

# NMTCB REPORT

**Karen L. Blondeau, CNMT  
Chairperson**

The year 1990 was exciting for the NMTCB. Over 11,000 nuclear medicine technologists worldwide are now certified by this agency. This growth led to the need to relocate the headquarters into a larger facility in Atlanta.

Terrific response from our item writers this year has resulted in many more items available in the item pool. The item pool will be formally entered into a larger computerized database over the next few months, allowing the Board and the American College of Testing quicker and more efficient access to performance characteristics of each item as well as providing an improved method of overall test development.

The Summit on Manpower and the NMTCB are conjointly participating in a survey on job satisfaction and retention. The survey was first conducted in the state of Massachusetts, and the September issue of *JNMT* reported a summary of the data. The current follow-up survey will expand the response group to include a national representation from the NMTCB registrant pool. NMTCB registrants selected for the current survey are urged to respond candidly and in a timely manner. The data are valuable for several reasons: (a) realistic data obtained from field practitioners will enable professional organizations to focus better on those areas of concern to members and plan strategies to address those issues; (b) the efforts of those involved in national legislative issues regarding our field will be strengthened by this data; and (c) evidence that these findings are consistent throughout the nation can be useful when implementing local efforts

TABLE 1

Group	Mean	Standard Deviation
CAHEA Graduate/AS	132.66	22.04
CAHEA Graduate/BA-BS	136.77	19.17
CAHEA Graduate/Certificate	131.76	21.78

to recruit and retain technologists. Each response is important and the NMTCB appreciates your cooperation in this endeavor.

The June examination this year was administered to 263 examinees. One hundred ninety-one (72.6%) passed the exam. The September examination statistics were not available at the time this article was being written. However, we can report that 520 individuals took the examination. It is extremely encouraging to note this dramatic increase in the number of examinees in light of the manpower shortages. To all of these new CNMTs, congratulations and welcome to the profession!

The NMTCB examination continues to be a valid criterion-referenced examination and this is evidenced by data from the June 1990 exam. Specifically, when comparing the mean scores from examinees from the three types of CAHEA programs, there is little variance from the mean among them. The examination appears to correlate with both the task analysis matrix and the current CAHEA curriculum framework. It is also apparent from

this information that success on the NMTCB examination is achievable by graduates of any one of the three types of educational programs (Table 1).

During this year, the NMTCB also offered recognition of previous certification to those holding either ASCP or ARRT nuclear medicine certificates earned prior to December 31, 1985. This Board decision was made based on the fact that there are a number of technologists in practice who were unable to participate in the first recognition of previous certification period in 1979. By documenting both previous certification and experience in the field, the Board felt that these individuals should be considered eligible for recognition as entry-level nuclear medicine technologists and would therefore possess the task-based knowledge reflected on the NMTCB examination.

This is my last report to you as Chairperson of the Board. I have enjoyed this past year, representing and serving the profession. As usual, I will close with the invitation to each of you to display the CNMT designation proudly, to consider sharing your expertise by becoming one of the NMTCB item writers, and to consider submitting your name for consideration as a NMTCB director. Richard Nuccio leaves the Board at the end of this year followed by several more directors whose terms will expire in 1991. A simple thanks seems insufficient to Richard and the others who will leave in the next cycle. However, the profession indeed does express gratitude to these individuals who volunteer time and talent to the NMTCB and ultimately serve the profession.

## NOMINATIONS FOR NMTCB DIRECTORS

The Nuclear Medicine Technology Certification Board is seeking nominations for NMTCB Directors from the nuclear medicine technology community. Terms for New Directors will be from January 1991 through December 1994. Individuals interested in serving should contact the NMTCB office at (404) 315-1739.

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ticals do not adequately predict the drugs' level of toxicity. "According to the General Accounting Office," he states, "of the 198 drugs approved during the years 1976-1985, over half had toxicities greater than had been originally expected."

"Nuclear medicine technologists do not, by and large, handle the animals themselves," says Mr. Allen. "At our facility, like most medical research facilities, we have a trained animal care specialist who, in general, monitors the animals, is required to make certain that the dogs have been sedated with the proper anesthesia, and are housed in a safe and clean cage." Mr. Allen also disputes the claims of some animal rights groups who insist that research facilities are a chamber of horrors. "There are specific guidelines we must follow concerning the animals' safety," he says. "But before labs even get to the stage of funding," continues Mr. Allen, "an in-house animal safety and care committee meticulously goes over our experimental protocol to make sure that the animals are not going to be subjected to any unnecessary pain or discomfort. There is absolutely no malicious intent on our part." Mr. Allen concludes that "there is no available option to sacrificing animals for research purposes—unless you want to forego the advancements of medical science."

Dorothy Duffy Price, CNMT, Administrative Technical Director and Educational Program Director, Nuclear Medicine Department, University of California at San Francisco, envisions that nuclear medicine technologists will receive formal training in the care of research animals in the near future. "While we do not have that as part of our program now," says Ms. Price, "that is an area we look forward to instituting as we modify the curriculum and training of technologists. It's a challenge for the near future." Ms. Price says that at her facility, "technologists often handle the animals themselves, for example, positioning them under the scintillation cameras and injecting the radiopharmaceuticals." Technologists who han-

dle research animals have to "balance feelings of detachment with a degree of empathy for the animals, in much the same way that we treat human patients." Ms. Price adds that the biomedical research community has always followed strict guidelines concerning the care and treatment of research animals long before the emergence of animal rights groups.

Mr. Allen points out that in nuclear medicine laboratories, most research endeavors are clinically-oriented, that is, specifically focused on a particular medical condition. According to Mr. Allen, the most common procedures in nuclear medicine clinics are the injection of new radiopharmaceuticals to see how a radiotracer's behavior changes over time in the circulatory system of animals. At Mr. Allen's facility, another common procedure is determining the bone densities of sedated canines via scanning.

"All research experiments are highly detailed and structured," says Mr. Allen. "Researchers are looking for quantitative data, for example, a particular response to a given stimulus. The technology is so advanced now that we can, to a great degree, make extrapolations from the animal model to the human model. For example, the bone material for a dog and human are essentially the same. If we can study osteoporosis in the dog, we can make great advances to that disease in man."

### Future Outlook

The battle between the research community and animal rights activists is heating up in Congress. Animal rights groups are lobbying to strengthen laws promoting the humane treatment of animals, enforce existing USDA regulations, minimize animal pain, and encourage the use of alternative methods in research. Lobbyists are also fighting for the inclusion of rats and mice under the provisions of the AWA, the rights of private citizens to sue for enforcement of the AWA, and the prohibition of duplicate research.

According to the National Association for Biomedical Research (NABR), a Washington organization

which supports responsible and humane research and monitors legislative issues affecting the research community, the animal rights movement seeks to drive up the cost of research by aggressively increasing litigation against the federal government over alleged animal welfare violations. Frankie Trull, President of NABR, stated that amendments to the AWA, which strengthened safety regulations for animals, will cost between \$1 billion to \$2 billion, with no accompanying appropriation reimbursement to the scientific community.

However, according to the NABR, the "vast majority" of congressional members support animal research and have begun interacting with the research community on how to educate the public about the benefits of animal research. Representative Vin Weber (R-Minn.) formed a caucus comprised of biomedical, pharmaceutical, and agricultural groups and legislators to formally create an educational program promoting animal research. Furthermore, to counteract the violent tactics used by some animal rights groups, bills have been introduced and passed in the House that would protect research facilities from break-ins, arson, and theft. The "Animal Research Facility Protection Act," introduced by Senator Howell Heflin (D-Ala.) and passed in November 1989 as an amendment to the AWA, makes it a federal crime to rob, destroy or make unauthorized use of animal research sites. This particular bill was drafted in response to an incident at the University of Arizona where hooded members of the Animal Liberation Front trespassed onto a research area, stole over 1,200 animals, and set fire to a veterinary diagnostic lab and an administration building.

Meanwhile, Representatives Tom Lantos (D-Cal.) and Robert Smith (R-N.H.) formed another caucus, The Congressional Friends of Animals, that supports the animal protection movement and provides them with a voice in Congress.

According to the AMA, the animal rights movement is growing in the U.S., Canada, and Europe, buoyed by

increased funding and membership and by successes against the fur and cosmetic industries. Furthermore, Dr. Barnard of PCRM claims that the activities of animal rights groups have made headway against such practices as using animals for medical education, i.e., dissecting an animal in a classroom to show the internal anatomy.

Dr. Greenwald expresses concern about the future of animal biomedical research in this country. "If the animal rights supporters continue to forward their cause, it will become tougher to obtain animals to perform research and this would ultimately jeopardize the advancement of modern medicine, particularly in the area of incurable diseases." Dr. Greenwald adds that, "the approach of the animal rights groups is anti-intellectual and appeals only to emotional arguments. But I sense that their message is coming through to the next generation of biology and medical students who do not fully appreciate the value of biomedical research and are increasingly showing a reluctance to experiment with animals." He worries that students' increased abhorrence toward working with animals will have "devastating effects on the future of medical and scientific research in this country."

**Palash R. Ghosh**

Associate Production Editor, *JNMT*

## ■ Technologist Section Attracts International Interest

Issues affecting nuclear medicine technologists (NMTs) in the U.S. (professional identity, licensure, career advancement, and continuing education) are of equal concern to technologists in foreign countries. As an organization representing 45% of practicing technologists, the Technologist Section (SNM-TS) has a unique place within The Society of Nuclear Medicine (SNM) in that it is a professional entity with its own officers and governing body that was developed expressly to address the professional interests and concerns of NMTs. Section involve-

ment in certification (NMTCB), standardizing educational training programs (the Essentials), and legislative activities (reauthorization of Title VII Public Health Act) has garnered interest among foreign nuclear medicine technology associations in the restructuring of their organizations to address similar and different issues. Promulgation of increased communication between the Section and these organizations will result in the tangible benefits of an even larger forum for the exchange of ideas and the added recognition of the NMT's role within the health care environment.

"Nuclear medicine technology is definitely worldwide in its perspective," says Brad Pounds, CNMT and President of the SNM-TS. "I consider the SNM-TS to be an international organization [in view of the fact that] the isotopes, instrumentation, and procedures are much more alike here and abroad than they are different." Indeed, of the Section's 4,596 active members, 171 are foreign. To address the concerns of its foreign membership, the Section has established the International Government Relations Committee. Chaired by Kathryn Richmond-Cox, CAMRT, Chief Technologist, Toronto General Hospital, Toronto, Ontario, the Committee is currently focusing its activities toward assessing issues of concern to Canadian technologists.

## Professional Recognition

Professional recognition, salary compensation, and reciprocity in training requirements are issues of tantamount concern to European technologists. Within the European Association of Nuclear Medicine (EANM), for example, there is no formal organizational structure for NMTs, such as the Section's relationship with the SNM. Moreover, the emergence of the European Economic Community (EEC) emphasizes the need for reciprocity in training and certification. "This issue has to be resolved," says Mr. Pounds, who attended the EANM Congress of Nuclear Medicine in Amsterdam this past May as an invited speaker to discuss the success and the

political structure of the SNM-TS. "One of the focal points during the Amsterdam meeting was the need for a centralized certification exam." Mr. Pounds continued, "The weak link is that there is no one certification body [within the EEC or individual countries] that covers nuclear medicine specifically."

The British Society of Nuclear Medicine Technicians (BSNMT), founded in 1989 under the auspices of the British Society of Nuclear Medicine, seeks to address issues of professional identity and recognition of technicians. "Technicians wanted a professional body of their own," says Caroline Townsend, Supervisory Radiographer, Middlesex Hospital, London, and Chairperson of the BSNMT. In Britain, nuclear medicine technology is practiced by both radiographers and nuclear medicine technicians. Radiographers are graduates of three-year degree-based radiography programs and a one-year diploma [certificate] nuclear medicine program. Technicians, on the other hand, may be graduates of nationally certified medical physics programs or are trained on-the-job.

According to Ms. Townsend, salary discrepancies and work duties were topics of contention between radiographers and technicians. "With the National Health's regrading of pay structures for technicians," Ms. Townsend explained, "pay is no longer an issue, but job duties are. Although, the BSNMT is still in the developmental stages, [it is still drafting a constitution, for example], one of our goals is to provide a base for relating both technicians' and radiographers' attitudes towards work duties."

On closer inspection, it appears that "certification within the profession by the profession" goes a long way toward promoting professional identity. Part of the success of the NMTCB can be attributed to the fact that technologists know that there is a certification body that acknowledges the specific requirements for the practice of nuclear medicine technology. In the spectrum of radiologic fields, nuclear medicine is unique. Such professional autonomy

has been a factor in many SNM-TS activities. Although a direct parallel may not be drawn, it is interesting to note that in countries with loosely organized nuclear medicine technology societies, certification is handled by organizations that also certify radiologic technologists and other diagnostic technologists.

In Canada, a majority of the NMTs are certified by the Canadian Association of Medical Radiation Technologists (CAMRT). CAMRT has developed a Criteria for Certification that "broadly identifies those criteria or standards on which the candidate may be examined on the national level." These criteria encompass the basic sciences and nuclear medicine applications as well as a skills profile "which is intended to provide information to students, employers, and the general public on the current perception of the role of a graduate nuclear medicine technologist." Ms. Richmond-Cox noted, "Basically, there is one body for training and certification." Ms. Richmond-Cox further believes that nuclear medicine certification should be handled by a separate entity.

Thousands of miles away, Japanese technologists have similar concerns. "The Japanese are very much interested in our nuclear medicine technology training program curriculum and in the NMTCB certification exam," says Jim Langan, CNMT, Johns Hopkins Medical Institutions, Baltimore, MD. Mr. Langan, who recently attended the 10th Annual meeting of the Japanese Society of Nuclear Medicine Technology (JSNMT) as an invited speaker to discuss the activities and structure of the SNM-TS, further noted that "they do not have a separate examination. NMTs take the same exam given to rad techs." The JSNMT, founded in 1980, has 1,000 members and publishes a quarterly journal, *The Journal of the Japanese Society of Nuclear Medicine Technology*. The organization's objectives are the research and study of nuclear medicine technology for continual contributions to medical practice, professional advancement for its

members, and promoting communication and friendship amongst its membership.

Mr. Langan reflects warmly upon his experience in Japan. "The Japanese were wonderful. I was honored to attend this meeting as a speaker. I found that they share the same concerns that we do. The Japanese techs do pretty much the same [clinical activities] that Americans do," Mr. Langan noted, "except that they may not inject radiopharmaceuticals." Although travel costs prohibit technologists from either the Section or JSNMT from attending one another's meetings, Mr. Langan noted that there is discussion underway toward the development of a fellowship exchange program in which a Japanese company would sponsor a Japanese technologist to work in an American hospital and an American company would reciprocate for a SNM-TS member. "Both the JSNMT leadership and I are interested in follow-up activities," Mr. Langan concluded. "I have spoken to both Brad [Pounds] and Sue [Weiss, *JNMT* editor] about possible information exchanges."

### Variations in Training Curricula

Given that any training program must contain curricula that adequately prepare NMTs to perform a variety of day-to-day procedures, the exact structure of a program in terms of accreditation may vary from country to country. Canada, for example, has a highly structured national program. There are five two-year certificate programs. Canadian programs are accredited by the CAMRT; American programs are accredited by the Committee on Allied Health and Education (CAHEA). Unlike the U.S., in which there are baccalaureate (university-based) as well as certificate programs, there are no university-based programs in Canada. Ms. Richmond-Cox did note, however, that many Canadian NMTs completed basic science programs at the university prior to entering a nuclear medicine technology program.

Countries without an accredited program may hire educators from countries with accredited programs. It

was in such a capacity that Maria Nagel, MS, CNMT, spent time in Kuwait as an external examiner for the nuclear medicine training program at the School of Allied Health. External examiners, who are hired for two consecutive years, review students at the completion of their training to assess competency. "The external examiner is the only check at the present time," Ms. Nagel recalled, "because there is no mechanism for accreditation of allied health programs." In addition to nuclear medicine technology, there are also external examiners for radiology technology, physical therapy, medical records, and nursing.

The Kuwaiti allied health school has been in existence for 4-5 years. Students must be high school graduates and after two years of basic science training they can elect a specific area of study (such as nuclear medicine technology). Graduates receive a baccalaureate degree and "all classes are conducted in English," Ms. Nagel stated. "The programs are excellent and the students are very congenial," remarked Ms. Nagel. "There are usually five students in the nuclear medicine program [although] this year there were four. Next year the program will be expanded to include eight students."

According to Ms. Nagel, the program director had read the "Essentials" and wanted the nuclear medicine technology program structured accordingly. "There was a lot of didactic work as well as research work in which the students were judged on the quality of their presentations," Ms. Nagel stated. "I gave the students a mock certification exam like the exam I give to my American students and there was no difference between these students' test results and my American students' results. I was very impressed with the educational policies," Ms. Nagel continued. In fact, Ms. Nagel recalls that the nuclear medicine technology program director was interested in establishing an exchange program for post-graduate studies for Kuwaiti students with Sweden. "After a review [of program criteria and student records], the Swedish director

wanted to send his students to Kuwait to study." In reviewing her time in Kuwait, Ms. Nagel notes that "it was truly a valuable experience. We were treated royally. All expenses were paid. I was even supplied with a driver. Not only did I make good friends there, but it was also interesting to see how nuclear medicine [technology] is taught in another country." [Note: At press-time, the operational status of the allied health school and hospital is not known due to Iraq's military invasion of Kuwait.]

### Differences in Clinical Applications

Pat McKuen, Intermediate Technologist in Cardiology, Toronto Western Hospital, spent four years in the Middle East, two years in the nuclear medicine department of a Saudi Arabian hospital, and two years in the nuclear medicine department of a United Arab Emirates (UAR) hospital. Ms. McKuen greatly enjoyed her experience in the UAR. The nuclear medicine department was "a very enthusiastic department. [They] had the latest equipment," Ms. McKuen stated, "and the physician in charge of the department had been trained in London. There was a lot of interest and

enthusiasm about nuclear medicine." Ms. McKuen found that her day-to-day activities were pretty much the same as in Canada. "I [performed] most nuclear medicine studies."

Overall, Ms. McKuen found her sojourn abroad interesting for the different perspectives it provided. "I thought," Ms. McKuen concluded, "that I had missed some of the new radiopharmaceuticals while I was away, but when I returned some of the new agents (Cardiotec, for example), which were already in use in both Saudi Arabia and the Emirates had just been approved for use in Canada."

The latest state-of-the-art instrumentation is also available in Kuwait, according to Ms. Nagel. In the area of quality control, however, Ms. Nagel did notice some differences in standards.

### Current and Future Directions

In view of the continuing technologist shortage, an international focus may provide viable options. Although Congress has enacted new immigration policies that will increase the number of visas for skilled workers, the SNM-TS has to confront the major hurdle of attempting to get nuclear medicine technology and radiologic

technology recognized as a profession by the U.S. Immigration and Naturalization Service. Currently, the SNM-TS is in communication with the Canadian Immigration Bureau to list nuclear medicine and radiologic technologists as professionals as part of the U.S./Canada trade agreement. With regard to reciprocity in certification, the NMTCB and the CAMRT have had such a policy since 1979.

Eleanore Tapscott  
Managing Editor, *JNMT*

### ■ SNM to Study Scope of Practice Issue

The Technologist Section's Government Relations Committee has started to investigate the boundaries of technologists' scope of practice. At issue, is whether technologists may legally administer interventional pharmacologics (drugs that may have adverse side effects), and if they may do so, what are the limits of their responsibility in cases of adverse patient reaction?

There are a number of interventional pharmacologics that are now commonly used in conjunction with nuclear medicine procedures: Kine-