

Assessment Cycle 2019

Post-Baccalaureate Certificate in Magnetic Resonance Imaging

College: Nursing and School of Allied Health

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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 is dedicated to providing 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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Student Learning Outcome	Tool	Benchmark	Results					
1. Demonstrate a foundational knowledge of Magnetic Resonance Imaging and MRI safety.	A. ALHE 4950 MRI Foundations & Safety): Module 2 Quiz “MRI Safety”	100% of students will score 75 or higher						2019
			N					3
			Met					3
			Mean					93.33
			Range					90-100
			%					100
	B. ALHE 4950 MRI Foundations & Safety): Comprehensive Final Exam	100% of students will score 75 or higher						2019
			N					3
			Met					3
			Mean					98
			Range					96-100
			%					100

Findings:

Measure A: ALHE 4950 MRI Foundations & Safety): Module 2 Quiz “MRI Safety”-Met—100% of students achieved a 75 or higher

Measure B: ALHE 4950 MRI Foundations & Safety: Final Exam -Met- 100% of students achieved a 75 or higher

Analysis: The Post-Baccalaureate Certificate Program in Magnetic Resonance Imaging is a new certificate program begun in 2018. An assessment 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 MRI. Each course has been developed to meet the known requirements of advanced certification exams. Further, the SLOs that have been developed are meant to assess the student’s knowledge of specific certification requirements.

A broad overview of MRI, and specifically MRI safety, is a key component in successfully completing an MRI certification exam. The first measure used in this SLO measures the student’s knowledge of MRI safety. After completing two modules of MRI safety, including both online presentations and videos, students are assessed on their overall understanding of

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MRI safety. This measure was first assessed in the spring 2019 semester. All the students met the benchmark (>75), and the mean score was a 93.33, indicating a grasp of MRI safety.

Measure B provides a more comprehensive assessment of the student's foundational knowledge, including MRI safety. After completing the course (8 weeks), students will have had an opportunity to review multiple lectures, videos, and handouts. A comprehensive final exam is then administered to the students in the course. The measure was first assessed in the spring 2019 semester. All the students met the benchmark score (>75), and the mean score was a 98%. The promising results of this measure indicated that the students did have a foundational knowledge of MRI.

Action Plan: Based on the results of the 2019 AY (spring 2019) results, faculty feel that the measures are accurately assessing the student's foundational knowledge of MRI, including MRI safety. 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 safety issues that are commonly encountered in the MRI imaging area. 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 MRI foundations and safety portions of the exam.

Decisions: MRI safety is an important topic both for passing an advanced certification in MRI and for working in the field in general. Both tools used to assess this SLO are thought to be effective in determining the student's foundational knowledge in MRI and MRI safety. 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 MRI safety issues
- 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					
2. Demonstrate an advanced knowledge the physics and image acquisition characteristics of MRI	A. ALHE 4960 (Physics Image and Acquisition): Module 4 Quiz “Pulse Sequences Functional Imaging Techniques”	100% of students will score 75 or higher						2019
			N					
			Met					
			Mean					
			Range					
			%					
	B. ALHE 4960 (Physics Image and Acquisition): Final Exam	100% of students will score 75 or higher						2019
			N					
			Met					
			Mean					
			Range					
%								

Findings:

Measure A: ALHE 4960 (Physics Image and Acquisition):
Module 4 Quiz “Pulse Sequences Functional Imaging Techniques”-Measure will be assessed Fall 2019.

Measure B: ALHE 4960 (Physics Image and Acquisition):
Final Exam - Measure will be assessed Fall 2019.

Analysis: MRI physics is perhaps the most difficult portion of the MRI advanced certification exam. Additionally, MRI physics is a difficult subject to master for many students. Both measures used to assess this SLO are believed to accurately determine the student’s knowledge of MRI physics. Measure A assesses the student’s knowledge of pulse sequencing, a key characteristic of MRI image production. Following multiple weeks of lectures, handout material, and videos, students will complete a review on pulse imaging. Measure B of this SLO uses a comprehensive final exam to determine the student’s understanding of MRI physics and image acquisition.

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Action Plan: As this SLO has not yet been assessed, there is no definitive action to take place. Faculty will assess the results of this SLO when this course is offered (fall 2019), looking for student understanding as evidenced by meeting the benchmark score (>75). Faculty also continue to closely monitor the published requirements of the national certification exam to ensure that the course objectives closely match what is assessed on the national exam.

Decisions: An advanced knowledge of MRI physics and image acquisition principles are an important component for any MRI technologist. This knowledge is also crucial to successfully passing an advanced certification in MRI. 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:

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Review national certification requirements to ensure that they correlate with course objectives	Tool	Benchmark	Results					
3. Demonstrate an advanced knowledge of MRI procedures.	A. ALHE 4970 (Procedures and Sequencing): Module 2 Quiz "MRA Imaging Procedures"	100% of students will score 75 or higher						2019
			N					
			Met					
			Mean					
			Range					
	%							
	B. ALHE 4970 (Procedures and Sequencing): Module 4 Quiz "Body Imaging Procedures"	100% of students will score 75 or higher						2019
			N					
			Met					
			Mean					
			Range					
	%							
	C. ALHE 4970 (Procedures and Sequencing): Final Exam	100% of students will score 75 or higher						2019
			N					
			Met					
Mean								
Range								
%								

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Findings:

Measure A: ALHE 4970 (Procedures and Sequencing):
Module 2 Quiz “MRA Imaging Procedures” Measure will be assessed Fall 2019.

Measure B: ALHE 4970 (Procedures and Sequencing):
Module 4 Quiz “Body Imaging Procedures”- Measure will be assessed Fall 2019.

Measure C: ALHE 4970 (Procedures and Sequencing):
Final Exam Measure will be assessed Fall 2019.

Analysis: An MRI technologist must be aware of the various procedures performed in the MRI imaging suite. This SLO is used to determine that knowledge. More specifically, this SLO will be used to determine whether the student possesses the knowledge necessary to successfully pass an advanced MRI certification exam. Measure A will assess the student’s knowledge of MR procedures of the vascular system, which is an important subset of MRI procedures. Similarly, Measure B will assess the student’s understanding of MR imaging of the body, which makes up the largest subset of imaging procedures. Finally, Measure C uses a comprehensive exam to determine the student’s understanding of MR imaging of the entire body. Each of these 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 three measures accurately reflect the most current content specifications as published by national radiologic science 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 MRI certification exam.

Decisions: An advanced knowledge of the procedures used in MR imaging is an important component for any competent MRI technologist. Further, this knowledge is crucial to successfully passing an advanced certification in MRI. 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 MRI 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 MRI certification examination. This was done to ensure that students enrolled in the certificate

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program would be adequately prepared to pass the examination. 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 foundational knowledge of MRI and MRI safety. Data reflecting the students' knowledge of MRI physics, image acquisition, and procedures, 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 in the program, the following actions will occur in fall 2019 and beyond:

- SLO 1: Demonstrate a foundational knowledge of Magnetic Resonance Imaging and MRI safety.
 - Review national certification requirements to ensure that they correlate with course objectives
 - Implement forums to discuss common MRI safety issues
 - 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 the physics and image acquisition characteristics of MRI.
 - Review national certification requirements to ensure that they correlate with course objectives
- SLO 3: Demonstrate an advanced knowledge of MRI procedures.
 - Review national certification requirements to ensure that they correlate with course objectives