Don't Be So Quick to Raise the White Flag on the Nuclear Medicine Advanced Associate as a Career Path

Vicki LaRue, MIS, NMAA

National Jewish Health, Denver, Colorado

What is the true difference between a nuclear medicine technologist and a nuclear medicine advanced associate (NMAA)? There can be many answers to this question: a specialized advanced degree; a broader scope of practice; about $40,000 in debt; a long, uphill battle.

It appears that many believe the future of the NMAA to be ill-fated and that if technologists truly want to increase their clinical knowledge and position, they should follow the route of a conventional physician assistant (PA). PAs can bill for services and are recognized by state legislators, physicians, and medical institutions. NMAAs cannot bill for services, must prove their worth to institutions (most of which do not have job descriptions or openings for NMAAs), and currently have no certification in states that require imaging professionals to obtain valid licenses. Make no mistake: this pathway is not easy, but as several practicing NMAAs can attest, it can definitely be successful.

Having a conventional PA license would not prepare someone to act as a potential extender for the nuclear medicine physician. Though PAs have been used in diagnostic radiology, it is rare or impossible to find a PA with clinical training in nuclear medicine. We do not see PAs in the interpretation room dictating ventilation–perfusion results or calculating therapy doses. The reason is multifold. To be a valuable resource in the nuclear medicine department, one must be trained as a physician extender in this specific modality. Current NMAAs have responsibilities such as making technical and clinical decisions, which requires a strong technical background; administering adjunctive medications, which requires knowledge not only of pharmacology but also of the specific imaging procedure and the physiologic response being assessed; evaluating patients and obtaining information specific for nuclear medicine procedures; and interpreting the preliminary results of molecular imaging procedures. Most of these duties are not taught in conventional PA classes. Even a seasoned nuclear medicine technologist who has completed a conventional PA program would not be prepared to function as a physician extender in nuclear medicine, as a large part of the NMAA's role—image interpretation—is not addressed by current PA curriculums.

As an example, 5 areas of study for an NMAA clinical internship might include pulmonary, endocrine, and skeletal medicine; therapeutic and PET imaging procedures; gastrointestinal, genitourinary, and neuroimaging procedures; cardiac imaging and stress testing; and administrative procedures and specialized modalities. The curriculum would have strict requirements for each of these areas. For a PA clinical internship, in contrast, the corresponding 5 areas might include emergency medicine and internal medicine procedures; pediatrics and surgery; primary care and obstetrics and gynecology; psychiatry and geriatrics; and critical care and elective courses.

The NMAA program is not designed for advanced technical education but, rather, uses training methods similar to those for radiology residents. Students sit with physician preceptors to gain knowledge and interpretation skills for each type of molecular imaging; they interpret preliminary findings before their preceptor performs the final interpretation. This is how imaging professionals are trained, and the NMAA is no different. But beyond just image interpretation, NMAAs are also taught physical assessment. They perform physical examinations on patients just as a PA does, are instructed in pathophysiology to give a differential diagnosis just as a PA is, are skilled in pharmacology just as a PA is, and just as PAs must demonstrate a certain level of expertise in a specific area (e.g., surgery, gynecology, or geriatrics), NMAAs must demonstrate a certain level of expertise in the specific area of molecular imaging. Thus, training in the conventional PA curriculum would not prepare the physician extender to perform adequately in the nuclear medicine department.

Technologists who would like to go into advanced practice in molecular imaging should consider several differences between PA and NMAA positions. The PA position is more clinically patient-based than the NMAA position, as evidenced by the clinical requirements of PA programs. However, because a degree of patient assessment is definitely necessary in molecular imaging, physical assessment training is mandatory for the NMAA even though its scope may be less than that for the PA. By

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For correspondence or reprints contact: Vicki LaRue, National Jewish Health, 400 Jackson St., Denver, CO 80206.
E-mail: laruev@njhealth.org
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contrast, the NMAA curriculum focuses on molecular imaging whereas the PA curriculum has no clinical internship specifically for imaging. One major advantage of the NMAA program is its flexibility. PA programs require full-time student status for 2 to 3 years. Students cannot maintain a full-time job while enrolled in PA programs. The NMAA program allows clinical time to be fulfilled during students' regularly scheduled hours as a technologist. The students keep their job, keep their income, and work with physicians and facilities they already know.

Will obtaining the NMAA degree guarantee that students will secure a job in that field? The obvious answer is no, as no degree is a guarantee of a job. NMAAs currently have an uphill battle, but the battle would decrease 10-fold if strong support were to be received from peers, physicians, and nuclear medicine professional societies. Development of the NMAA program has been a hard road to travel, requiring much time and effort by many individuals, but as reported in a previous article in this journal (*1*), the program has been determined to be valid, useful, and needed:

> In 2005, a survey was sent to 1,500 physicians from the American Society of Nuclear Cardiology, American College of Nuclear Physicians, and American College of Radiology to assess physician support and intent. . . . The results of this survey were as follows: 72.5% of the respondents thought that the NMAA would be helpful in performing exercise stress tests; 50.7%, in performing and interpreting electrocardiography; 83%, in being certified to provide advanced cardiac life support, 53%, in freeing up a radiologist, nuclear medicine physician, or cardiologist; 61.6%, in improving efficiency, especially in busy departments; and 64%, in being available when the direct presence of a physician is not possible.

If you are a technologist interested in pursuing advanced practice in molecular imaging, you should ponder what exactly your aspirations are for your future. If you aspire to become an extender of the nuclear medicine physician, the NMAA pathway can allow you to obtain your goal. Nuclear medicine physicians, in turn, should be aware that they now have extenders who are as passionate about nuclear medicine as they are and who are specifically trained to be their right arm. Don't be so quick to raise the white flag and give up on the NMAA. Several health systems acknowledge the NMAA scope of practice and job functions, and several states are considering establishing licenses for NMAAs. Despite the difficulties, the profession is progressing and will become established as part of the nuclear medicine team.

DISCLOSURE

No potential conflict of interest relevant to this article was reported.

REFERENCE

1. Hubble WL, Botkin C. NMAA: past, present, and future. *J Nucl Med Technol.* 2011;39:175–178.