they correlate with course objectives

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

While the Post-Baccalaureate Certificate in Invasive Cardiovascular Imaging program is a relatively new program, continuous improvement is still a focus for the program. The creation of the program and the development of the courses intentionally reflected the various components of the national cardiovascular imaging certification examination and the national cardiovascular specialist certification. This was done to ensure that students enrolled in the certificate program would be adequately prepared to pass either of these examinations. Within each student learning outcome, measures were developed that faculty feel will accurately assess the student's knowledge within each critical area and thus, be prepared.

While there is limited data to analyze, the spring 2019 data does seem to indicate that students have a thorough knowledge of cardiovascular imaging equipment and the procedures performed in the cardiovascular lab. Data reflecting

the students' knowledge of cardiovascular patient care and hemodynamic monitoring will be assessed in the fall 2019 semester.

Plan of Action Moving Forward.

Based on the evidence provided by the 2019 AY (to date), and to ensure continuous quality improvement within the program, the following actions will occur in fall 2019 and beyond:

- SLO 1: Demonstrate advanced knowledge regarding cardiovascular procedures
  - Review national certification requirements to ensure that they correlate with course objectives
  - Implement forums to discuss cardiovascular procedure scenarios
  - Reach out to students who have 1) completed the course, and 2) taken the national certification exam to determine if the course adequately prepared the student for success.
- SLO 2: Demonstrate an advanced knowledge of cardiovascular imaging equipment
  - Review national certification requirements to ensure that they correlate with course objectives
  - Implement forums to discuss common cardiovascular equipment and when and why those particular pieces of equipment are used
  - Reach out to students who have 1) completed the course, and 2) taken the national certification exam to determine if the course adequately prepared the student for success.
- SLO 3: Demonstrate knowledge of patient care skills as related to cardiovascular imaging.
  - Review national certification requirements to ensure that they correlate with course objectives
- SLO 4: Demonstrate an advanced knowledge of the measurement and importance of cardiovascular hemodynamics
  - Review national certification requirements to ensure that they correlate with course objectives