



# Southwestern Chapter Annual Conference

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## Walter Durham Lecture Nuclear Medicine Advanced Associates: First Year Experience



Martha Pickett, MHSA, FSMNTS

University of Arkansas for Medical Sciences

# Discussion Points

- **“Professionalizing” Advanced Practice**
  - Initial and subsequent development phases
  - Professional and regulatory affairs: examination, accreditation, licensure, etc.
- **First program: NICE**
- **First year experiences**
  - Student profiles: where do they work and what do they do?
  - Recommendations for future students

# “Professionalization”

## Development of NMAA profession

- Getting started....
  - 1999: SW Chapter presentation & beta test of first technologist survey
  - 1999 Technologist survey
  - **2000** survey results published in JNMT

# Getting started...

- 2004: beta test of physician survey
- 2005: Physician survey completed
- 2006: Position paper on advanced practice for nuclear medicine technologists approved and published
- 2007: NMAA competencies approved and published

# Getting started...

- 2008 Professional curriculum approved
- 2008 Arkansas Board of Higher Education approves NMAA program at UAMS
- 2009 First NMAA students admitted

# Regulatory activities

- NMTCB will write NMAA board examination
- Qualifications to sit for the exam
  - Education
  - Experience
  - Application process
- Time limited??
- Continuing Education and/or Maintenance of Certification: MOC??
- MD requirements
  - Practice assessment
  - Life-long learning
  - Professional standing

# Regulatory activities

- Accreditation of programs
- State licensure
  - Oversight: Radiation Control or Medical Board?
  - When to get started
  - How to get started
- Institutional credentialing
  - Local process by which an individual is permitted by a specific entity (Medical Director) to practice in a specific setting
  - Varies in sophistication and formality

# Scope of Practice

- Approved 2010 MWM
  - Scope of practice should be substantially difference from NMT
  - Used for licensure, credentialing, training and education, job description, institutional accreditation, etc
- Skills
  - Practice environment
  - Knowledge
  - Qualifications
  - Services provided
  - Risk
  - Level of supervisory responsibility
  - Amount of autonomy
  - Judgment/critical thinking/decision making

# First NMAA program

- In 2005 representatives of NMT baccalaureate programs from three universities – UAMS, UMC, and SLU – met to form a consortium to provide a graduate degree for NM technologists
- Ultimately this formally adopted the name – Nuclear Imaging Consortium for Education -



# Why form a consortium?

- Only 34 NMT Programs currently available in the USA are at the Baccalaureate level
- These four-year programs tend to be small with limited numbers of faculty with few of these holding advanced degrees
- These programs will be where most NMAA programs will be housed

# Implementation Decisions

Parallel existing Radiologist Assistant Program at  
UAMS: good for dually credentialed RT/NMT

Professional degree- Master of Imaging Sciences

Track One: Radiologist Assistant

Track Two: Nuclear Medicine Advanced Associate

Track Three: ?? Perhaps sonography



# Implementation Decisions

## Graduate-friendly format

Minimal course pre-requisites

Part-time or full time with enrollment any semester

May complete clinical activities as part of workday, if employer has no objections

Online delivery with few required campus visits

# Implementation Decisions

Interdisciplinary core courses with RA students

Healthcare Systems

Patient Assessment

Statistics and Research Methods

Clinical Pharmacology

Research Project

Discipline-specific pathology & clinical  
internships

Combined Advisory Committee

# Application Requirements

*“Highly qualified and exceptionally motivated”*

Requires earned bachelor degree, GRE score, and  
ACLS certification

**2 yrs full-time NM experience within past 3 yrs**


References from two imaging supervisors

**Must have physician preceptor(s)**

Must have clinical affiliate agreements

# First Year Experiences

- **Students**
  - Background experiences
  - Practice settings
- **Physician and employer expectations**
- **NMAA vs NMT**
- **Recommendations for success**



# Students: General characteristics

- Very bright
- Hard working
- Ambitious
- Internal motivation
- Excellent interpersonal skills
- Passionate about nuclear medicine

# Students

**Six students:** Two females, four males  
**Average 9 years experience in nuclear medicine**

Leadership roles within institution and professional organizations

**Multiple credentials**





# Practice settings

Community hospital

Large urban medical center

University medical center

Urban outpatient

Rural outpatient

Cardiology and PET



# Expectations...in their words

- Will vary widely from one facility to another
- Expand our practice...be able to add new procedures (radiologist based)
- Add cardiology and expand hours of operation
- Great for business

- Initial set of eyes when reviewing exams and offering a preliminary screening...this can reduce the cost of mistakes when abnormalities are missed
- In smaller facilities, an NMAA will be able to get that x-ray for comparison on his own without trying to contact the radiologist who is at another facility and isn't able to hand write the order for the x-ray or other complimentary exam
- Inject a patient for a sentinel node without trying to match his/her schedule with that of the radiologist

- NMAAs may be employed in cardiac clinics to supervise stress tests, not just perform the technical aspects of nuclear medicine
- **More active role in therapies which gives the radiologist more time to perform other duties**
- Spend more time with the radiologist or acting as a liaison checking films, okaying technologists to proceed with exam-pharmaceutical administration (CCK, Reglan)

- ...acting on behalf of the Radiologist in regards to the determination of the appropriateness, quality, and interpretation of the exam;
- I will be expected to handle the situations that are more medical, and less imaging, situations with patients should they arise (i.e. code team, bp's, syncope, blood sugar checks) in the rest of the imaging department, not just nuclear medicine
- Assist with resident training to a much greater extent

- I expect to order additional studies that may further help diagnose the patient.
- I expect to write prescriptions for medications needed
- Dose and calculate I-131 ablation doses
- Possibly perform lumbar puncture procedures
- In PET/CT will help with contrast administration, sedation, patient assessment

# NMAA vs. NMT

How is being an NMAA [intern] different than being an NMT?


- I spend more time spent examining images with associated historical data...learning how to find clinical clues which aide in a more accurate completed exam
- ...developed an understanding about the patient and his condition which has moved me far beyond what I knew as a technologist and has changed my mindset
- ...I don't just complete a study and submit the images, I now feel a responsibility for the patient and the outcome of his study

- I communicate differently with referring physicians.... using their terminology
- I feel more confident when talking with referring physicians about the study...it's often easier for referring physicians to get in touch with me rather than the radiologist to get a report or discuss the patient
- I feel there is more respect for what I know when I wear the badge that says I am an NMAA intern

- I see myself thinking more like a physician than like a technologist...I have a much greater appreciation for what physicians know!
- **I feel that I am more trusted by my radiologist**
- Sometimes there is a “disconnect” between the physician and technologists and I feel that I bridge that gap much more often....I find I agree with the physician point of view more often the technologists’ when we need extra views, etc.

- Being an NMAA intern is different for many reasons, but the biggest is probably how you approach patients, their tests and their conditions.
- NMAA intern develops a much broader view of the scope of what is really happening to the patient, physically-such as all the patient is enduring test wise and pathology wise, and what is happening at the molecular level.
- NMAA has a better understanding of the disease process and its effects on the patient.

- The NMAA begins to understand things from a physician's perspective, such as, what do all these tests mean?
- NMAA looks beyond the completion of the Nuclear Medicine exam to decide what might be the next step for this patient. Is the diagnosis question sufficiently answered, or could there be something else hiding in there still?



With the advent of the NMAA, I believe there are now three levels of expertise that will define nuclear medicine, excluding the physician level.

On level one there is the technologist who performs his/her duties as they should, checks with the radiologist on every decision, and is not much involved with the final product of the exam.

On level two the technologist is a super technologist with minimal supervision, can change dynamics of the test under the direction of standing protocol, does not have to involve the radiologist on every decision, and wants to be involved in the final product of the exam whether in talking with the radiologist about the results, or following up with the doctors office.

On level three I see the NMAA/NMAA intern who, under the auspices of a radiologist, works without supervision, can change dynamics of tests when necessary, makes decisions concerning testing and outcome, is involved in the final product of the exam through interpretation, correlation, recommendation, and follow-up.



# Observations and Recommendations

- NMAA program has been very demanding and consumes a large amount of time
- Organization is huge in coordinating and balancing employer expectations and demands of the program

- I have to admit that even though it is hard, I love it. I have learned so much already that I would never have learned otherwise. The body is amazing, so much more than you ever learn in NMT school.
- This by far has been way more intense than going to nuclear medicine school. It wasn't until the Mid-Winter SNM meeting when a mentor of mine plainly stated, "Well, would you want to go to a course that everyone could pass?" that made me realize what I was doing was worth it.

- The most important thing is to have a good relationship with your nuclear medicine physician, radiologist, or cardiologist
- You must have a strong relationship with your employer. The relationship between me and my employer is valuable beyond measure. Their total support has ultimately allowed me the flexibility, confidence, and foundation to grow clinically.

- If you have family obligations (children especially) consider going part time
- You need a supportive family. If there is a spouse and /or children involved everyone must be on the same page. Find a balance between your family, work, and school.

- The more experienced technologists tend to find their way a bit better
- ...need a diverse background in working history such as location (hospital vs. clinic), patients (cultural, age, religious, degree of illness), and clinicals (general, PET, therapy, SPECT).
- Technologists who have an office at work find it easier to complete assignments than those who have to wait until evening to do everything at home

- The clinicals can be done during the work period, which is advantageous for the working technologist. This is a good way to incorporate freshly learned elements into a professional practice. I see myself doing this all the time whether through improving history taking, or checking patients' lungs prior to a pharmacological stress test through auscultation.

- The most important thing to remember is to do this for you. There may be no pay raises for awhile, or departments in your area that want an NMAA. You must do this for you, weighing all the benefits and sacrifices before making the decision to enroll.



# Questions or comments?

Martha W. Pickett

501-686-8580

[pickettmarthaw@uams.edu](mailto:pickettmarthaw@uams.edu)

or

[nmaa@uams.edu](mailto:nmaa@uams.edu)