

There seemed to be two topics routinely discussed, to some degree, in every SNM-TS council, committee, and educator session held this past summer at the 49th SNM Annual Meeting in LA. The first topic concerned entry-level education for nuclear medicine technologists, and the second was the education and certification standards for those individuals who will operate the new hybrid PET/CT scanners. Discussion of the second topic was held so that opinions could be shared with those representing SNM at the PET/CT summit, which was held in New Orleans at the end of July in concurrence with the joint American Healthcare Radiology Administrators and Association of Educators in Radiologic Science annual meeting. Representatives from the various stakeholder organizations were in attendance, including the SNM-TS, Nuclear Medicine Technology Certification Board (NMTCB), American Registry of Radiologic Technologists (ARRT), and American Society of Radiologic Technologists. I will discuss this topic further in the December NMTCB report; the PET/CT summit took place after the publication deadline for this report. The rest of this column is dedicated to the entry-level education discussion.

As many of you are aware, the leadership of the SNM-TS has been looking at entry-level qualifications for the nuclear medicine technology profession. The question is, Should a baccalaureate degree be the minimum educational level required to enter the field of nuclear medicine technology (NMT)? This discussion has evolved from the first Gateway Meeting, in October 1999, and was one of two central topics discussed during the October 2001 Gateway III Meeting. The Gateway III report was brought to the SNM-TS National council during the 2002 Mid-Winter Meeting. After what past-president Mickey Clarke referred to as a "lively" discussion, the council passed a motion to "endorse the concept and continue exploration of the move to a baccalaureate-level entry for all technologists by the year 2010" (1). The charge to continue exploration has been taken seriously and the lively debate continues. In the months since the mid-winter meeting, this topic has been hotly debated over the Internet via the program directors' listserv. Entry-level education was also an agenda item for the National Council, the Academic Affairs



Committee, and an educator's forum at the annual meeting. The conclusion from discussions in LA was to start collecting and disseminating some empirical data, which will either support or undermine the argument for increasing the minimum education standards for entry-level nuclear medicine technologists.

One important piece of information that the NMTCB can provide for this exploration is certification examination score comparisons. Admittedly, content-knowledge as assessed by certification examinations is only part of the total graduate competency puzzle. Content-knowledge is necessary but not a sufficient measurement for competency in any field. However, it is a vital and relatively accessible piece of information needed in this debate. Obviously, if the scores of nonbaccalaureate graduates differ greatly from those of students who already have a bachelor's degree or receive one on completion of their training, then there is strong support for recommending that all NMT programs need to, somehow, provide a path to either a BS or BA degree. Last spring Jenny Gaffey, the NMTCB's associate executive director, compiled data based on the scores of examinees who had taken the NMTCB examinations in the years 1996 through 2000. Her findings are listed in Tables 1–6 and Figure 1.

Gaffey broke down the various certificate graduate scores into four separate divisions. Group A individuals received associate's degrees on completion of their nuclear medicine training. Group B graduates were awarded bachelor's degrees for completing their NMT programs. Group C included individuals who Gaffey identified as certifi-

cate level 1 graduates. Certificate level 1 graduates are those individuals who went directly into an NMT training program after obtaining a high school diploma. Certificate level 2 graduates have completed some college level coursework but have not received a terminal degree. The level 3 certificate graduates are those students who have qualified for their NMT training by being certified in another medical discipline. Because of the overlap of many of the individuals in levels 2 and 3, the scores of these individuals were combined for this analysis into a single group, group D. The level 4 certificate graduates, group E, came from certificate programs that require a bachelor's degree before students can start their NMT training.

It is clear that there is no significant difference in the scores of the graduates from the various programs. The difference between the certificate graduates and associate's degree graduates was less than a point. The slightly higher score of bachelor's degree graduates can be attributed to age- and maturity-related factors, assuming that these students are a few years older. I find it interesting that the certificate 1 group (possessing only high school diplomas before starting their training) had the highest mean examination scores in 3 of the 5 years analyzed. Granted, the statistics from this group is based on a small number of candidates and the scores are those of individuals from a single program, but it stands to show that a good program can produce individuals who score well on the certification examinations regardless of the educational system from which that program is administered. The fact that all group mean scores were so similar and were all well above the passing scaled score of 75 is not surprising considering the fact that the nuclear medicine curriculum for all programs is essentially standardized to meet the Joint Review Committee on Nuclear Medicine Technology accreditation guidelines.

Our friends at the ARRT just completed an extensive research campaign considering the possible adoption of a baccalaureate degree requirement for certification in radiation therapy (2). After thorough consideration, ARRT concluded that it would not require a bachelor's degree of individuals wishing to sit for the radiation therapy certification examinations. The data accumulated do not support the contention that 4-year degree programs, as currently con-

**TABLE 1**  
1996 Mean Scaled Scores

Group	A	B	C	D	E
Scaled score	79.60	79.67	78.25	81.07	79.13
# of examinees	161	230	4	44	69

**TABLE 2**  
1997 Mean Scaled Scores

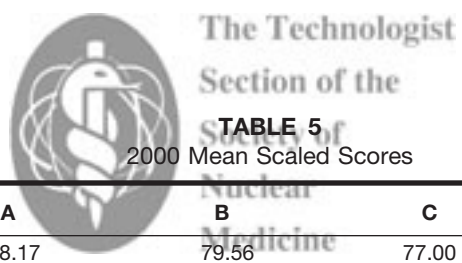
Group	A	B	C	D	E
Scaled score	79.02	79.51	82.25	80.07	79.25
# of examinees	184	275	4	55	64

**TABLE 3**  
1998 Mean Scaled Scores

Group	A	B	C	D	E
Scaled score	78.89	79.50	81.17	80.29	79.78
# of examinees	153	237	6	56	51

**TABLE 4**  
1999 Mean Scaled Scores

Group	A	B	C	D	E
Scaled score	78.68	79.36	83.67	79.25	79.69
# of examinees	155	223	3	53	61



**TABLE 5**  
2000 Mean Scaled Scores

Group	A	B	C	D	E
Scaled score	78.17	79.56	77.00	80.77	79.23
# of examinees	183	249	3	48	78

**TABLE 6**  
1996–2000 Mean Scaled Scores

Group	A	B	C	D	E
Scaled score	78.86	79.52	80.55	80.25	79.39
# of examinees	836	1214	20	256	323

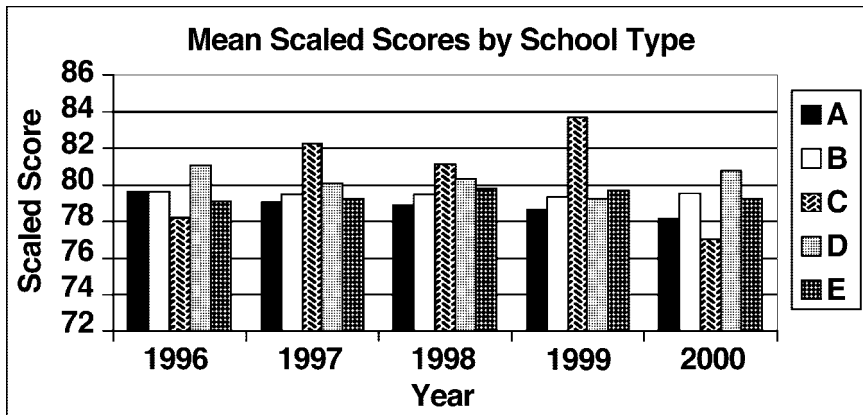


FIGURE 1.

figured, produce a more qualified radiation therapist than any of the other configurations.

The results of this study and the information the NMTCB has provided here will not and should not put an end to this debate. Much more research is needed. For instance, an evaluation of the clinical performance of the graduates would be of great

value. The NMTCB will continue to monitor this debate. The members of the NMTCB Board of Directors are well aware that they have the power to force this issue by electing to change the requirements needed to qualify for the NMTCB entry-level certification examinations. They are also aware that a decision of this magnitude, which has such tremendous social and po-

litical ramifications, should not be based on the whim of the 16 individuals who sit on the board. Any decision to change NMTCB eligibility standards would and should be based on empirical evidence. At this time, the evidence suggests that changing the eligibility requirements would be premature.

#### REFERENCES

1. Clarke, Mickey (2002). Message from the President. *J Nucl Med Technol.* 2002;30(1), 2.
2. The American Registry of Radiologic Technologists, (2002). No Baccalaureate for Radiation Therapy – ARRT Study Reaffirms Current Educational Eligibility Requirement, [www.arrt.org/website/New/WN\\_BAP\\_FinalReport.htm](http://www.arrt.org/website/New/WN_BAP_FinalReport.htm).

#### CONTACT US

For further information on the NMTCB and its activities, please visit our Web site at [www.nmtcb.org](http://www.nmtcb.org) or contact the NMTCB office at: NMTCB, 2970 Clairmont Rd., Suite 935, Atlanta, GA 30329-1634; phone (404) 315-1739; e-mail: [board@nmtcb.org](mailto:board@nmtcb.org).

