

Nuclear Medicine Imaging, Certificate Program
Plan for Assessment of Student Learning Outcomes
The University of New Mexico

A. College, Department and Date

1. College: *University of New Mexico/School of Medicine/North Campus*
2. Department: *Radiologic Sciences*
3. Date: *9-16-08*

B. Academic Program of Study

Certificate Program, Nuclear Medicine Imaging

C. Contact Person(s) for the Assessment Plan

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D. Broad Program Goals & Measurable Student Learning Outcomes

1. Broad Program Learning Goals for this Degree/Certificate Program

Competence in:

- A. Evaluation of diagnostic image
- B. Technical clinical practice
- C. Clinical Judgment
- D. Cultural and Psychosocial Skills

2. List of Student Learning Outcomes (SLOs) for this Degree/Certificate Program

- A.1. Perform a client specific diagnostic evaluation as part of a safe and effective treatment plan.
- B.1. Perform evaluative and diagnostic procedures in a safe, accurate and effective manner.
- C.1. Provide a logical rationale for a diagnostic appropriate procedure based on knowledge of clinical performance standards as part of a safe and effective treatment plan.
- D.1. demonstrate patient care skills that minimize the potential negative impact of social-cultural differences (e.g.: socio-cultural status, family and communities structure and function, race, creed, color, gender, sexual orientation or disability/health status) on access to health care services as well as needs, attitudes, beliefs and practices relative to health care.

E. Assessment of Student Learning Three-Year Plan

All programs are expected to measure some outcomes annually and to measure all priority program outcomes at least once over two consecutive three-year review cycles. Describe below the plan for the next three years of assessment of program-level student learning outcomes.

1. Student Learning Outcomes

This program is a learning objective driven curriculum. All course syllabi have general learning objectives for the course and additionally each unit or lecture, depending on course structure has learning objectives as well. These are distributed to the students with the syllabus and all testing is based upon the objectives. Please see syllabus and unit objectives for NUCM 3XX that is attached as an example.

Program SLOs	Knowledge	Skills	Responsibility
A.1. Perform a client specific diagnostic evaluation as part of a safe and effective treatment plan.	X	X	X
B.1 Perform evaluative and diagnostic procedures in a safe, accurate and effective manner.	X	X	X
C1. Provide a logical rationale for a diagnostic appropriate procedure based on knowledge of clinical performance standards as part of a safe and effective treatment plan.	X	X	X
D.1. Demonstrate patient care skills that minimize the potential negative impact of social-cultural differences (e.g. socio-cultural status, family and communities structure and function, race ,creed, color, gender, sexual orientation or disability/health status) on access to health care services as well as needs, attitudes, beliefs and practices relative to health care.	X	X	X

2. How will learning outcomes be assessed?

A. What:

SLO	Assessment Description	Direct/Indirect	Criteria for Success
Perform a client specific diagnostic evaluation as part of a safe and effective treatment plan.	<ul style="list-style-type: none"> • Course examinations • Clinical competencies* • Clinical evaluations • Comprehensive examination and national registry examinations • Yearly discussions on teachings/learning methodology, student group learning, student presentations, and case based learning assist in identifying additional faculty training, course revisions, and student assessments. 	Direct	<ul style="list-style-type: none"> -88% pass rate in course completion -Successful pass rate on national registry examination average student scoring >90% -Scores are utilized to consistently evaluate national standards in alignment with program standards. -See grading standards below
Perform evaluative and diagnostic procedures in a safe, accurate and effective manner.	<ul style="list-style-type: none"> • Written clinical midterm and final examinations • Comprehensive clinical competencies of diagnostic procedures* 	Direct	<ul style="list-style-type: none"> -99% pass rate on midterm and final examinations -98% pass rate of comprehensive clinical competencies of diagnostic procedures
Provide a logical rationale for a diagnostic appropriate procedure based on knowledge of clinical performance standards as part of a safe and effective treatment plan.	<ul style="list-style-type: none"> • Objective structured course examinations • Diagnostic image critique/assessment • Evidence based presentation component is ongoing throughout the clinical courses as well as in NUCM 392 (see syllabus attached) 	Direct	<ul style="list-style-type: none"> -99% pass rate on in course completion -99% pass rate with diagnostic image critique and presentations
Demonstrate patient care skills that minimize the potential negative impact of social-cultural differences (e.g.: socio-cultural status, family and communities structure and function, race, creed, color, gender, sexual orientation or disability/health status) on access to health care services as well as needs, attitudes, beliefs and practices relative to health care.	<ul style="list-style-type: none"> • Course discussions both in class as well as in clinical instruction on topics of socioeconomic, cultural, and ethical issues. • Comprehensive examination and National registry examination • Clinical competencies of students performance* 	Direct/Indirect Direct Direct	<ul style="list-style-type: none"> -Areas of concern are identified and if necessary, remediation by faculty/Program Director in semester advisement sessions is conducted. -100% pass rate on nation registry examination average student scoring >90% 99% pass rate on first attempt

Grading standards

*The Clinical Competency Instrument is a nationally standardized evaluation tool used by the American Registry of Radiologic Technologists (ARRT) and Nuclear Medicine Technology Certification Board (NMTCB). The ARRT lists the clinical competency requirements including the four general patient care activities and a subset of the nuclear medicine imaging procedures students must successfully pass. The NMTCB lists the clinical competency requirements in four main categories: radiation safety, instrumentation, clinical procedures, and radiopharmacy. Through structured, sequential, competency-based clinical assignments the concepts of team practice, patient-centered clinical practice and professional development are discussed, examined and evaluated. Before students enter the clinical environment they must complete and pass with a minimal 75% four patient care activities. These 4 patient care activities involve CPR, vital signs, venipuncture, and ECG. Competencies in these areas are continuously evaluated throughout each student's clinical rotation.

Attached are a clinical competency form, table, and syllabus which are used to calculate a student's clinical performance each semester. Once a student feels competent they may request a competence exam. The student then performs the exam under the supervision of a nuclear medicine technologist. The supervising technologist evaluates the student's performance and fills out a competency form. The clinical competency forms track skills such as exam preparation, patient care, positioning of patient for a specific exam, image production and outcome, use of equipment and radiation protection. These competency forms are then returned to the Program Director and/or Clinical Coordinator and recorded in a competency table. These competency tables are used to track and record each student's progress in completing their assigned procedures, which are outlined in the clinical course syllabus. The final clinical course grade is based on the completion of assigned procedures along with clinical written examinations. Additional assessment of student learning performance is carried out monthly by meetings with faculty and technologists working with the students. These assessments are discussed with students to review for possible additional instruction or if the student has any concerns with their clinical practice.

Throughout the program curriculum, criteria for success are set for all written and practical examinations at a minimum of 75% (established by faculty consensus and consistent with University fractionated grading system). Justification for this minimum grading standard is consistent with the national registry examinations ARRT and NMTCB which both require a 75% for passage.

**Two indirect measures that are utilized for assessment of the student's preparedness for practice are the Self-Evaluation Survey, completed by the student at graduation and 6 months to one year post graduation and the Graduate Performance Survey, completed by the student's employer 6 months to one year following graduation. These instruments rate the students' self perceived and their employer's perceived preparedness for the graduate to practice in Nuclear Medicine Imaging.

At the completion of the program, the Program Director conducts an exit interview with each student. This information is shared with the faculty during the faculty retreat and evaluated in an ongoing manner to look for trends and patterns that may ultimately lead to curricular revision.

B. Who: The program's assessment will include evidence from all students in the program.

3. When will learning outcomes be assessed? When and in what forum will the results of the assessment be discussed?

Yearly-

Student learning outcomes are assessed continuously throughout the year as each course is updated with current practice standards. Examinations are given throughout each course. Objective structured clinical exams are given throughout each semester as appropriate for skills addressed. The clinical performance instrument is utilized for all clinical rotations beginning in the second semester and carried through each semester until the completion of the program. Assessment and evaluation of student performance is on-going. Student concerns are a standing agenda item for all faculty meetings.

At mid-term of each semester, students are provided with feedback regarding their academic and clinical performance from these assessments. Faculty formulates a learning plan with students if needed to address areas of concern.

The faculty meets regularly throughout the academic year with clinical instructors during routine clinical site visits to verify if learning outcomes are being demonstrated, i.e., competencies, case presentations, and clinical skill progression. Course adjustments are then put into place for student success.

Student feedback and ICES evaluations are used to revise course and program goals yearly.

Program: The national registry examinations are taken usually within one month after graduation. Registry exam bodies provide a summary report on registry examination scores and comprehension examination results to the Nuclear Medicine Program. This data is discussed regularly at faculty meetings to assess any additional areas of subject matter for revision in the curriculum. Curricular changes are made as agreed upon by faculty to address all subject areas of concern. Graduation self assessment forms and post-graduate/employer assessment forms are completed within the first year post program completion. These address strengths and weaknesses of the graduates and the program. These are reviewed at annual faculty meetings leading to potential curricular changes. Competencies, registry exam scores, and final course grades are compared to verify if students consistently performed well in the classroom, in the clinic, and on the national registry as a benchmark for continued program success.

4. What is the unit's process to analyze/interpret assessment data and use results to improve student learning?

Assessment process includes all faculty involved in the evaluation and revision process, which includes discussing strengths and any areas of weaknesses in Nuclear Medicine subject areas. Discussions on teachings/learning methodology, student group learning, student presentations, and case based learning assist in identifying additional faculty training, course revisions, and student assessments. Faculty curricular retreats are held once a year during the summer. Discussed are student outcomes and comparing all curricular/student evaluations and feedback data. These are presented and discussed in the context of the expected outcomes and decisions are made to the curriculum if appropriate. Curricular change is an ongoing process and also an ongoing challenge. Therefore, careful consideration through annual evaluations with department chair and program advisors consideration is given to ongoing student feedback/outcome data that identifies key areas of concern. Change is then implemented and outcome/feedback data analyzed again yearly.