

Editorial: *Radiation Therapists Manpower Needs Potentially Affected by Recent Trends in Education and Health Care Management*

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INTRODUCTION

A shortage of radiation therapists (RTs; radiation therapy technologists) existed in the United States for many years. A number of surveys to determine the extent of the shortage and to determine the number of technologists needed to staff existing and projected radiation oncology facilities in the United States have been performed, including those reported in 1978 and 1983 made in cooperation with the American Society for Therapeutic Radiology and Oncology (ASTRO) and those reported in 1977, 1978, and 1983 [1-3]. More recently in 1989, the Summit on Manpower reported on the same subject [4]. The most recent statistics on the subject were published in 1992 as a part of a comprehensive report on radiation therapy facilities by the Patterns of Care Group [5].

However, no more recent analysis has been done regarding the supply of and demand for RTs or the impact of the increase in the number of accredited educational programs in radiation therapy technology in the United States as well as the increased number of facilities.

SUPPLY OF RTs

The numbers of RTs have shown a remarkable increase over the last 25, especially in the last 10-15

years. In the time period 1980-1990, the number of RTs rose from 3,096 to 5,353, an increase of 72%. During this same time period, the number of radiation therapy machines increased from 1,625 to 2,397, an increase of 47%, and the number of patients treated rose from 377,837 to 492,120, an increase of 30% [5].

In the same time period, the number of new patients per RT (full-time equivalent) had decreased from 122 to 92, a decrease of 25%; the number of new patients per machine had decreased 12%; and the number of RTs per machine had increased 16% [5].

Other published reports indicated that the total number of registered radiation therapists (ARRT) as of July 1, 1991, was 7,183, with 88% holding active status and 12% inactive status in the registry [6].

EDUCATIONAL PROGRAMS IN RADIATION THERAPY TECHNOLOGY IN THE UNITED STATES

Four types of programs are currently accredited in radiation therapy technology: 12 month certificate, 24 month certificate, associate degree, and bacca-

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Table 1. Number of Radiation Therapy Programs by Degree/Certificate Granted*

Colleges/universities/institutions (1996)	
Baccalaureate	10
Associate	31
Certificate	11
Total	52
Consortia/associate	1
Hospital certificate	64
Vocational/technical	
Associate	1
Certificate	1
Total	2
Military/government facilities	
Associate	0
Certificate	1
Total	1

*Total number of programs = 120.

laureate degree programs. All of these programs graduate entry level therapists but have different admission criteria and are sponsored by different types of institutions (hospital, junior colleges, and universities). In our 1983 report [3], 94 institutions sponsored 113 accredited programs. Some institutions sponsored two programs concurrently, e.g., a 24 month associate degree program and a 12 month certificate program at the same college. The distribution of the programs by degree/certificate granted is currently (1996) as indicated in Table 1 [7].

It is evident from the statistics that there was a marked increase in the number of educational programs as well as the number of graduates. This year for the first time in many years, there has been a decrease in the number of accredited programs (JRCERT) from 123 in 1994 to 120 in 1996 [7].

Personal communication with many education program directors as well as a recent survey of education program directors [8] suggest that the increased numbers of RTs have resulted in many recent graduates having difficulty obtaining an entry level position. This situation is believed to be not only because of the increased number of graduates but also because of the increasing tendency of the older graduates to maintain their proficiency and presence in the job market by job sharing and working part time. Personal communication with colleagues indicates an increased tendency of hospital and department administrators to limit the number of RTs to less than the number recommended by the report of the Inter-Society Council for Radiation Oncology, "Radiation Oncology and Integrated Cancer Management" (Blue Book) [9]. This trend, probably influenced by managed care and fiscal restraints placed on hospitals and departments, has contributed to a limitation on the number of entry level positions. As long as this

standard (Blue Book) remains in place, this could be a problem in malpractice litigation if an individual department facility or hospital does not have numbers related to the (Blue Book) standards.

It appears to us that as a result of the increase in the number of radiation therapy educational programs and more effective recruitment into these programs, the supply of graduating RTs has reached or exceeded the demand for entry level RTs. This appears to be true despite the increase in the number of radiation oncology centers throughout the United States and also seems to parallel the adequacy or excess of numbers of radiation oncologists [10].

A new survey that should help to determine the future needs for entry level RTs is needed. Recommendations should be based on current data regarding the number of radiation oncology centers as well as the number of RTs per radiation therapy unit. Perhaps the "Blue Book" [9] recommendations need to be reexamined in light of the current practice of radiation oncology and the influence of managed care in the United States and the supply of personnel, etc.

New data regarding the numbers of RTs needed and their educational programs, etc., will have implications for educational programs in radiation therapy technology especially regarding recruitment, student capacity, changes in the curriculum, program numbers and graduates, etc.

The changing numbers of educational programs, enrollments, and graduates are enumerated in Table 2. From 1989 to 1993 the numbers of educational programs rose, as did the number of graduates. In 1995 for the first time the numbers of programs and graduates began to drop.

We have noted a downward trend in student capacity and in educational programs. The reasons for this trend include program economics, changes in program length and curriculum content, as well as prospective student' opinions of the job market.

With regard to recruitment, educators will have to evaluate regional needs and the ability of their graduates to be mobile and migrate to other areas of the country where there may be a greater need for their services and continue to frankly advise the potential students of the current job market.

CHANGES IN EDUCATIONAL PROGRAM LENGTH

A decision has been made on the national level in the United States that the entry level RT will be a graduate of a baccalaureate program by the year 2000 [11]. Students already in a current program of shorter length (associate degree or certificate program) will be allowed to enter the work force. RTs already working in the profession are strongly encouraged by their professional organization to

Table 2. Trends in Radiation Therapy Programs and Graduates: 1983-1996

Year	Total programs	Total enrollments	Diploma graduates	Associate degree graduates	Baccalaureate degree graduates	Total graduates	ARRT first-time examinees
1989	101	806	323	141	42	506	375
1990	104	962	368	138	36	542	656
1991	111	1,166	438	175	46	659	685
1992	120	1,408	500	237	55	792	814
1993	123	1,591	553	295	73	921	943
1995	120	NA*	NA	NA	NA	693	941

*NA = not available.

continue education toward a baccalaureate degree and are required to accumulate continuing education (CE) points per year [12].

Students entering the educational programs after the year 2000 will be required to complete a baccalaureate program. A number of educators in the field of radiation therapy technology have worked diligently over the last few years revising the curriculum resulting in a number of publications outlining the work, the reasons for the changes, etc. [12-15].

These changes in the educational program requirements may cause some hospital-based educational programs to discontinue (e.g., the 69 hospital certificate programs) or affiliate with other educational institutions thereby diminishing the total number of programs and possibly the number of graduates per year.

It remains to be seen how the decision to require a baccalaureate degree will be enforced, but possible mechanisms would include any decisions made by the American Registry of Radiologic Technologists regarding the requirements to take the registry examination, any changes forthcoming in the Standards for an Accredited Educational Program in Radiologic Sciences, or even actions of other regulatory bodies, e.g., U.S. Department of Education.

The JRCERT adopted a position statement in January 1996 which states "The academic credentials of radiologic sciences practitioners are outside the scope of the Joint Review Committee on Education in Radiologic Technology (JRCERT). Therefore, the JRCERT can take no position on any academic degree requirements for entry into professional practice. The JRCERT supports and encourages the attainment of advanced degrees and professional development for all practitioners of the radiation and imaging sciences."

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