

The Nuclear Medicine Practitioner: SNMTS Task Force Identifies Need for New Role

Nuclear medicine practice is challenged by escalating demands for service, changing workplace structures, increased specialization of modalities and techniques, and a growing need for routine communication with other specialties. The leadership of the SNMTS addressed these challenges in 2004 with the formation of the SNMTS Advanced Practice Task Force under the direction of Martha W. Pickett, CNMT. The task force assessed the need for the development of an educational program and credentialing structure to support and recognize an advanced level of nuclear medicine technology practice. This ongoing work parallels efforts in many health care disciplines, particularly those with rapidly changing technologies, that have developed enhanced career paths for new midlevel professionals. The SNM Task Force conducted an initial survey and prepared a comprehensive position paper, presented to the SNMTS Executive Council and SNM Board of Directors. The Executive Council and Board approved a resolution supporting the establishment of a career path for the “nuclear medicine practitioner,” a new middle level provider. In the current issue of the *Journal of Nuclear Medicine Technology*, the Task Force outlines and discusses the competencies for this new role. Following is an abridged version of the original report (*J Nucl Med Technol.* 2006;34:236–243) describing the genesis of recommendations for the new roles and a brief summary of the proposed competencies.

Development of the Nuclear Medicine Practitioner Credential

According to a study undertaken in 2000, nuclear medicine technologists (NMT) expressed a high level of interest in an advanced practice career pathway. NMTs also indicated that they were already performing many tasks outside accepted practice guidelines and were doing so without the benefit of formalized training. Such activity puts the technologist, the physician, the institution, and most importantly, the patient, at risk for an adverse event.

Workplace characteristics have also changed over time with nuclear medicine procedures performed in a variety of clinical settings. NMTs may work in areas with little physician coverage and make medical decisions outside their area of expertise. As more procedures are performed by other medical specialists, particularly cardiology and oncology, NMTs who work for these specialists are often required to provide a certain amount of medical expertise to compensate for knowledge that the other specialists lack—a level of practice that, in other circumstances, would have been provided by a nuclear medicine physician.

The fact that many technologists have significant work experience represents a unique opportunity for professional growth. NMTs possess a shared bond with medical imaging physicians. They speak a common language and share a deep understanding of medical imaging. Talented NMTs would be ideal candidates to fill positions that provide advanced nuclear medicine services similar to that of a physician assistant (PA) or nurse practitioner (NP). They would have the added advantage of being able to administer radiopharmaceuticals, a task often prohibited to PAs or NPs in licensure states. But without the proper education and training, NMTs lack the regulatory underpinnings of other physician extenders.

To address this situation, the SNMTS recently completed a physician survey for input on how such a middle level provider, or nuclear medicine practitioner (NMP), might function and how physicians would view this development. The survey, which was completed in April 2005, revealed an overall positive impression by physicians regarding the development of an NMP credential. In general, it is anticipated that NMPs will be required to demonstrate a high level of autonomy, technical sophistication and advanced clinical knowledge, and strong critical thinking and decision-making skills. They will be highly capable and motivated professionals, comfortable with the sciences, seeking increased education at the master's degree level.

Results from Physician Survey

The SNMTS conducted a survey to explore the possibility of creating a middle-level provider of nuclear medicine services. The survey questionnaire was developed by Sage Computing, Inc. staff in consultation with SNM staff members and using draft questions approved by SNM staff and members of the Advanced Practice Task Force. A pilot survey was conducted in 2004, and items from that study were used as the basis of the current survey. The questionnaire administered by Sage was mailed to 1,500 physicians. These potential respondents were randomly selected and are representative of a larger universe of 2,700 individual society members from the American Society of Nuclear Cardiology, the American College of Nuclear Physicians, and the American College of Radiology. Almost every state, as well as Puerto Rico, was represented in the sample. The overall response rate was 24.7%.

Demographics of Respondents. Survey respondents were asked to report their specialty area and could select up to 6 areas alone or in combination. Forty-five percent reported expertise in cardiology and 34.3% reported nuclear medicine (ABNM). One-quarter (25.6%) reported a specialty in internal

medicine (ABIM) and 13.1% reported their specialty as radiology. Survey respondents were asked how long they had been practicing nuclear medicine. One third reported practicing more than 20 years. The average of all responses was approximately 14 years of experience in nuclear medicine. Only 1 in 5 respondents reported that their institution had a nuclear medicine residency program. When asked if they had ever worked with a PA or NP, the vast majority said yes (71.4%).

Proposed Tasks of NMP. Survey respondents were asked their opinion about the usefulness of an NMP in performing various tasks. The survey instrument used a Likert scale of 1 through 5, with 5 representing “very useful” and 1 representing “not very useful.” A “not applicable” option was available for each question as well. Overall, 72.5% of the respondents thought an NMP would be very useful (5 on Likert scale) or useful (4 on Likert scale) in performing exercise stress tests; 50.7% thought it would be useful if the NMP could read an ECG; and 83% thought having the NMP be ACLS-certified would be useful or very useful. Eighty-two percent thought an NMP would be very useful or useful in obtaining informed consent; 74% were of the opinion that an NMP would be very useful or useful for taking clinical histories before and/or after imaging procedures. Only 16% thought an NMP would be useful in administering radiopharmaceuticals intrathecally or intraperitoneally; most thought this task was either not applicable (33.2%) or not very useful (27.6%). When queried about the value of an NMP administering the radiopharmaceutical for sentinel node imaging, 42% agreed that it would be useful or very useful; 30% indicated this was not applicable to their practice.

Three questions were asked regarding NMP interpretation of images. When asked if an NMP should evaluate images and provide a preliminary diagnosis, 20% said this would be very useful and the same percentage said it would not be very useful. Overall, 35% did not seem to favor this task (task rated as 1 or 2) while 38% did (task rated as 4 or 5); 18% were undecided. When asked whether the NMP should evaluate images and simply indicate whether they were normal or abnormal, slightly more seemed to be in favor of this task but many respondents remained opposed. Thirty-one percent rated this task as a 1 or 2 (not very useful or not useful) and 43% rated the task as a 4 or 5 (useful or very useful). More ambiguity appeared for the task of evaluating images and providing a technical report or preliminary diagnosis to the radiologist. The largest number (23%) rated this task as a 3; 34% thought this task was not particularly useful (1 or 2) and 35% thought the task was useful or very useful (4 or 5). In response to the question about an NMP ordering interventional pharmaceuticals according to protocol, 62% thought this was useful or very useful. Forty-six percent believed it would be useful or very useful for an NMP to order complementary diagnostic procedures.

Interest appeared to be strong regarding the role of an NMP in therapeutic procedures. Forty-six percent said it would be useful or very useful for the NMP to review requests

and examine patients prior to therapy procedures and monitor post-therapy patients. Nearly one fifth of the respondents indicated this task was not applicable to their practices.

Value of an NMP. Respondents were asked to rate a series of opinions about NMPs based on the question: “Please provide your opinion on the role or value of an NMP.” When asked if “NMPs would provide technologists with opportunity for advancement,” 60.8% reported yes (likely or very likely), while only 12.0% responded not very likely. Similarly, when asked if “An NMP would free up a radiologist, nuclear medicine (NM) physician, or cardiologist to do other things,” 53.0% reported yes (likely or very likely) and only 15.9% said not very likely.

In response to the item, “An NMP would potentially decrease the need for ancillary personnel,” one half of respondents said yes (likely or very likely). This is somewhat inconsistent with the results of a previous question, where only a quarter of respondents said they were unlikely to hire a nurse/PA if a highly skilled technologist were on staff.

Asked if “An NMP would improve efficiency especially in very busy departments,” 61.6% of all respondents agreed (very likely or likely) while only one in 10 said it was very unlikely. Thirty-six percent of respondents agreed that “An NMP could make the specialty of NM more powerful,” but 24.1% dissented with that opinion. On the operational matter “Better and more prompt service could be offered to patients with an NMP,” almost half (47.7%) agreed it’s likely or very likely; only 15.3% disagreed with that statement about an increase in service promptness.

Physicians were also asked if an NMP would offer a greater level of direct patient contact. Half agreed and 15% did not agree. Nearly half of all responses (48.7%) indicated that “An NMP would improve departmental quality and management efficiency,” substantiated by only 14.5% who said that it’s not very likely. As for whether “An NMP would be helpful when direct physician presence was not possible,” almost 64% agreed (likely or very likely) while only 12% did not agree. Lastly in this series of opinions, respondents were asked their opinion on “An NMP would be helpful considering shortage of radiologists and NM physicians,” and 42.6% agreed it’s likely to very likely while 21.9% said it was not very likely.

Other Roles of the NMP. Respondents were asked to register their opinions on a series of 7 subquestions about the importance of the role and capabilities of an NMP. Overall, when presented with these statements about NMPs, the majority always rated the role and capabilities as important to very important, (and generally a small minority disagreed). That indicates that if an NMP were present, they would need to have these capabilities and play a significant role in supporting or carrying out the following: lab management, coding and billing procedures, accreditation processes, and research. Following are details of the findings for each area.

First, respondents were asked if “An NMP should be proficient in department or lab management.” More than

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70% said that is important or very important. Only 12.4% said not important or not very important. Next they were asked to rate the importance of the statement, "An NMP should be capable of helping a lab receive accreditation." Over 76% agreed, and only 10% disagreed.

Respondents were presented with the statement, "An NMP should be capable of conducting or assisting with research projects." Sixty-three percent agreed and only 13% did not agree. When physicians were asked to respond to "An NMP should be very familiar with therapeutic procedures," 72.8% said it was very important to important, while only 11.5% did not rate it as important. Asked about whether "An NMP should be familiar with billing and coding issues," a little more than half (53.6%) agreed it is very important or at least important, and 1 in 5 (20.1%) said it was not important.

Education and Training. Stating their opinions on "An NMP should be trained and educated at the master's level," 52.3% respondents ranked that as important (or very) and a total of 21.1% were of the opposite opinion. Finally, physician respondents were asked their opinion on whether "An NMP should be trained and educated in a manner similar to a PA." A majority of 71.2% agreed it is at least important; only a total of 11% rated it as not (or not very) important.

Education of the NMP

NMPs would be educated at the master's degree level, most likely after several years of experience. The rationale for the master's degree is that this level of education is now mandatory for the NMP counterparts in the health care arena, NP and the PA. According to the physician survey, a strong interest was expressed in the master's degree level of education as well as in following a PA educational model. Also, regulatory requirements (Medicare) require a master's degree for certain privileges.

According to the physician survey, prior experience as an NMT is viewed as essential. Forty-three percent of the responders felt that 2 or 3 years of experience was necessary before training to become an NMP, and 41% thought 5 or more years was important.

Technologists who reported a high level of interest in an advanced practice career pathway in the 2000 study indicated educational programs should be configured so that they could be completed while technologists remain employed. In fact, current employment settings will most likely be crucial for educating and training the NMP. New educational models should be explored, including online education and part-time tracks. Tracks should be developed in cooperation with existing radiologist assistant (RA) programs, for dually certified (RT and NMT) technologists who might also choose dual advanced practice (RA and NMP) career pathways. Institutional consortia should be considered as a means of conserving scarce resources.

Summary of Initial Position Paper

The concept of a middle level provider of nuclear medicine services, designated a nuclear medicine practitioner in this paper, is supported by 2 studies of technologists and physicians. It is anticipated that the nuclear medicine practitioner would have attributes parallel to those of a PA with roles and functions to be defined by advanced clinical competency beyond the technologist level. This new clinical role offers an opportunity for significant career advancement for technologists and would result in nuclear medicine services that are more cost effective and efficient.

Defining the Competencies for the NMP

The original adoption of the recommendations made in the SNMITS Advanced Task Force proposal directed that a review of practice scope, knowledge content, and competencies of other lateral middle-level providers, primarily PAs, RAs, and NPs be performed and considered along with the results of the SNMITS survey to guide the development of practice areas for the NMP.

NMPs are projected to work in general nuclear medicine settings as well as in specialty settings, such as oncology and cardiology. The scope of practice for the NMP is anticipated to subsume many of the patient care and managerial functions currently provided by a wide array of ancillary personnel and will also include advanced knowledge and skills for the practicing NMT. In addition, the NMP could assume certain physician tasks under the discretion of the overseeing nuclear medicine physician, radiologist, or attending physician. Candidates for NMP programs would be credentialed by the Nuclear Medicine Technology Certification Board (NMTCB) or the American Registry of Radiologic Technologists (ARRT) and would have the clinical practice experience deemed appropriate by institutional admissions committees.

Competency Areas. The Task Force outlined competencies intended to serve as a guide in the development of the curriculum for NMP programs, which will be offered at the master's degree level. These competencies primarily reflect the clinical tasks of an NMP, but NMPs may take on additional responsibilities at the discretion of the supervising physician. Competency areas were compiled in consideration of tasks required to work with general as well as specific patient populations in diagnostic and therapeutic settings. General core competencies (a total of 13) are described for general nuclear medicine procedures in all settings, and specialty competences are outlined for cardiology (13), oncology and therapy (18), and administration (12). An additional category of elective competencies (12) includes those skills in which some NMPs may choose to become proficient depending on their practice setting and on new directions in nuclear medicine practice and technology. The complete list of competencies is detailed in the current issue of the *Journal of Nuclear Medicine and Technology*.

SNMITS Advanced Practice Task Force