
# PROGRAM REVIEW

## A PROCESS FOR SELF-EVALUATION AND CONTINUOUS IMPROVEMENT

## **RADIATION THERAPY TECHNOLOGY**

Updated 2016

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Radiation Therapy Program Review
Bergen Community College

**PROGRAM: Radiation Therapy Technology**

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**DATE OF THIS REPORT: April 21, 2017**

**PERIOD OF YEARS BEING REVIEWED: Class of 2011-2012 to 2015-2016 (5 Years)**

## OVERVIEW

The BCC Radiation Therapy Program is a one year certificate program that demonstrates education and licensing requirements of the NJ Bureau of X-Ray Compliance, compliance to The Joint Review Committee on Education in Radiologic Technology (JRCERT) Standards for accreditation, offers the student a curriculum akin to the nationally recognized American Association of Radiologic Technologists (ASRT) Radiation Therapy Curriculum and is recognized by the American Registry of Radiologic Technologists (ARRT) to grant national registration status in Radiation Therapy to our graduates.

### Program Accreditation: NJ Bureau of X-Ray Compliance / New Jersey Department of Environmental Protection:

The Technologist Education and Licensing Section within the NJ Bureau of X-Ray Compliance administers the New Jersey's education and licensure programs in radiologic technology. In New Jersey, all radiation therapy procedures must be performed by individuals who are licensed by the New Jersey Radiologic Technology Board of Examiners.

### Program Accreditation: The Joint Review Committee on Education in Radiologic Technology (JRCERT)

The New Jersey Bureau of X-Ray Compliance requires program accreditation by The Joint Review Committee on Education in Radiologic Technology (JRCERT). The JRCERT is the only agency recognized by the United States Department of Education (USDE) and the Council on Higher Education Accreditation (CHEA) for the accreditation of education programs in the radiologic sciences. The JRCERT awards accreditation to programs demonstrating substantial compliance with their **STANDARDS**.

The **Standards for an Accredited Educational Program in Radiation Therapy** are designed to promote academic excellence, patient safety, and quality healthcare. Specifically, they address program integrity, program resources, curriculum and academic practices, health and safety, assessment and institutional and programmatic data. The accreditation process helps to maintain program quality and stimulate program improvement through program assessment. The

assessment plan must, at a minimum, measures the program's student learning outcomes in relation to the following goals: clinical competence, critical thinking, professionalism, and communication skills. Through this process, the public is assured that the program meets specific quality standards.

## The Professional Curriculum: The American Society of Radiologic Technologists (ASRT)

The American Society of Radiologic Technologists (ASRT) Radiation Therapy Curriculum is a collaborative effort designed to offer foundational professional development as well as meet the accreditation requirements of the Joint Review Committee on Education in Radiologic Technology (JRCERT) Standards and the National Registration Examination administered by the American Registry of Radiologic Technologists (ARRT). The ASRT radiation therapy professional curriculum professes to be in line with a baccalaureate education.

The educational structure for Bergen Community College's certificate program in Radiation Therapy Technology has three primary areas of concentration:

- liberal arts and sciences
- radiotherapy core courses
- clinical education

General education is an integral part of the radiation therapy professional curriculum. In addition to being the foundation for the program course work, this portion serves as a springboard to promote further academic achievement. Candidates for our program must have achieved an Associate degree or higher in Diagnostic Radiography to be considered eligible for entrance. The student is required to have documented college course work in human anatomy and physiology, general physics, oral and written communication skills, statistics and pre-calculus mathematics. These program requirements are aligned with the ASRT gold standard Curriculum in Radiation Therapy.

The professional component deals with theoretical studies and principles, while the clinical education component concerns itself with its application and the cultivation of sound professional and ethical practices. This advanced certificate program created its policies to provide the student with the proper didactic and clinical education for success in becoming a contributing professional member of the health care team. The primary purpose of these policies is two-fold: the welfare of the patient and the perpetuation of professional standards.

## National Registration: American Registry of Radiologic Technologists (ARRT)

The American Registry of Radiologic Technologists® (ARRT) establishes qualifications for certification and registration in the discipline of radiation therapy. These qualifications include the candidates' successful completion of an (JRCERT) accredited formal educational program in radiation therapy and the completion of the ARRT Radiation Therapy Didactic and Clinical Competency Requirements as part of the educational program.

Didactic competency requirements verify that individuals had the opportunity to develop fundamental knowledge, integrate theory into practice and hone affective and critical thinking skills required to demonstrate professional competency. Coursework addressing the topics is listed in the ARRT Content Specifications for the Radiation Therapy Examination. This coursework is aligned with the nationally-recognized ASRT Radiation Therapy Curriculum. "The purpose of The American Registry of Radiologic Technologists® (ARRT®) Radiation Therapy Examination is to assess the knowledge and cognitive skills underlying the intelligent performance of the tasks typically required of the staff radiation therapist at entry into the profession."

Additionally, the ARRT requires documentation of 48 clinical competencies for the candidate to achieve national registration. Demonstration of clinical competence means that the candidate has performed the procedure independently, consistently, and effectively during the course of his or her formal education.

Specific procedures for clinical competency include six (6) patient care procedures in addition to CPR, three (3) quality assurance procedures, treatment simulation for seven (7) anatomic regions, six (6) treatment plan dosimetry calculation procedures, four (4) treatment accessory device procedures, three (3) infrequent yet critical participatory procedures, and eighteen (18) radiation therapy treatment procedures.

## Radiation Therapy Technology Program - Mission Statement

The Radiation Therapy Program sponsored by Bergen Community College is committed to the development of a high quality educational program that cultivates competent, knowledgeable and compassionate radiation therapists that will meet the needs of the radiation oncology community and the patients they serve.

## Radiation Therapy Technology Program – Program Goals and Student Learning Outcomes

1. **Goal: Students will perform the tasks and responsibilities of a radiation therapist in a competent and knowledgeable manner.**

Student Learning Outcomes:

- Students will demonstrate competent patient positioning skills.
- Students will demonstrate competent equipment use to deliver treatment prescription.
- Students will demonstrate radiation protection.

2. **Goal: Students will demonstrate effective communication skills and participate as a collaborative team member with other medical professionals.**

Student Learning Outcomes:

- Students will demonstrate effective written communication skills.
- Students will demonstrate effective oral communication skills.
- Students will participate as a collaborative team member with other medical professionals.

3. **Goal: Students will demonstrate problem solving and critical thinking skills essential to the practice of state-of-the-art radiation therapy.**

Student Learning Outcomes:

- Students will design a computer-generated treatment plan.
- Students will utilize critical thinking skills to recognize setup discrepancies.
- Students will utilize problem solving skills to correct setup discrepancies.

4. **Goal: Students will demonstrate professional development and growth, and professional ethics in the clinical setting.**

Student Learning Outcomes:

- Student will demonstrate ethical standards.
- Students will demonstrate compassionate patient care.
- Students will demonstrate professional development and growth.

## Bergen Community College Vision, Mission and Values

### Vision

Bergen Community College will be a dynamic partner by bridging potential with opportunities for educational, professional and personal growth.

### Mission

To inspire our community to realize a better future.

### Values

To fulfill the vision and mission of Bergen Community College, these core values will guide our daily endeavors: Learning • Excellence • Integrity • Respect • Creativity

## Alignment: The Radiation Therapy Technology Program with the Sponsoring Institution

The Bergen Community College Radiation Therapy Technology Program is one of two radiation therapy training programs in New Jersey. Our program; however, is the only one that offers the student the opportunity to attend a college based program. Where other health profession training programs have long seen the move from hospital based to college based sponsorship, radiation therapy has lagged behind due to the select population that is attracted to this highly sophisticated degree of specialization.

As a college based program, we are fortunate to be able to offer our students federal and state financial assistance in planning for and meeting expenses associated with attendance at BCC. The Office of Financial Aid focus on establishing aid eligibility, awarding grants, loans, and employment and providing financial aid counseling to resolve difficulties associated with the cost of education. Bergen Community College disburses over $45 million Federal and New Jersey State financial aid to eligible students annually.

In 2016 the program worked closely with the BCC Foundation to expand scholarship opportunities to students attending this one-year certificate program. Students of the Radiation Therapy Program who are graduates of the BCC Radiography Program are now eligible for scholarship funding opportunities.

The program desires a better future for our graduates and the population that they serve. We are fortunate to be in one of the most affluent counties in NJ. Being just outside on New York City,

our hospitals offer our students the opportunity to learn a variety of cutting-edge treatment techniques on state-of-the art equipment to best serve our cancer patients.
The Radiation Therapy program aligns with the core values of the college simply by the nature of the profession itself. Precision and attention to detail are personality traits that the profession attracts. Learning, Excellence, Integrity, Respect and Creativity are values that align with the core beliefs of the program and our external accreditation agency. The JRCERT requires program effectiveness data to be reported annually and posted on the Program website for transparency to the community.

## SUMMARY OF SIGNIFICANT DEVELOPMENTS SINCE LAST PROGRAM REVIEW

The Radiation Therapy Certification Program has been offered at BCC since 2005, and this year is the first opportunity for us to perform a program review. Since our first graduating class in 2006 there has been significant developments in curriculum, student assessment and student support.

The program was awarded maximum accreditation by the JRCERT in 2007 (3 years initial award), and 2010 (8 years). The JRCERT interim report in 2015 resulted in a confirmation of the 2010 8-year award.

The ARRT first-attempt pass rate for the current five-year period from 2011-2016 is 90%. This is a significant increase from 82% in the first five years from 2006-2010. The overall pass rate, including second attempts, for the past five years is 98%.

The curriculum course content has been revised in 2010 and 2014 to be in compliance with curriculum guidelines. These revisions offer the student the latest data relevant to the profession and reflect the dynamic health care environment. The program is web enhanced. Handouts, quizzes, homework assignments, tests and exams utilize Moodle for delivery. Critical thinking skills and group dynamics are developed and tested in the laboratory experience.

The program has achieved support from the college community. The Tutoring Center, Career Development, the Library and Continuing Education all play an integral part in the training of our Radiation Therapists. Additionally, the Foundation offers BCC graduates the opportunity for scholarship funding for Radiation Therapy students.

The program has gained recognition throughout New Jersey and the surrounding states. In addition to ten (10) New Jersey counties, we have graduates from New York, Pennsylvania, and most recently, Vermont. The ethnicity and level of education of our students as well as the age range is diverse. The fact that our program is community college based and requires only one year makes it attractive and affordable in value and time commitment.

## FOCUS ON STUDENTS

**Demographics**
The following five-year data demographic data was provided by the Center for Institutional Effectiveness.

The BCC Radiation Therapy Program is mostly comprised of New Jersey residents. A small percentage (approximately 10%) of our students come from states that do not afford the resident the opportunity to complete an accredited Radiation Therapy program in a 12-month period.

| State of Residence | Fall 2011 | | Fall 2012 | | Fall 2013 | | Fall 2014 | | Fall 2015 | | Fall 2016 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New Jersey | 5 | 100.0% | 10 | 100.0% | 8 | 88.9% | 7 | 77.8% | 9 | 90.0% | 6 | 85.7% | 45 | 90.0% |
| New York | 0 | 0.0% | 0 | 0.0% | 1 | 11.1% | 1 | 11.1% | 1 | 10.0% | 0 | 0.0% | 3 | 6.0% |
| Pennsylvania | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 11.1% | 0 | 0.0% | 0 | 0.0% | 1 | 2.0% |
| Vermont | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 14.3% | 1 | 2.0% |
| **Total Enrollment** | **5** | **100.0%** | **10** | **100.0%** | **9** | **100.0%** | **9** | **100.0%** | **10** | **100.0%** | **7** | **100.0%** | **50** | **100.0%** |

Due to the location of the college and the clinical education training centers, most of our students are residents of Bergen County. Since we are the only college-based Radiation Therapy training program in NJ, we have attracted students from nine additional counties. The majority of the out-of-county students come from Middlesex, Passaic and Essex counties.

| County of Residence | Fall 2011 | | Fall 2012 | | Fall 2013 | | Fall 2014 | | Fall 2015 | | Fall 2016 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Atlantic | 0 | 0.0% | 1 | 10.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 2.0% |
| Bergen | 4 | 80.0% | 3 | 30.0% | 3 | 33.3% | 2 | 22.2% | 6 | 60.0% | 1 | 14.3% | 19 | 38.0% |
| Essex | 0 | 0.0% | 0 | 0.0% | 1 | 11.1% | 0 | 0.0% | 2 | 20.0% | 1 | 14.3% | 4 | 8.0% |
| Middlesex | 0 | 0.0% | 3 | 30.0% | 3 | 33.3% | 0 | 0.0% | 0 | 0.0% | 2 | 28.6% | 8 | 16.0% |
| Monmouth | 1 | 20.0% | 1 | 10.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 2 | 4.0% |
| Morris | 0 | 0.0% | 0 | 0.0% | 1 | 11.1% | 1 | 11.1% | 0 | 0.0% | 0 | 0.0% | 2 | 4.0% |
| Passaic | 0 | 0.0% | 2 | 20.0% | 0 | 0.0% | 3 | 33.3% | 0 | 0.0% | 1 | 14.3% | 6 | 12.0% |
| Somerset | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 14.3% | 1 | 2.0% |
| Sussex | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 10.0% | 0 | 0.0% | 1 | 2.0% |
| Union | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 11.1% | 0 | 0.0% | 0 | 0.0% | 1 | 2.0% |
| Out-of-state | 0 | 0.0% | 0 | 0.0% | 1 | 11.1% | 2 | 22.2% | 1 | 10.0% | 1 | 14.3% | 5 | 10.0% |
| **Total Enrollment** | **5** | **100.0%** | **10** | **100.0%** | **9** | **100.0%** | **9** | **100.0%** | **10** | **100.0%** | **7** | **100.0%** | **50** | **100.0%** |

To best serve our Radiation Oncology community, our program is honored to represent a diverse race/ethnicity population. Of the race/ethnicity populations defined by Bergen Community College, only the American Indian/Alaska Native and the Hawaiian/ Pacific Islander have not been represented in our program. Of the 88% known races, 54% are white and 34% are non-

white namely 12% Asian, 10% Hispanic and 8% Black/African American and 4% two or more races.

| Race/Ethnicity | Fall 2011 | | Fall 2012 | | Fall 2013 | | Fall 2014 | | Fall 2015 | | Fall 2016 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Am. Indian/Alaska Native | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Asian | 1 | 20.0% | 1 | 10.0% | 2 | 22.2% | 1 | 11.1% | 1 | 10.0% | 0 | 0.0% | 6 | 12.0% |
| Black/African American | 1 | 20.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 2 | 20.0% | 1 | 14.3% | 4 | 8.0% |
| Hawaiian/Pacific Islander | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Hispanic, all races | 1 | 20.0% | 0 | 0.0% | 1 | 11.1% | 0 | 0.0% | 2 | 20.0% | 1 | 14.3% | 5 | 10.0% |
| Two or more races | 0 | 0.0% | 1 | 10.0% | 1 | 11.1% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 2 | 4.0% |
| White | 2 | 40.0% | 6 | 60.0% | 5 | 55.6% | 6 | 66.7% | 5 | 50.0% | 3 | 42.9% | 27 | 54.0% |
| **Total Known Race** | **5** | **100.0%** | **8** | **80.0%** | **9** | **100.0%** | **7** | **77.8%** | **10** | **100.0%** | **5** | **71.4%** | **44** | **88.0%** |
| Non-Resident Alien | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Unknown | 0 | 0.0% | 2 | 20.0% | 0 | 0.0% | 2 | 22.2% | 0 | 0.0% | 2 | 28.6% | 6 | 12.0% |
| **Total Enrollment** | **5** | **100.0%** | **10** | **100.0%** | **9** | **100.0%** | **9** | **100.0%** | **10** | **100.0%** | **7** | **100.0%** | **50** | **100.0%** |

The Bergen Community College Radiation Therapy Technology Program is designed to attract students from a wide age range. In addition to the traditional college population, this program affords the returning student the opportunity to further their education and achieve Radiation Therapy credentialing in one year of full-time study. The majority of our students are 25 years and older.

| Age Range | Fall 2011 | | Fall 2012 | | Fall 2013 | | Fall 2014 | | Fall 2015 | | Fall 2016 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Under 18 years old | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| 18 to 21 years old | 0 | 0.0% | 0 | 0.0% | 1 | 11.1% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 2.0% |
| 22 to 24 years old | 1 | 20.0% | 2 | 20.0% | 1 | 11.1% | 2 | 22.2% | 3 | 30.0% | 2 | 28.6% | 11 | 22.0% |
| 25 to 34 years old | 4 | 80.0% | 5 | 50.0% | 2 | 22.2% | 4 | 44.4% | 2 | 20.0% | 3 | 42.9% | 20 | 40.0% |
| 35 years and older | 0 | 0.0% | 3 | 30.0% | 5 | 55.6% | 3 | 33.3% | 5 | 50.0% | 2 | 28.6% | 18 | 36.0% |
| Unknown | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| **Total Enrollment** | **5** | **100.0%** | **10** | **100.0%** | **9** | **100.0%** | **9** | **100.0%** | **10** | **100.0%** | **7** | **100.0%** | **50** | **100.0%** |

The following data documents a 32% male to 68% female ratio.

| Gender | Fall 2011 | | Fall 2012 | | Fall 2013 | | Fall 2014 | | Fall 2015 | | Fall 2016 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Male | 1 | 20.0% | 4 | 40.0% | 3 | 33.3% | 3 | 33.3% | 3 | 30.0% | 2 | 28.6% | 16 | 32.0% |
| Female | 4 | 80.0% | 6 | 60.0% | 6 | 66.7% | 6 | 66.7% | 7 | 70.0% | 5 | 71.4% | 34 | 68.0% |
| Unknown | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| **Total Enrollment** | **5** | **100.0%** | **10** | **100.0%** | **9** | **100.0%** | **9** | **100.0%** | **10** | **100.0%** | **7** | **100.0%** | **50** | **100.0%** |

The following data was comprised from the Joint Review Committee on Education in Radiologic Technology (JRCERT) website for accredited programs in Radiation Therapy.

The Bergen Community College Radiation Therapy program is the largest training program in NJ with an average class size of 8.2 students. The average class size for certificate and A.A.S. Programs in this five state area is 8.4.
The following grid assesses JRCERT capacity, program length/award and average class size for all Radiation Therapy Programs in NJ and the most proximal four states.

| Program | JRCERT Capacity | Length and Award | Average Class Size 2012-2016 |
|---|---|---|---|
| New Jersey | | | |
| Bergen Community College | 15 | 12 mth. Cert | 8.2 |
| St. Barnabas Medical Center | 16 | 12 mth. Cert. | 5.2 |
| New York | | | |
| Erie Community College | 37 | 24 mth. A.A.S | 14 |
| Memorial Sloan Kettering | 24 | 23 mth. Cert. | 7 |
| Nassau Community College | 51 | 24 mth. A.A.S | 10.8 |
| New York Methodist Hospital | 33 | 22 mth. Cert. | 11.6 |
| S.U.N.Y Upstate Medical University | 36 | 21 mth. B.S. | No data |
| Pennsylvania | | | |
| Community College of Allegheny | 49 | 12 mth. Cert.<br>24 mth. A.A.S | 15 |
| Gwynedd Mercy University | 52 | 40 mth. B.S. | No data |
| Thomas Jefferson University | 17 | 12 mth. B.S. | 16 |
| Connecticut | | | |
| Gateway Community College | 28 | 22 mth. A.A.S | 5.6 |
| Manchester Community College | 23 | 21 mth. A.A.S | (New) No Data |
| Massachusetts | | | |
| Laboure College | 26 | 24 mth. A.A.S | 4.8 |
| MCPHS University | 49 | 33 mth. B.S. | 10.8 |
| Suffolk University | 22 | 21 mth. B.S. | No Data |
| UMass Memorial Medical Center | 16 | 15 mts. Cert. | 1.8 |

**Student Satisfaction**
An annual anonymous survey is distributed to all graduates. It is designed to evaluate:

1. Compliance to the Program Mission Statement and Goals
2. The Program Curriculum
3. Preparation for employment as an entry level Radiation Therapist

A summary of the following data shows that thirty eight of the forty responses indicate that the program Mission Statement is demonstrated by the program and forty of the forty responses indicated that the Program Goals are demonstrated by the program.

| | 2011-2012 | | | 2012-2013 | | | 2013-2014 | | | 2014-2015 | | | 2015-2016 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | Yes | No | # | Yes | No | # | Yes | No | # | Yes | No | # | Yes | No |
| 1. Do you feel that the Mission Statement is demonstrated by the program? | 5 | 5 | | 8 | 8 | | 8 | 6 | 2 | 9 | 9 | | 10 | 10 | |
| 2. Do you feel that the stated Program Goals are demonstrated by the program? | 5 | 5 | | 8 | 8 | | 8 | 8 | | 9 | 9 | | 10 | 10 | |

The Graduate Evaluation of Program Curriculum Survey employs a 5 to 1 Likert Scale:
5 = excellent; 4 = above average; 3 = average; 2 = below average; 1 = unacceptable
A summary of the following data indicates a 4.5 average rating of the program curriculum and a 4.7 average evaluation of preparation for entry level employment.

| | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 |
|---|---|---|---|---|---|
| | Average | Average | Average | Average | Average |
| Number of Responses | 5 | 8 | 8 | 9 | 10 |
| Course Review / Handouts | 4.6 | 4.9 | 3.5 | 3.8 | 4.2 |
| Other review | 4.6 | 5.0 | 3.5 | 3.6 | 4.3 |
| Final Comprehensive Exit Examination: | 4.4 | 4.6 | 3.0 | 3.3 | 3.8 |
| Other (Explain) | | | | | |
| | | | | | |
| Didactic experience | 4.8 | 4.8 | 3.0 | 3.8 | 4.4 |
| Laboratory experience | 4.6 | 5.0 | 4.4 | 4.6 | 4.8 |
| Clinical experience | 4.8 | 4.9 | 4.8 | 4.9 | 4.8 |
| | | | | | |
| Clinical Concepts and Treatment Delivery | 5.0 | 5.0 | 4.3 | 4.6 | 4.5 |
| Problem Solving and Critical Thinking Skills | 5.0 | 5.0 | 3.9 | 4.2 | 4.4 |
| Ethical Patient Care | 5.0 | 5.0 | 4.1 | 4.8 | 4.6 |
| Communication Skills: Patients | 5.0 | 5.0 | 4.1 | 4.6 | 4.7 |
| Communication Skills: Staff | 5.0 | 5.0 | 4.1 | 4.7 | 4.4 |
| Total Yearly Average | 4.8 | 4.9 | 3.9 | 4.3 | 4.5 |
| Did your training prepare you to work as an entry level practitioner? | 4.8 | 5.0 | 4.0 | 4.8 | 4.8 |

**Learning Outcomes Assessments**
Program Assessment is essential to the integrity of the Radiation Therapy Technology program and mandatory for state and national accreditation.

The **JRCERT Standards for an Accredited Educational Program in Radiation Therapy** are designed to promote academic excellence, patient safety, and quality healthcare.

Standard Five of the Six Standards focuses on Assessment to assure that the program develops and implements a system of planning and evaluation of student learning and program effectiveness outcomes in support of its mission.

The Bergen Community College Radiation Therapy Program annual assessment plan is designed to improve student learning and the educational quality of our program. The plan includes four goals that evaluate clinical competence, critical thinking and problem solving, verbal and oral communication skills and professionalism. The plan includes student learning outcomes, measurement tools, benchmarks, timeframes for the assessment and collection of data and the parties responsible for the collection of data. The result chart is used to document and assess data on a yearly basis.-The original assessment plan of the program was reviewed and revised by the Radiation Therapy Advisory Board in December, 2013. In 2014, the revised assessment plan was implemented. In 2015, the plan was submitted in the program's JRCERT Interim Report and was given approval.

The program analyzes student learning outcome data and program effectiveness data at the annual advisory board meeting. In addition to the program director and clinical coordinators, the advisory board consists of a radiation oncologist, a chief physicist, the chief therapist/supervisor form five of the program's clinical education sites and at least one graduate representative. The board is presented with a yearly assessment plan complete with student learning outcome data and assessment tools. In a step-by-step evaluation, the board reviews the mission statement, each program goal and the assessment tool used to evaluate the program goal. Additionally, the program presents to the board information collected from program effectiveness data, namely ARRT pass rate data, employer survey data and graduate survey data to evaluate student learning outcome data and the assessment plan.

Content of the Radiation Therapy Outcome Assessment Plan:

Goal 1 is designed to assess clinical competency in patient positioning, immobilization and ALARA principles. The following clinical assessment tools utilize a 5 point Likert scale to evaluate the student's clinical competency in the clinical environment:

- Position patient to reproduce set-up as indicated in treatment chart. (#9)
- Position patient using lasers for alignment. CT Simulation (#12)
- Prepare immobilization device and demonstrate patient immobilization. CT Simulation (#18)
- Quantity - Attempts a variety of tasks and procedures and works within a reasonable time frame. (#15)
- Quality - Reads the chart and follows patient set-up instructions. Demonstrates accuracy and safety when handling the treatment machine. Demonstrates accuracy and safety when positioning the treatment machine to reproduce set-up as indicated in treatment chart. Demonstrates ability to grasp technical concepts as they relate to accurate treatment delivery. (#16)

The following clinical assessment tools utilize a 5 point Likert scale to evaluate the student's practice of radiation safety in both the radiation therapy treatment room and the CT patient simulator in the clinical environment:

- Apply principles of radiation protection (#12)
- Demonstrates radiation protection ALARA principles. CT Simulation (#19)

To prepare for competency in the clinical environment, the students are afforded a laboratory experience of 3 hours per week in the first semester and 4 hours per week in the second semester. The student practices on both a phantom and a real patient using a linear accelerator, CT simulator, and a virtual simulation workstation. The laboratory is taught by registered radiation therapists and a certified medical dosimetrist.

Communication skills, both oral and written, are evaluated in Goal 2. Every student is required to present a patient case study four times during the program. A research paper assignment has been added to the RTT 200 Survey of Diseases course.
Student participation as a collaborative team member is evaluated in the clinic and during all of the final laboratory examinations. The students work in groups of two to three during this section of the examination to simulate the actual employment experience. Rubrics were added for assessment to better assure equitable grading.
The following clinical assessment tools utilize a 5 point Likert scale to evaluate the student's communication skills in the clinical environment:

- Assesses the situation and exercises care, discretion and judgment with appropriate speech and actions. (#4)
- Helpful and cooperative: demonstrates tact, diplomacy, and good interaction with staff, administrators and instructors. (#5)

Goal 3 is designed to assess critical thinking and problem solving skills. A laboratory practicum composed of an inaccurate treatment plan was added to RTT 120 and RTT 220 Radiation Therapy Practices I and II during mid and end semester evaluation. The students work in groups of two or three to assess the plan, identify the mistakes and determine what is required for and who is involved in the correction. The complexity of the mistake increases as the student progresses through the program. Examples include an overdose of a critical structure, an incorrect gap calculation and inconsistencies in beam energy and field size. With this, the students work on the virtual simulation workstation to apply treatment parameters to a phantom patient. Rubrics are employed for assessment. An additional critical thinking/problem solving skill assessment tool was added to the final laboratory examination in 2016. A real patient is set up on the treatment machine and the student is required to assess the set-up, make pre-determined changes and evaluate the results.

Professional Development and Growth and Ethical Patient Care are evaluated in Goal 4. Professional development and growth is assessed in didactic courses RTT 200, Survey of Diseases and RTT 230 Advance Modalities. In RTT 200 the student is asked to generate mock registry questions and in RTT 230 the student is assigned a current professional journal article to critique. Both of these assignments employ an active reading method.
The following clinical assessment tools utilize a 5 point Likert scale to evaluate the student's demonstration of ethical and compassionate patient care in the clinical environment:

- Demonstrates leadership qualities by professional interactions with patients, physicians, staff, instructors and peers. Complies with policies of the program at all times. (#9)
- Is capable of agreeing / disagreeing with staff, doctors, administrators and instructors in a calm, direct manner. (#10)
- Does not discuss patient's diagnosis or prognosis with others. (#11)

- Demonstrates respect and compassion for patients of all cultures by using proper names, protects patient privacy, aids patient comfort, and assists patient when possible. (#12)
- Focuses attention on the patient from the moment of introduction to the patient's dismissal from the department. Is aware of the patient's needs at all times. Creates a caring, comfortable safe atmosphere for the patient. Smiles and extends him/herself to the patient. Demonstrates professional behavior. (#14)

All Clinical Evaluation Competency Forms may be accessed through the Radiation Therapy Website: http://bergen.edu/academics/academic-divisions-departments/health-professions-division/radiation-therapy/manuals-handbooks/ Clinical-Manual II

Bergen Community College – Radiation Therapy Program
JRCERT Outcome Assessment Plan / 2014

Mission Statement: The Radiation Therapy program sponsored by Bergen Community College is committed to the development of a high-quality educational program that cultivates competent, knowledgeable and compassionate radiation therapists that will meet the needs of the radiation oncology community and the patients they serve.

Goal #1 **Students will perform the tasks and responsibilities of a radiation therapist in a competent and knowledgeable manner.**

| Outcomes Measured | Assessment Tool(s) | Timetable | Benchmark | Responsible Person |
|---|---|---|---|---|
| Students will demonstrate competent patient positioning skills. | Clinical Competency Evaluation RTT 222 – Treatment Machine – Ques. 9<br>Clinical Competency Evaluation RTT 222 – CT Simulation – Ques. 12 and 18 | Annually-upon grad. | Average of questions using third semester data – grade of 2 or greater on a 4 point Likert scale. | Program Faculty |
| Students will demonstrate competent equipment use to deliver treatment prescription. | Student Assessment Form RTT 222 – Section VI (Technical Skills) - #15 and 16 | Annually-upon grad. | Average of questions using third semester data – grade of 2 or greater on a 4 point Likert scale. | Program Faculty |
| Students will demonstrate radiation protection. | Clinical Competency Evaluation RTT 222 – Treatment Machine – Ques. 12<br>Clinical Competency Evaluation RTT 222 – CT Simulation – Ques. 19 | Annually-upon grad. | Average of questions using third semester data – grade of 2 or greater on a 4 point Likert scale. | Program Faculty |

Goal #2 **Students will demonstrate effective communication skills and participate as a collaborative team member with other medical professionals.**

| Outcome Measured | Assessment Tool(s) | Timetable | Benchmark | Responsible Person |
|---|---|---|---|---|
| Students will demonstrate effective written communication skills. | RTT 200 – Term Paper | Annually-upon completion of RTT 200. | Overall grade of 85 or higher using a 13 item grading rubric. | Program Faculty |
| Students will demonstrate effective oral communication skills. | RTT 220 – Final Laboratory Exam – Case Study Oral Presentation | Annually-upon completion of RTT 220 | Overall grade of 85 or higher using a 11 item grading rubric. | Program Faculty |
| Students will participate as a collaborative team member with other medical professionals. | Student Assessment Form RTT 222 – Section II (Discretion and Judgement) – # 4<br>Section III (Communication Skills) - # 5 | Annually-upon grad. | Average of questions using third semester data – grade of 2 or greater on a 4 point Likert scale. | Program Faculty |

Goal #3 **Students will demonstrate problem solving and critical thinking skills essential to the practice of state-of-the-art radiation therapy.**

| Outcome Measured | Assessment Tool(s) | Timetable | Benchmark | Responsible Person |
|---|---|---|---|---|
| Students will design a computer generated treatment plan. | Clinical Competency Evaluation RTT 222 – Dosimetry - computer generated treatment plan | Annually – upon grad. | Grade of 3 or greater on a 4 point Likert scale | Program Faculty |
| Students will utilize critical thinking skills to recognize setup discrepancies. | RTT 220 – Laboratory Practicum Final Exam – Category 1 | Annually – upon completion of RTT 220 | Category 1 grade of 85 or higher using a 7 item grading rubric. | Program Faculty |
| Students will utilize problem solving skills to correct setup discrepancies. | RTT 220 Laboratory Practicum Final Exam – Category 2 | Annually – upon completion of RTT 220 | Category 2 grade of 85 or higher using a 7 item grading rubric. | Program Faculty |

Goal #4 **Students will demonstrate professional development and growth, and professional ethics in the clinical setting.**

| Outcome Measured | Assessment Tool(s) | Timetable | Benchmark | Responsible Person |
|---|---|---|---|---|
| Student will demonstrate ethical standards. | Student Assessment Form RTT 222– Section IV (Professional Ethics) - # 9, 10 and 11 | Annually-upon grad. | Average of questions using third semester data – grade of 2 or greater on a 4 point Likert scale. | Program Faculty |
| Students will demonstrate compassionate patient care. | Student Assessment Form RTT 222 – Section IV (Professional Ethics) - # 12<br>Section V (Affective Behavior) - # 14 | Annually-upon grad. | Average of questions using third semester data – grade of 2 or greater on a 4 point Likert scale. | Program Faculty |
| Students will demonstrate professional development and growth. | RTT 230 - Advanced modality Oral PowerPoint Presentation | Annually-upon completion of RTT 230 | Overall grade of 85 or higher using an 8 item grading rubric. | Program Faculty |

**Sharing student outcome and program effectiveness data:**
Program effectiveness data is distributed electronically to the general public through the JRCERT website, https://portal.jrcertaccreditation.org/accredited-educational-programs/search and the Bergen Community College/Radiation Therapy Program website, Home » Academics » Academic Divisions Departments » Health Professions Division » **Radiation Therapy.**
Program effectiveness data is conveyed in a PowerPoint presentation at every Radiation Therapy Information Session. These sessions are designed to give the prospective student an overview of the practice of radiation therapy, an overview of our program, our program's effectiveness data, and the requirements for entrance into the program.

**Changes that have occurred:**

- The program revised its outcome assessment plan in 2013 and implemented the new plan in 2014.

- The program changed many assessment tools to better assure reliability and validity in that the assessment process is effective in measuring student learning outcomes. Rubrics were added to help assure equitable grading.

- Job Placement Rate: In addition to Bergen County, we have numerous graduates employed in Middlesex, Union, Essex and Morris counties. The program has an 89% job placement rate.

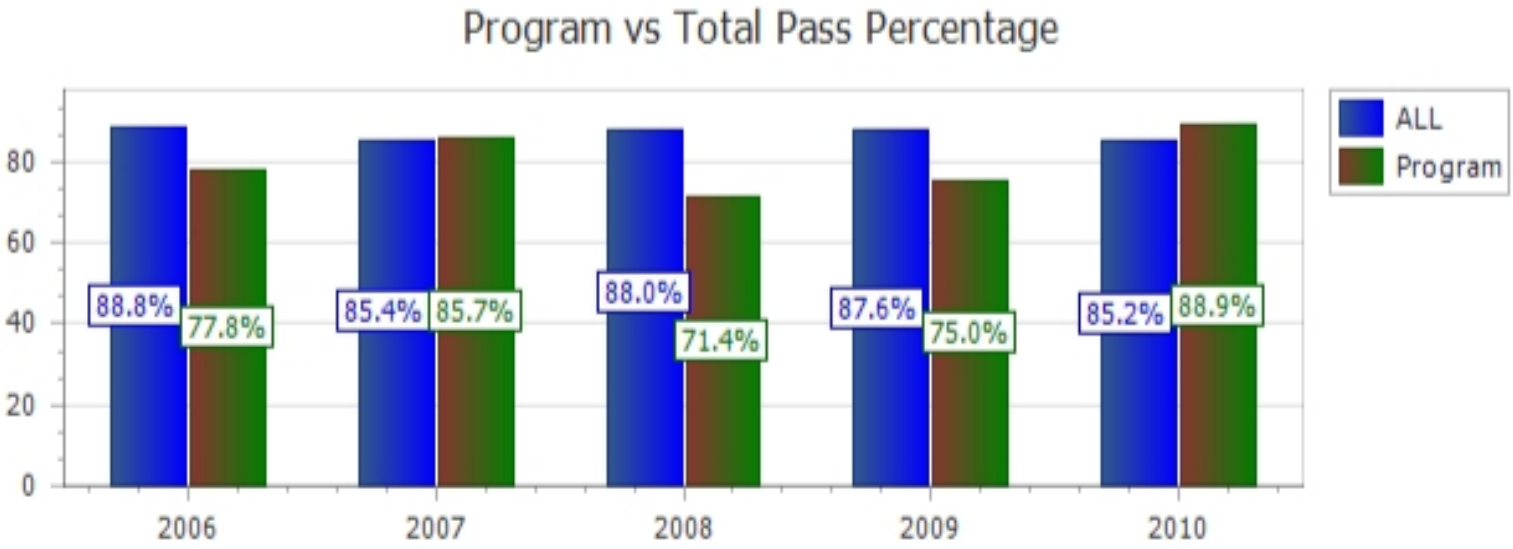
- Retention Rate: Our 95% program completion rate represents the success of our students and an effective outcome assessment tool.

- Our American Registry of Radiologic Technologists (ARRT) Radiation Therapy Credentialing Examination pass rate data documents program improvement.
  The program is in compliance with JRCERT requirements of a 75% benchmark for first attempt credentialing pass rate on the ARRT National Registry Exam in Radiation Therapy over a five-year period. The program has documented a 100% first attempt pass rate for five of the past six years. The program aspires to continue to demonstrate a stable first attempt pass rate of 100%.

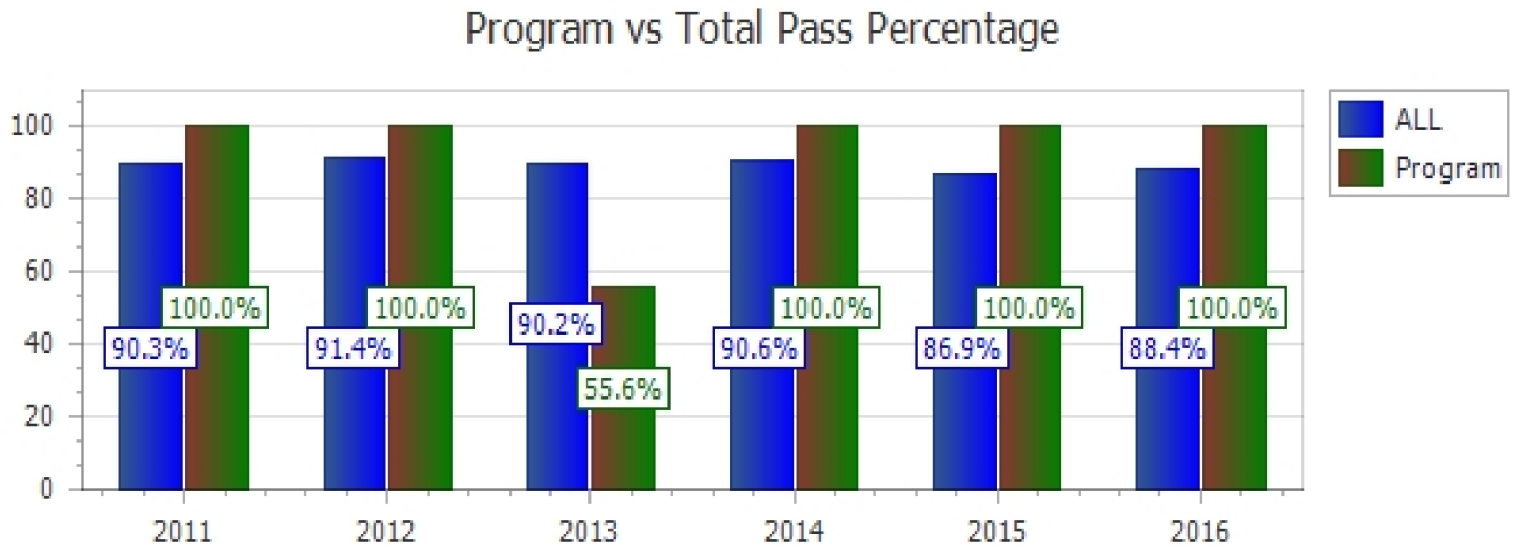
- The program is in the process of revising admission criteria.

Program Effectiveness data:

National Comparison Report: ARRT Pass Rate from 2006 (first graduating class) to 2010 documents an annual pass rate no higher than 88.9% with three years being between 71% and 78%.




Current data, 2011-2016, from the National Comparison Report ARRT Pass Rate website documents a first attempt pass rate of 100% for every year except 2013. Three of the four failing graduates from the class of 2013 passed on second attempt.




**Student Success**

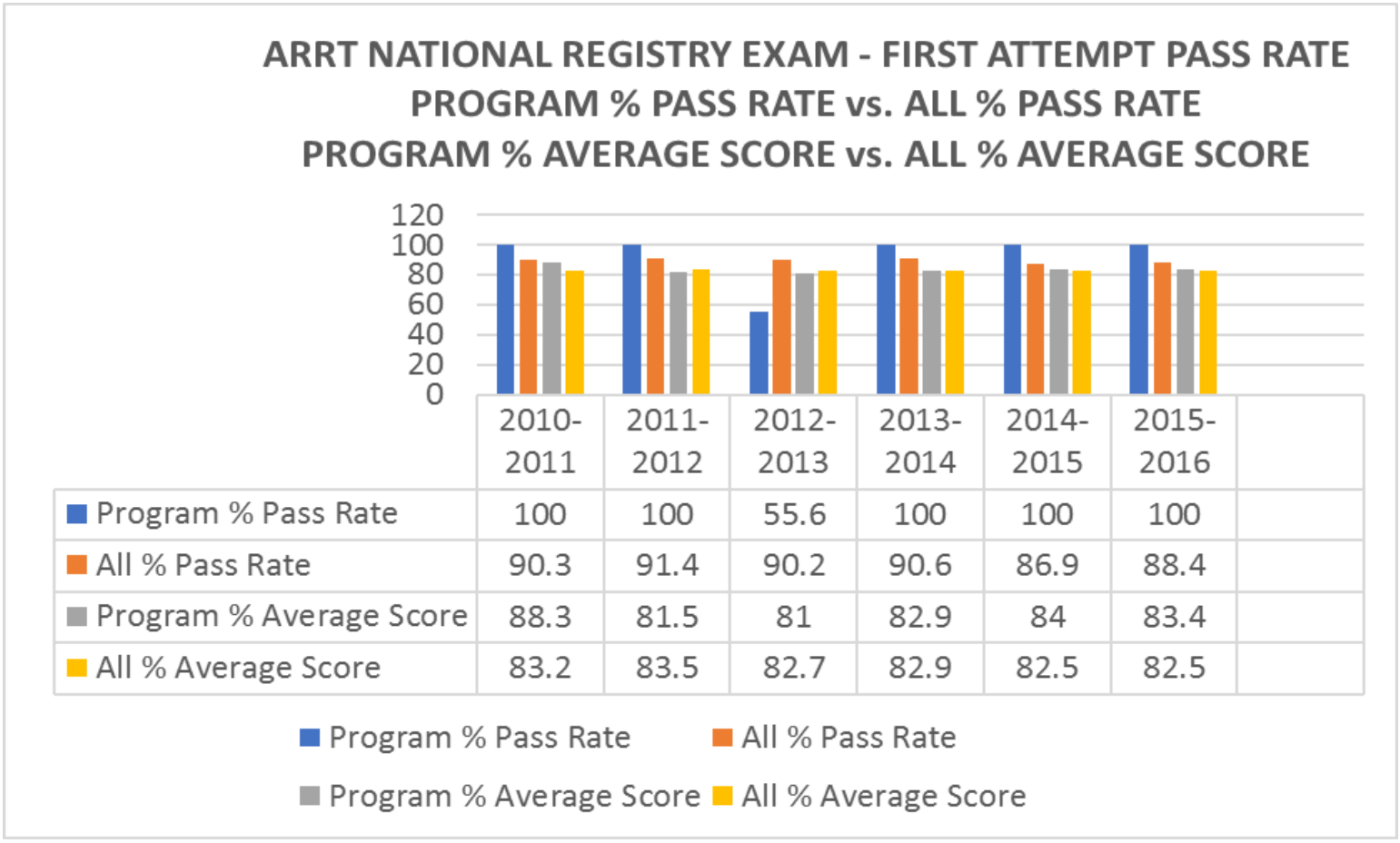
**<u>Credentialing Examination Pass Rate</u>** – is defined as the number of graduates who pass, on first attempt, the American Registry of Radiologic Technologists certification examination or an unrestricted state licensing examination compared with the number of graduates who take the examination within six months of graduation.

**Five-year average credentialing examination pass rate of not less than 75 percent at first attempt within six months of graduation** is required for JRCERT accreditation.

| Class | Graduates taking the ARRT national registration exam | Passing on 1st attempt | % Pass Rate on 1st attempt | 5 year % Pass Rate (1st attempt) | 5 year % Pass Rate (total) |
|---|---|---|---|---|---|
| 2011-2012 | 4 | 4 | 100% | 85% | 85% |
| 2012-2013 | 9 | 5 | 56% / 89%* | 79% | 93% |
| 2013-2014 | 9 | 9 | 100% | 85% | 97% |
| 2014-2015** | 9 | 9 (10) | 100% | 89% | 97% |
| 2015-2016 | 10 | 10 | 100% | 90% | 98% |
| Total | 41 | 37 | | 90% | 98% |

* 3 graduates passed on 2nd attempt
** One graduate from the class of 2009-2010 passed on first attempt in 2015

The following chart plots the Program first attempt pass rate and mean score on the ARRT National Registry Examination to the National comparison of all accredited programs in the U.S. The program has demonstrated an average score at or above the national average since 2014.



**Job Placement Rate (JPR)** – is defined as the number of graduates employed in the radiologic sciences compared to the number of graduates actively seeking employment in radiation therapy. The JRCERT has defined not actively seeking employment as: 1) graduate fails to communicate with program officials regarding employment status after multiple attempts, 2) graduate is unwilling to seek employment that requires relocation, 3) graduate is unwilling to accept employment due to salary or hours, 4) graduate is on active military duty, and/or 5) graduate is continuing education.

**Five-year average job placement rate of not less than 75 percent within twelve months of graduation** is required for JRCERT accreditation.

| Class | Graduates actively seeking employment | Graduates employed within 1 year of graduation | | 5 Year Job Placement Rate |
|---|---|---|---|---|
| | Number | Number | Percent | 89% |
| 2010-2011 | 3 | 3 | 100% | |
| 2011-2012 | 4 | 4 | 100% | |
| 2012-2013 | 7 | 5 | 71% | |
| 2013-2014 | 4 | 4 | 100% | |
| 2014-2015 | 9 | 8 | 88% | |

**Program Completion Rate (PCR)** – is defined as the number of students who complete the program within 150% (18 months) of the stated program length (12 months). The program's benchmark for its program completion rate is 75%. The program specifies the final date to drop with 100% tuition refund as the entry point used in calculating program's completion rate.

| Class | Attendants | Graduates | Program Completion Rate |
|---|---|---|---|
| 2011-2012 | 5 | 4 | 80% |
| 2012-2013 | 10 | 9 | 90% |
| 2013-2014 | 9 | 9 | 100% |
| 2014-2015 | 9 | 9 | 100% |
| 2015-2016 | 10 | 10 | 100% |
| Total | 43 | 41 | 95% |

**Professional Development and Growth** - Level of Education of student attending the program compared to the number of students who graduate. The program does not collect data on post-graduate education; however, it is known that at least one student from the class of 2013, 2014 and 2015 is seeking a baccalaureate level degree.

| Degree | 2011-2012 | | 2012-2013 | | 2013-2014 | | 2014-2015 | | 2015-2016 | | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Attend | Grad. | Attend | Grad. | Attend | Grad. | Attend | Grad. | Attend | Grad. | Attend |
| Associate | 4 | 3 | 7 | 6 | 8 | 8 | 7 | 7 | 5 | 5 | 0 |
| Bachelor's | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 5 | 5 | 7 |
| Master's | | | 1 | 1 | | | | | | | |

## FOCUS ON FACULTY AND STAFF

### Demographics

A full-time program director is required for JRCERT accreditation. The Radiation Therapy program consists of a full-time program director, and thirteen adjunct faculty. Two (2) of the adjunct faculty serve as full-time equivalent clinical coordinators. Ten (10) of the thirteen (13) adjunct faculty are ARRT registered Radiation Therapists; one is a certified C.T. Technologist, one is a certified Medical Dosimetrist and one is a Ph.D. Medical Physicist.

To comply with JRCERT accreditation, a minimum of one clinical supervisor is designated at each recognized clinical setting. Of the adjunct faculty, seven (7) are JRCERT and NJDEP recognized clinical supervisors and four (4) are laboratory instructors.

The Joint Review Committee on Education in Radiologic Technology (JRCERT) set standards to assure that all faculty and staff possess academic and professional qualifications appropriate for their assignments.

- Full-time Program Director:
  Holds, at a minimum, a master's degree,
  Is proficient in curriculum design, program administration, evaluation, instruction, and academic advising,
  Documents three years clinical experience in the professional discipline,
  Documents two years of experience as a supervisor in a JRCERT-accredited program, and holds American Registry of Radiologic Technologists current registration in radiation therapy.
- Full-time or full-time equivalent Clinical Coordinator:
  Holds, at a minimum, a baccalaureate degree (for a program with five (5) or more clinical education centers)
  Is proficient in curriculum development, supervision, instruction, evaluation, and academic advising,
  Documents two years' clinical experience in the professional discipline,
  Documents a minimum of one year of experience as a supervisor in a JRCERT-accredited program, and holds American Registry of Radiologic Technologists current registration in radiation therapy.
- Adjunct Didactic Program Faculty
  Holds academic and/or professional credentials appropriate to the subject content area taught and is knowledgeable of course development, instruction, evaluation, and academic advising.
- Clinical Supervisor(s):
  Is proficient in supervision, instruction, and evaluation,
  Documents two years' clinical experience in the professional discipline, and holds American Registry of Radiologic Technologists current registration in radiation therapy.

| Name | Program Role | Degree | Credentials | Assigned Courses |
|---|---|---|---|---|
| Carol Chovanec | Program Director Full-time Faculty | M.S.H.C.M. | RTT | RTT 110, RTT 120, RTT 121, RTT 130, RTT 200, RTT 220, RTT 221, RTT 222, RTT 230, |
| Daniel Brancato | Clinical Coordinator, Adjunct Faculty | M.S.M. | RTT | RTT 120, RTT 121, RTT 220, RTT 221, RTT 222, RTT 230 |
| Sreenivas Tanikella | Clinical Coordinator, Adjunct Faculty | M.B.A | RTT | RTT 121, RTT 221, RTT 222 |
| Amy Diaz | Clinical Supervisor, Adjunct Faculty | B.S. | RTT | RTT 121, RTT 221, RTT 222 |
| Miji Kwak* | Clinical Supervisor Adjunct Faculty | A.A.S. | RTT | RTT 121, RTT 221, RTT 222 |
| Gia Montanez | Clinical Supervisor, Adjunct Faculty | A.A.S. | RTT | RTT 121, RTT 221, RTT 222 |
| Yasin Urgan* | Clinical Supervisor, Adjunct Faculty | A.A.S. | RTT | RTT 121, RTT 221, RTT 222 |
| Jacqueline Zibihialam* | Clinical Supervisor, Adjunct Faculty | A.A.S. | RTT | RTT 121, RTT 221, RTT 222 |
| Gregory Drakopoulos | Lab Instructor, Adjunct Faculty | CERT. | RTT | RTT 120, RTT 220, RTT 230 |
| Robin Hegarty | Lab Instructor, Adjunct Faculty | CERT. | RTT | RTT 120, RTT 220, RTT 230 |
| John Hulsizer | Lab Instructor, Adjunct Faculty | CERT. | CMD | RTT 120, RTT 220, RTT 230 |
| Laura Nappi* | Lab Instructor, Adjunct Faculty | B.S. | RTT | RTT 120, RTT 220, RTT 230 |
| Maria Cerbone | Didactic Instructor Adjunct Faculty | M.S. | RTCT | RTT 230 |
| Roland Teboh Forbang | Didactic Instructor Adjunct Faculty | Ph.D | DABR | RTT 150, RTT 210 |

* Graduates of the BCC Radiation Therapy Program
RTT – Registered Technologist-Therapy, CMD – Certified Medical Dosimetrist,
RTCT Registered Technologist-Computed Tomography, DABR-Diplomat American Board of Radiology

In addition to the adjunct clinical supervisors there are also clinical supervisors at all the clinical sites that take part in over-seeing the radiation therapy students during their rotations. These clinical supervisors, who are not employed by Bergen Community College, are JRCERT and NJDEP recognized and comply with the JRCERT clinical supervisor requirements.

**Professional Activities**
The faculty and staff of the Bergen Community College Radiation Therapy program are members of and/or participate in the following professional organizations:

American Registry of Radiologic Technologists (ARRT), American Society of Radiologic Technologists (ASRT), American Society of Therapeutic Radiation Oncology (ASTRO), New Jersey Society of Radiologic Technologists (NJSRT), Joint Review Committee on Education in Radiologic Technology (JRCERT), and the N.J. Bureau of X-Ray Compliance, Department of Environmental Protection (NJDEP).

The program director participates in seven to eight on-campus radiation therapy information sessions per academic year. The sessions are two hours long and open to all registered or registry eligible diagnostic radiographers. Additionally, the program presents the information session to senior radiography students at: Bergen Community College, Essex Community College, Hudson Community College, Middlesex Community College, Morris County College, and Fairleigh Dickinson University. In 2016, the Radiation Therapy Information Session was presented at the annual meeting of the New Jersey Society of Radiologic Technologists in Atlantic City and the annual Career Development Seminar for Radiologic Science Professionals at Middlesex Community College.

The faculty of the program are committed to life-long learning. In order to maintain ARRT national registration and state licensure, a minimum of 24 continuing education units (CEU's) are required every two years. All BCC Radiation Therapy faculty are in good standing and are in compliance with ARRT registration requirements. In addition to participation in educational programs on campus, program faculty attend national educational and professional conferences and conventions. These annual national conventions are sponsored by the ASRT and ASTRO and are world-wide in scope. Some faculty have presented at these conventions as well as having published case studies. Many of the members have also undergone extensive training of various radiation therapy treatment devices, software programs and techniques.

**Adjunct Faculty**

Bergen Community College Adjunct Faculty Development (AFDP) provides adjunct faculty with a chance to participate in workshops strengthen teaching skills, meet other BCC faculty, and earn recognition and compensation for their efforts. Through workshops, both on-campus and online, adjunct faculty are afforded the opportunity to engage with others around important and useful topics. Additionally, at the start of every fall and spring semester, the faculty gather for an adjunct faculty conference. This conference is followed by department meetings. It is at this time that the Radiation Therapy Program updates all clinical education centers and adjunct faculty of the current ARRT statistics. During these meetings, the program reviews the Mission Statement and Goals of the program, the JRCERT outcome assessment report and distributes clinical site evaluations and clinical supervisor evaluations completed by the students during the previous semester.

The use of adjuncts for placement in the various clinical sites as well as the simulation and quality assurance labs are determined based on the number of students enrolled as well as the number of clinical sites each semester.

To apply for an adjunct position in the Radiation Therapy Program, the candidate must complete an employment application, send a letter of interest, resume, salary requirements, and the name, address and telephone numbers of three professional references to employment@bergen.edu. In

a scheduled interview with the Dean of Health Profession and the Program Director the candidate will submit a resume or curriculum vitae and three letters of recommendation. Additionally, all applicants must submit documentation of academic and professional credentials appropriate to the subject content area taught. The final decision to hire is the responsibility of the Dean of Health Professions and the Academic Vice President. All new employees are required to complete a criminal background check in addition to a yearly medical examination and drug screening. The college requires all new employees to participate in an adjunct faculty orientation. This is typically scheduled on the Saturday before the start of the semester.

**Support**

Program faculty are available to provide support and mentoring to new clinical adjuncts throughout their clinical rotation. Moodle offers adjunct faculty the opportunity to review course materials and post pertinent information. Grading rubrics provide a guideline to assure equitable student evaluations. The Program Director and Clinical Coordinators provides support to adjunct faculty on role development, clinical site information, assignment planning, and student management.

Clinical faculty are available to help with student concerns, documentation and grading procedures. The program director offers the student four scheduled office hours per week. The college offers many professional development opportunities through Faculty Development and CITL. These workshops are open to all adjunct faculty and they are encouraged to attend.

**Staff**

Support staff consists of two full-time administrative assistants. These two assistants provide all departments in the division of health profession with support in several areas including the organization of program data, the ordering of supplies, distribution of communication from the college administration and program via electronic and paper mailings. These assistants maintain program grading documentation, syllabi, official schedules and faculty course assignment forms.

## FOCUS ON CURRICULUM

**Summary of Program Curriculum**

The BCC Radiation Therapy Program is structured to comply with the American Society of Radiologic Technologists (ASRT) Professional Curriculum guidelines. Nineteen content categories are delineated in this most recent 2014 document. The BCC Radiation Therapy Program incorporates these nineteen categories into eleven RTT program courses.

| ASRT Professional Curriculum Content |
|---|
| 1. Clinical Practice |
| 2. Ethics in Radiation Therapy Practice |
| 3. Imaging and Processing in Radiation Oncology |
| 4. Introductory Law in Radiation Therapy |
| 5. Medical terminology |
| 6. Operational Issues in Radiation Therapy |
| 7. Orientation to Radiation Therapy |
| 8. Pathophysiology |
| 9. Principles and Practice of Radiation Therapy I |
| 10. Principles and Practice of Radiation Therapy II |
| 11. Quality Management |
| 12. Radiation Biology |
| 13. Radiation Physics |
| 14. Radiation Protection |
| 15. Radiation Therapy Patient Care |
| 16. Radiation Therapy Physics |
| 17. Research Methods and Information Literacy |
| 18. Sectional Anatomy |
| 19. Treatment Planning |

| BCC Radiation Therapy Program | | |
|---|---|---|
| **RTT** | **Restricted Program Course** | **Credits** |
| ***First Semester (Fall)*** | | |
| 110 | Introduction to Radiotherapy and Patient Care Management | 2 |
| 120 | Radiation Therapy Practices I | 4 |
| 130 | Radiation Biology and Safety | 3 |
| 150 | Principles of Diagnostic Radiation Physics | 3 |
| 121 | Radiation Therapy Clinical Practicum I | 2 |
| ***Second Semester (Spring)*** | | |
| 200 | Survey of Diseases | 3 |
| 210 | Dosimetry and Treatment Practices | 3 |
| 220 | Radiation Therapy Practices II | 4 |
| 230 | Advanced Procedures | 2 |
| 221 | Radiation Therapy Clinical Practicum II | 2 |
| ***Third Semester (Summer SU)*** | | |
| 222 | Radiation Therapy Clinical Practicum III | 2 |

ASRT Professional Curriculum Content and Course Content Sequencing:

| **ASRT Radiation Therapy Professional Curriculum** | **First Semester (Fall)** | **Second Semester (Spring)** | **Third Semester (Summer)** |
|---|---|---|---|
| 1. Clinical Practice | RTT 121 | RTT 221 | RTT 222 |
| 2. Ethics in Radiation Therapy Practice | RTT 110 | | **Professional Development** linking cognitive, psychomotor and affective domains. |
| 3. Imaging and Processing in Radiation Oncology | RTT 120 | RTT 220<br>RTT 230 | |
| 4. Introductory Law in Radiation Therapy | RTT 110 | | |
| 5. Medical terminology | RTT 110 | RTT 200 | |
| 6. Operational Issues in Radiation Therapy | | RTT 230 | |
| 7. Orientation to Radiation Therapy | RTT 120 | | |
| 8. Pathophysiology | RTT 120<br>RTT 130 | RTT 200<br>RTT 220 | |
| 9. Principles and Practice of Radiation Therapy I | RTT 110<br>RTT 120 | RTT 200<br>RTT 220 | |
| 10. Principles and Practice of Radiation Therapy II | RTT 110<br>RTT 120 | RTT 200<br>RTT 220 | |
| 11. Quality Management | RTT 120 | RTT 230 | |
| 12. Radiation Biology | RTT 130 | | |
| 13. Radiation Physics | RTT 150 | | |
| 14. Radiation Protection | RTT 130 | RTT 230 | |
| 15. Radiation Therapy Patient Care | RTT 110 | | |
| 16. Radiation Therapy Physics | RTT 150 | RTT 210 | |
| 17. Research Methods and Information Literacy | | RTT 200 | |
| 18. Sectional Anatomy | | RTT 230 | |
| 19. Treatment Planning | | RTT 210 | |

Content categories are defined in detail in the Joint Review Committee on Education in Radiologic Technology (JRCERT) curriculum analysis grid. In addition to this grid, the program correlates curriculum content to comply with the American Registry of Radiologic Technologists (ARRT) National Registry Examination Content Specifications. Our most recent review and revision complies with the 2017 ARRT Content Specifications document.

# Bergen Community College Curriculum Map: *CERT Radiation Therapy*

Completion Date: *6/7/16*

Institutional Effectiveness data identifies in which courses the program learning outcomes are being taught and whether the program learning outcomes are introduced, reinforced or mastered.

Specific course content may be found in the course syllabi which are accessible through "Syllabi Central"
http://bergen.edu/academics/syllabi-central

**KEY**: ***I*** *– Introduced* ***R*** *– Reinforced / Practiced* ***M*** *– Mastery at exit level*

| **Program Specific Required Courses (Do not include General Education courses or unrestricted electives.)** | **Program Learning Outcomes** | | | |
|---|---|---|---|---|
| | **First Semester / Fall** | | | |
| | Students will perform the tasks and responsibilities of a radiation therapist in a competent and knowledgeable manner. | Students will demonstrate effective communication skills and participate as a collaborative team member with other medical professionals. | Students will demonstrate problem solving and critical thinking skills essential to the practice of state-of-the-art radiation therapy. | Students will demonstrate professional development and growth, and professional ethics in the clinical setting. |
| RTT-110 – Introduction to Radiotherapy and Patient Care Management | Introduced | Introduced | Introduced | Introduced |
| RTT 120 - Radiation Therapy Practices I | Introduced | Introduced | Introduced | Introduced |
| RTT 121 – Radiation Therapy Clinical Practicum I | Introduced | Introduced | Introduced | Introduced |
| RTT 130 – Radiation Biology and Safety | Introduced | Introduced | Introduced | Introduced |
| RTT 150 – Principles of Diagnostic Radiation Physics | Introduced | Introduced | Introduced | Introduced |

| Program Specific Required Courses (Do not include General Education courses or unrestricted electives.) | Program Learning Outcomes continued | | | |
|---|---|---|---|---|
| | Second Semester / Spring | | | |
| | Students will perform the tasks and responsibilities of a radiation therapist in a competent and knowledgeable manner. | Students will demonstrate effective communication skills and participate as a collaborative team member with other medical professionals. | Students will demonstrate problem solving and critical thinking skills essential to the practice of state-of-the-art radiation therapy. | Students will demonstrate professional development and growth, and professional ethics in the clinical setting. |
| RTT 200 – Survey of Diseases | Reinforced | Mastery – Written communication skills: Research paper | Reinforced | Reinforced |
| RTT 210 – Dosimetry and Treatment Practices | Reinforced | Reinforced | Reinforced | Reinforced |
| RTT 220 – Radiation Therapy Practices II | Reinforced | Mastery – Oral communication skills: Lab Final Exam – Case Study Oral Presentation | Mastery – Problem solving and critical thinking skills: Laboratory Final Exam – Group Demonstration | Reinforced |
| RTT 230 – Advanced Procedures | Reinforced | Reinforced | Mastery – Problem solving and critical thinking skills: Laboratory Final QA Group Practicum | Mastery – Professional development and growth: Journal Article critique - Oral presentation |
| RTT 221 – Clinical Practicum II | Reinforced | Reinforced | Reinforced | Reinforced |
| | **Third (Final) Semester / SU** | | | |
| RTT 222 – Clinical Practicum III | Mastery – Exit Exam | Mastery – Student Assessment Form | Mastery – Exit Exam | Mastery – Student Assessment Form |

The program's one year 3-semester academic certificate schedule offers its graduates a maximum of 36 transferrable college credits. Admission is in the Fall semester only and completion is at the end of the following SU summer session. The program affords its graduates a maximum of 315 didactic hours, 120 laboratory hours and 1104 clinical hours.
Upon successful completion of the program, the graduate is eligible for ARRT national registration and state licensure.

To be eligible for entrance into the program, the applicant must be a registered or registry eligible Radiologic Technologist possessing an Associate Degree or higher from an accredited college.

The applicant must be a graduate of a radiography program that is accredited by the Joint Review Committee on Education in Radiologic Technology and/or from a New Jersey Radiologic Technology Board of Examiners approved Radiography Program or its equivalent as determined by the Board.

The applicant must be in good standing with the American Registry of Radiologic Technologists [ARRT]. And be a licensed Radiographer in the state of New Jersey (if applicable).
And finally, the applicant must have successfully completed the required general education pre-requisite courses and document a minimum GPA of 2.5 in these courses.

There are no application deadlines. Most Radiography programs do not introduce the student to advanced modalities, such as Radiation Therapy, until the final summer semester of the two-year program. This no application deadline policy is designed to accommodate the most recent Diagnostic Radiography program graduate in affording them the opportunity to continue their education without interruption.

Advancement in this career may be achieved through on-the- job training in simulation and/or proton therapy. Academic achievements may be pursued in Dosimetry and/or medical physics. There are currently 19 JRCERT accredited Dosimetry training programs in the U.S. The closest proximity to NJ is Thomas Jefferson University in Philadelphia, PA and SUNY at Stony Brook University in NY. Thomas Jefferson University awards its graduates a Bachelors on Radiologic Science and SUNY at Stony Brook University offers its graduates a post-baccalaureate certificate.

**Curricular Issues**
The Program curriculum is designed to educate the student into the practice of radiation therapy as defined by the American Society of Radiologic Technologists and The Joint Review Committee on Education in Radiologic Technology. Additionally, the program is designed to prepare the student to become an entrance level practitioner as defined by the American Registry of Radiologic Technologists.

The program has demonstrated continuous growth and achievement and has gained tremendous support from our clinical affiliates. The program would benefit from an on-campus laboratory to supplement our existing laboratory at Luckow Pavilion Valley Health Care. A dedicated virtual

laboratory, VERT, is rapidly becoming the practice standard for educational programs in Radiation Therapy.

Additionally, the program would benefit from an electronic tracking system for the clinical education component of the program. The program utilizes Moodle for the didactic component of the program; however, the program has no electronic counterpart for the clinical component. Such a program would support mandatory electronic submission of the JRCERT accreditation Self-Study Document.

**Lead-in Courses**

Upon acceptance into the program, the applicant must have successfully completed the following courses:

BIO-109 Human Anatomy and Physiology I
BIO-209 Human Anatomy and Physiology II (Prerequisite: BIO-109)
MAT-180 Precalculus: College Algebra and Trigonometry (Prerequisite: MAT-160)
PHY-185 Introduction to Physics

Have successfully completed one of the following three General Education courses*:

WRT-201 English Composition II (Prerequisite: WRT 101)
COM-100 Speech Communication
MAT-150 Statistics I

Although two of the above listed General Education courses may be taken concurrent with the Radiation Therapy Program, the number of general education courses completed is influential in the acceptance process. A Grade Point Average of at least 2.5 on a 4.0 scale in these general education courses is required for entrance. Successful completion of all of the above prerequisite courses is required for graduation from the program as mandated by the ARRT, JRCERT and the NJDEP.

In compliance with NJDEP and JRCERT regulations, a passing grade in an equivalent course taken, or a passing grade on an equivalent BCC Proficiency test, CLEP or Tofel examination will render the candidate eligible for admission.

Applicants are permitted to transfer all general education required courses upon evaluation by a Bergen Community College transfer counselor. There are no time restraints on transfer courses since the program is designed to attract students at all phases of career development. All program courses must be taken at Bergen Community College.

To be eligible to take any of the national registration examinations offered by the American Registry of Radiologic Technologists, the applicant must possess an Associate level academic degree or higher from an accredited college or university. This policy was instituted by the ARRT in January, 2015. For applicants wishing to pursue a career in Radiation Therapy who have not completed this requirement, Bergen Community College offers a Health Professions AAS – Health Science Degree. This is a post certification course of study to earn an associate's degree for those individuals who have received education in a hospital sponsored program. Qualified students who have completed a hospital based Radiography program and are registered and in good standing with the American Registry of Radiologic Technologists will be awarded

30 transfer credits. The credits will be applied to the degree in Health Science upon the completion of the curriculum.

Clinical agencies mandate criminal history background checks for all individuals engaged in patient care, and all students must undergo criminal history background checks before admission may be offered. These checks are conducted by an external company, and the information is sent to the Dean of Health Professions. All background reports must be clear to continue the admission process. Any applicant with a background report that is NOT clear will not be eligible for admission. A yearly urine drug screen is also required.

All Radiation Therapy students, in compliance with the policies of the Division of Health Professions, must carry personal medical health insurance, professional liability insurance, and be certified in cardio-pulmonary resuscitation (CPR) by the American Heart Association (Healthcare Provider with AED) or the American Red Cross (Professional Rescue Certification). In addition, all students are required to complete health examination forms upon admission to the program and fulfill the requirement for a yearly Mantoux skin test for tuberculosis.

**Follow-up Courses**

The Radiation Therapy program offers the graduate an advanced level certificate with a maximum of 36 transferrable college credits. Based on the academic achievement already achieved, graduates are encouraged to continue their education. Most are seeking a baccalaureate level degree. This graduate is encouraged to pursue a field of interest, such as Dosimetry, Radiologic Science, Medical Imaging, Education, and/or Administration. Graduates who have already accomplished this level of academic achievement are encouraged to pursue a master's degree level of achievement in their field of interest. For the graduate who is seeking further specialization in Radiation Oncology, there are two (2) Post-Baccalaureate Certificate programs and five (5) Master's Degree level JRCERT accredited Medical Dosimetry programs in the U.S.

Every ARRT registered Radiation Therapist is required to maintain twenty-four (24) continuing education credits in a two (2) year period. The program seeks to initiate an on-going seminar format program to provide the entire community of Radiologic Science professional with advances in the profession as well as continuing education credits. Evidence of interest exists in the community since the scope of treatment techniques and the variety of equipment options are inexhaustible while the opportunities for continuing education is limited. This type of endeavor encompasses an extensive commitment on the part of the organizers, therefore, no time for initiation has been established.

**Scheduling**

The Radiation Therapy Program is a full-time program with a well-organized schedule. The program is composed of a didactic, laboratory and clinical component as mandated by our accreditation agencies. Didactic courses are predominantly offered on Monday and Wednesday during the daytime with an evening laboratory schedule. The laboratory is scheduled to avoid any conflict with the existing schedule at the participating clinical site. Most recently, Valley Health – Luckow Pavilion has been most generous in providing an exceptional laboratory environment for our students. Hackensack University Medical Center and Holy Name Medical

Center are acknowledged for providing our laboratory experience in the early years of the program and are responsible for fulfilling the accreditation requirements that launched the program.

The course content or Principles of Diagnostic Radiation Physics (RTT 150 – Fall semester) and Dosimetry and Treatment Practices (RTT 210 – Spring semester) encompasses approximately 28% of the ARRT National Registry Examination. Given the weighting of the course content, a qualified medical physicist is required to teach these courses. To accommodate the schedule of the designated professor, these courses are typically offered in the evening.

The clinical component of the program is on a daytime schedule. The student is required to attend clinic on Tuesday, Thursday and Friday during the Fall and Spring Semesters and Monday, Tuesday, Thursday and Friday during the 12-week summer semester. This affords the graduate a maximum of 1104 clinical training hours.

It is the policy of the program to schedule every student at least one rotation through all of the clinical education sites. Each rotation encompasses approximately fifteen clinical days in five weeks. There are three rotations per semester for a total of nine rotations during the academic year. This rigorous schedule is designed to provide the student with maximum exposure to various treatment techniques and equipment and to give every clinical site the opportunity to meet and evaluate the student for an entry level employment position. Wednesdays, during the SU session, are dedicated to professional development including registry preparation.
In compliance with JRCERT Standards, the program limits required clinical assignments for students to not more than 10 hours per day and the total didactic and clinical involvement to not more than 40 hours per week.

**Assessment**
The Program Director updates course content to comply with the American Society of Radiologic Technologists Curriculum Outline. Additionally, the Program Director revises and updates the detailed curriculum grid provided by the Joint Review Committee on Education in Radiologic Technology, and has devised a grid to document compliance to the Content Specifications of the National Registration Examination offered by the American Registry of Radiologic Technologists. The Program Director is responsible for all yearly outcome assessment reports namely the Joint Review Committee on Education in Radiologic Technology annual report and the Bergen Community College Middle-States outcome assessment report. The Program Director shares this information for evaluation and revision with the Radiation Therapy Program Advisory Board. Program Effectiveness Data is made public on the Radiation Therapy website for view by all communities of interest, including the general public and prospective students.

The program has received the maximum accreditation award on its two JRCERT site visit accreditations. In 2007 the program received the maximum 3 year initial accreditation award and in 2010 the program received an 8 year accreditation award with confirmation following a 2014 interim report.

The program documents compliance to JRCERT Assessment Standards, namely, **Program Completion Rate (PCR)** , **ARRT Credentialing Examination Pass Rate (ARRT-CEPR)** , and **Job Placement Rate (JPR).**

The program employs a variety of assessment tools to provide all students an equal opportunity for success. Cognitive, psychomotor and affective domains are assessed. Written examinations are administered electronically through Moodle. Oral presentations, including case studies, are assigned throughout the program. Research assignments and professional journal critiques have been incorporated into course content to promote professional growth and development. Critical thinking is fostered and evaluated in the laboratory. Application of all cognitive, psychomotor and affective domains are practiced in a simulated laboratory environment before the student is eligible to demonstrate competence in a real patient clinical environment. A total of forty-eight clinical competency evaluations are required by the ARRT before the graduate is eligible to take the national registration examination.

Among all programs in the neighboring four states, the Bergen Community College Radiation Therapy Program ranks well above average in Program Completion Rate and is competitive in ARRT Credentialing Examination Pass Rate and Job Placement Rate. Our success is achieved in a program duration of 12 months compared to an average length of 21 months for the programs in the neighboring four states.

| State | Program | 2012-2016 | | |
|---|---|---|---|---|
| | | PCR % | ARRT- CEPR % | JPR % |
| New Jersey | Bergen Community College | 95 | 90 | 89 |
| | St. Barnabas Medical Center | 83 | 96 | 96 |
| New York | Erie Community College | 82 | 74 | 71 |
| | Memorial Sloan Kettering | 100 | 97 | 100 |
| | Nassau Community College | 85 | 96.3 | 91.5 |
| | New York Methodist Hospital | 91 | 81 | 80 |
| | S.U.N.Y Upstate Medical University | 100 | 100 | 100 |
| Pennsylvania | Community College of Allegheny | 86 | 85 | 79 |
| | Gwynedd Mercy University | 92 | 88 | 83 |
| | Thomas Jefferson University | 89 | 92 | 80 |
| Connecticut | Gateway Community College | 46 | 88 | 100 |
| | Manchester Community College (New) | No Data | No Data | No Data |
| Massachusetts | Laboure College | 100 | 83 | 92 |
| | MCPHS University | 94 | 91 | 93 |
| | Suffolk University | 85.7 | 87.5 | 86.2 |
| | UMass Memorial Medical Center | 64 | 100 | 90 |
| | Average | 85.6 | 89.9 | 88.9 |

**Innovations or Changes in Last Five Years**

The program has incorporated the use of technology through Moodle tests, examinations, homework assignments and quizzes. An active reading approach has been employed to improve

assimilation of course content. Over the past five years, the program has moved to emphasize critical thinking skills in the laboratory environment.

During the summer semester of the program, the students prepare for the national ARRT registry exam. The program employs a certified medical dosimetrist for a dosimetry and treatment planning calculation review and a graduate of the program for a general review. Mock registry exams have been collected from various sources and have been converted into an electronic format for administration through Moodle. Students are allotted time to take a variety of practice exams on a weekly schedule. The exit exam grade accounts for ten percent (10%) of the RTT 222 Radiation Therapy Clinical Practicum III grade. Every student is required to pass at least one of these exams to be eligible graduation.

Due to the small size of this specialized profession, outside resources are limited. The program subscribes to the only web based credentialing examination preparation software that is available (HEALS).

In addition to the ARRT National Registry Exam review prepared and presented by the Radiation Therapy faculty, the students are encouraged to attend an on-line two-day registry review offered by Thomas Jefferson University on the BCC campus and the New England Society of Radiologic Technologists three- day Registry Review in Connecticut. Although the college does not provide funding for the students to attend the Connecticut review, nearly 100% attend. The program does not have a job placement service; however, many of our graduates are employed at our clinical affiliation sites. Due to the small size of the profession, many of our clinical faculty provide networking for job placement for our graduates.

Innovations that foster student success are supported by the college community. The Career and Workforce Development Center provides our students with a resume writing and interview technique workshop. The Library provides a Research Methodology Workshop specifically designed for medical professionals. The tutoring center accommodates our students by providing mathematical tutoring for radiation therapy students who are not registered for a MAT course but are required to know MAT 180 level mathematics for the program course content. Continuing Education provides our students with venipuncture competency training. This is a new requirement by the JRCERT. The copy center provides color printing for patient treatment plans. This teaching tool exposes the student to actual patient treatment plans, in accordance with HIPPA guidelines, for dosimetric assessment and evaluation in a laboratory environment.

## FOCUS ON SUPPORT

### Technology

The three-story Health Professions building, which was opened in May 2016 houses the school's growing health professions programs. The Radiation Therapy Program was afforded a dedicated classroom/laboratory equipped with a Smart Board and twelve computers with internet access and one teacher workstation. The computers are equipped with Microsoft office for PowerPoint presentations, Excel spreadsheets and multimedia needs.

Electronic teaching resources are limited in this small but highly technical and specialized profession. In 2016, the program purchased a web-based national board examination preparation program that provides the student with three practice tests. The program director and clinical coordinators have an office equipped with two computers. In addition to Microsoft Office, the program director has access to WebXtender, Datatel, Respondus, Snagit and Adobe Acrobat Pro. All quizzes, tests, and registry preparatory examinations prepared by the program are administered on Moodle.

The Bergen Community College Radiation Therapy Program offers its students a diverse clinical learning environment. We have six clinical education centers, four of which are equipped with state-of-the-art linear accelerators and employ cutting-edge treatment techniques. Two of our clinical sites provide a less technologically advanced experience. Overall, the clinical experience is comprehensive to prepare the graduate for entrance level employment.

Radiation Therapy is a highly sophisticated and technologically advanced field of study. Students learn to operate machines, called linear accelerators, that direct high-energy x rays to specific cancer cells in a patient's body to shrink or remove them. Computer based technology that the student is expected to learn at the clinical site includes Intensity Modulated Radiation Therapy, Vision RT, Image Guided Radiation Therapy, Calipso, Image Registration, CT simulation with a virtual simulation workstation, and Eclipse Treatment Planning.

### Facilities and Equipment

A sample of the equipment that has been purchased with the use of a Pitkin Grant includes a RANDO anatomically accurate phantom, a breast board, a wing board, and TIMO head holders. The program also purchased CT Basics and the Image-Guided Radiation Therapy Series from the American Society of Radiologic Technologists. These pdf documents are distributed in a downloadable format.

The program offers the student a three-hour per week laboratory in the fall and spring semesters at the clinical site (ValleyHealth – Luckow Pavilion). There the student experiences instruction on state-of-the-art radiation therapy equipment including a Varian True Beam linear accelerator and GE simulator with a virtual workstation. Instruction is provided by experienced ARRT registered Radiation Therapists and one certified Medical Dosimetrist.

**Learning Resources**
The Sidney Silverman Library continuously updates scholarly journals, books and media resources to support the Radiation Therapy Curriculum. A list of holdings is compared to the ASRT Radiation Therapy Resource list. Library personnel and the program director work collaboratively to have all required texts and supplemental resources available to the students. The college has over 40 books and multimedia videos relevant to the study of radiation therapy. Through the library, the students have access to two of the most useful journals for the profession.

*Radiation Therapist* is the most widely recognized scholarly journal of this profession. It offers the student, the graduate, and our faculty access to directed reading articles for the acquisition of continuing education credits. *The International Journal of Radiation Biology* is world renown for scholarly research articles in Radiation Oncology yet it is appropriate for the Radiation Therapist's level of education.

In addition to student resources, the library subscribes to a sectional anatomy website for classroom use. http://www.netanatomy.com/ is an interactive website and is used in weekly classroom instruction. *NetAnatomy* is a database for students of human anatomy and includes images of gross, cross-sectional and radiographic anatomy. Images can be viewed with and without labels which supports classroom instruction and testing. Self-tests and descriptive materials are included in the subscription.

The Center for Innovation in Teaching and Learning (CITL) provides a faculty support team to advise and direct faculty who wish to develop best practices in the instructional use of technology. The Center offers an array of workshops to faculty and staff to learn new technologies. Scheduling information and registration are continuously provided through the BCC e-mail system, Outlook, and the BCC website. Faculty and staff are encouraged to attend CITL workshops every semester.

In the fall semester of the program every Radiation Therapy student takes an in-class electronic mathematic assessment test. The test is designed to be a review of pre-calculus mathematics. A grade below 75% warrant the program to notify the student and require a remedial mathematics review. This may be accomplished through the BCC Tutoring Center. The tutoring center offers this Radiation Therapy Math review at no cost to the student. Additionally, in 2018, the program expects to retest the students at the same level of difficulty, in the Spring semester. A score under 75% will require remediation.

**Marketing and Public Relations**
The Bergen Community College Radiation Therapy Program web site is accessible to the general public and is the main marketing tool to reach potential students. The Joint Review Committee on Education in Radiologic Technology (JRCERT) website http://www.jrcert.org/find-a-program/ offers the general public information regarding location, award, cost, program capacity, contact information, clinical affiliates and program effectiveness data.

The program presents in-person Radiation Therapy Information Sessions at the BCC college campus seven times per academic year and at various community colleges throughout New Jersey.

**Support Services**
Other support services include the Copy Center and the Information Technology Help Desk. The copy center is proficient in the copying and production of many pieces of educational materials for the program including educational treatment plans in color and program laboratory manuals. The IT Help Desk assists in all computer malfunctions in the classroom and the program office.

The program works closely with the Institute for Career Development for a Resume Writing and Interview Technique Workshop, the Tutoring Center to ensure that all students of the program would have the fundamental math skills needed for the physics and dosimetry aspect of the curriculum as well as for preparation for the registry, the Library for resources and a Research Methodology presentation and Continuing Education for Venipuncture training. These changes demonstrate the program's commitment to continuous quality improvement.

**Resources, Budget**
The college provides an adequate budget for the required full-time program coordinator and two adjunct full-time equivalent clinical coordinators. Additionally, the budget adequately provides for eleven adjunct faculty, five of which are clinical supervisors, four are laboratory instructors and two are didactic instructors. Faculty compensation is based on academic rank and level of education.

Other budgetary expenses include office and classroom supplies, color printing through the copy center and web-based registry review mock examinations for every student. In addition to the twelve student computers and one instructor workstation, the Radiation Therapy classroom/lab (HP 323) is furnished with two storage cabinets, three bulletin boards and a mobile white board.

The program director is granted partial compensation for attending American Society of Therapeutic Radiation Oncology (ASTRO) meetings. These annual meetings are located at various locations throughout the U.S.; however, their scope is world-wide. These meeting provide the program director with current trends in practice and education as well as approximately 18 continuing education credits.

## FOCUS ON COMMUNITY

**Community Groups**

In addition to the information provided on the Joint Review Committee on Education in Radiologic Technology (JRCERT) website, the New Jersey Department of Environmental Protection – Bureau of X-Ray Compliance website provides for the community information on NJ Radiation Therapy Education Programs. Included in this information is School Information, School Test Scores and Technologist Information, Licensing Information and Applications.

The program has sent paper postal mail surveys to employers and graduates. Due to the lack of response, in 2015 the program employed Survey Monkey to pole graduates 12 month after graduation and in 2016 to pole employers. Responses have increased; however, additional time is needed to evaluate participation by this method.

Survey Monkey Graduate Survey:

Dear Radiation Therapist,
Please complete the following job placement questioner. It should take no more than two minutes of your time. Thank you for your compliance.

1. Are you currently employed in the practice of radiation therapy?
2. If you are not employed in the practice of radiation therapy, are you actively seeking employment?
3. If you are actively seeking employment in the practice of radiation therapy; however, you are not employed, please check any or all of the following situations if applicable to you.
    a. I am unwilling to seek employment that requires relocation
    b. I am unwilling to accept employment due to salary or hours
    c. I am on active military duty
    d. I am continuing my education

Survey Monkey Employer Survey: (this survey employs a 5 point Likert scale)

Dear Employer,
Please complete the following employer questioner if you have hired a Bergen Community College Radiation Therapy Program graduate within the past twelve months. It should take no more than two minutes of your time. Thank you for your compliance.

1. Employee demonstrates understanding of concepts related to anatomy, physiology, pathology, and dose to critical structures.
2. Employee recognizes complications and side-effects commonly associated with each treatment procedure.
3. Employee demonstrates competence performing activities such as verifying treatment parameters, setting-up the treatment unit, positioning the patient, monitoring the patient during treatment delivery, and documenting treatment delivery.
4. Employee demonstrates ongoing sensitivity to and compassion for each patient's physical and emotional well-being, interacts with members of the radiation therapy treatment team in a positive and productive manner, and maintains high ethical standards.

In addition to the program's collaborating with other community college and professional societies to present the program to registered or registry eligible diagnostic radiographers, the program director annually participates in the Annual Ridgewood Academy Health Professions Tour.

**Community Issues Related to Program**

**Job Placement Rate (JPR)** – is defined as the number of graduates employed in radiation therapy within 12 months of graduation compared to the number of graduates actively seeking employment in radiation therapy. Our current job placement rate is 89%

The program expects employment opportunities to increase in New Jersey over the next two years. This will be particularly advantageous to our graduates who are not able to relocate or travel extensively for employment. Beginning in 2018, multiple cancer centers will be opening up or preexisting cancer centers will be adding machines to their facility, which will create more jobs in the field of Radiation Therapy.

- MSKCC will be opening a facility in Montvale, New Jersey with three linear accelerators in early 2018.
- MSKCC has opened a facility in Monmouth, New Jersey in the summer of 2016.
- MD Anderson has partnered with Summit Medical and will opening a facility with three linear accelerators in Florham Park, New Jersey in early 2018.
- Hackensack University Medical Center will be adding a third linear accelerator to their preexisting cancer center.

The following information is provided by the United States Department of Labor – Bureau of Labor Statistics / Occupational Outlook Handbook.

| Quick Facts: Radiation Therapists | |
|---|---|
| 2016 Median Pay | $80,160 per year<br>$38.54 per hour |
| Typical Entry-Level Education | Associate's degree |
| Work Experience in a Related Occupation | None |
| On-the-job Training | None |
| Number of Jobs, 2014 | 16,600 |
| Job Outlook, 2014-24 | 14% (Much faster than average) |
| Employment Change, 2014-24 | 2,300 |

**Job Outlook**

Employment of radiation therapists is projected to grow 14 percent from 2014 to 2024, much faster than the average for all occupations. The risk of cancer increases as people age, so an aging population may increase demand for radiation therapists.

Radiation Therapist is listed as one of the highest-paying healthcare jobs in comparison to educational investment.

| Occupation | Entry Level Education | 2016 Median Pay |
|---|---|---|
| Respiratory Therapist | Associate | $58,670 |
| Radiographer and MRI Technologist | Associate | $58,960 |
| Diagnostic Medical Sonographer | Associate | $64,280 |
| Dental Hygienist | Associate | $72,910 |
| Nuclear Medicine Technologist | Associate | $74,350 |
| **Radiation Therapist** | **Associate** | **$80,160** |
| Dietician/Nutritionist | Bachelors | $58,920 |
| Registered Nurse | Bachelors | $68,450 |
| Speech Pathologist | Masters | $74,680 |
| Occupational Therapist | Masters | $81,910 |
| ***Dosimetrist** | **5-6 Years Higher Education** | **$96.846** |
| Chiropractor | Doctorate | $67,520 |
| Audiologist | Doctorate | $75,980 |
| Physical Therapist | Doctorate | $85,400 |

* Dosimetry training offers the Radiation Therapist an opportunity for professional growth.

Student Funding

New Jersey residents who live outside Bergen County and wish to attend Bergen Community College can apply for chargeback support.

Chargeback enables a student to pay In-County tuition rates. The difference in tuition will be paid by student's home county.

Chargeback requests may be approved by Home Counties when the county's community college does not offer the program or course.
All radiation therapy students who are not Bergen County residents are eligible to apply for a chargeback through their home county.

Financial Aid

Financial Aid, grants, student or parent loans may be used to offset educational expenses.

Pending Financial Aid will be reflected on student invoices. The Actual Financial Aid award may differ from "Pending" Financial Aid.

Students are responsible for any and all charges not covered by the actual Financial Aid award.

Scholarship

The Bergen Community College Foundation's online scholarship management system provides all currently enrolled BCC students access to a variety of academic achievement scholarships. Students of a 12-month certificate programs are typically exempt from scholarship opportunities offered through the BCC Foundation. In 2016, the Radiation Therapy program became the exception to this rule. All Radiation Therapy students who are a graduate of the BCC Radiography Program are eligible for scholarship opportunity.

The Bergen Community College Radiation Therapy Program is competitive in cost to other JRCERT accredited Certificate and Associate Level Community College Programs. The documented $6,800 includes tuition and fees, books and supplies, and uniform allotment.

| Program | Length and Award | Approximate Cost per year (Resident) |
|---|---|---|
| New Jersey | | |
| Bergen Community College | 12 mth. Cert | $6,800. |
| St. Barnabas Medical Center | 12 mth. Cert. | $7,000. |
| New York | | |
| Erie Community College | 24 mth. A.A.S | $5.164. |
| Memorial Sloan Kettering | 23 mth. Cert. | $5,000. |
| Nassau Community College | 24 mth. A.A.S | $4,934. |
| New York Methodist Hospital | 22 mth. Cert. | $15,000. |
| S.U.N.Y Upstate Medical University | 21 mth. B.S. | $8,805. |
| Pennsylvania | | |
| Community College of Allegheny | 12 mth. Cert.<br>24 mth. A.A.S | $4,100. |
| Gwynedd Mercy University | 40 mth. B.S. | $41,385. |
| Thomas Jefferson University | 12 mth. B.S. | $29,337. |
| Connecticut | | |
| Gateway Community College | 22 mth. A.A.S | $3,598. |
| Manchester Community College | 21 mth. A.A.S | $6,300. |
| Massachusetts | | |
| Laboure College | 24 mth. A.A.S | $26,000. |
| MCPHS University | 33 mth. B.S. | $26,600. |
| Suffolk University | 21 mth. B.S. | $31,592. |
| UMass Memorial Medical Center | 15 mts. Cert. | $4,500. |

**External Requirements or Considerations**

Program Accreditations:

Joint Review Committee on Education in Radiologic Technology

Next scheduled review is January, 2019

American Registry of Radiologic Technologists

Professional Organizations:

American Society of Radiologic Technologists

Licensures:

New Jersey Department of Environmental Protection / Bureau of X-ray Compliance

**Advisory Boards**

The Radiation Therapy Program Advisory Board meets annually. The board consists of a radiation oncologist, medical physicist, program director, clinical coordinator(s), five chief therapists from our clinical education affiliation sites and a graduate representative from the most recent class.

In compliance with the Joint Review Committee on Education in Radiologic Science requirements, the attendants review the previous meeting minutes, discusses program updates, clinical site updates, student progress, curriculum updates, and the assessment process. Additionally, the board reviews the assessment plan, including the mission statement and program goals.

Members:

Dr. Loren Godfrey, M.D. – Radiation Oncologist - HUMC

Mr. Allan Caggiano, M.S., DABR - Chief Physicist - Holy Name Medical Center

Ms. Carol Chovanec, M.S., R.T.T. - Radiation Therapy Program Director – Bergen Community College

Mr. Daniel Brancato, M.S., R.T.T. - Radiation Therapy Program Clinical Coordinator Bergen Community College and Chief Therapist – The Valley Hospital

Mr. Sree Tanikella, M.S., R.T.T. – Radiation Therapy Program Clinical Coordinator Bergen Community College and Senior Therapist – HUMC

Ms. Colleen Gallagher, R.T.T. – Chief Therapist – Holy Name Medical Center

Ms. Tasha McCrae, B.S., R.T.T. – Supervisor – Radiation Oncology Department – St. Joseph's Regional Medical Center

Ms. Leann Palmer, A.A.S., R.T.T. – Radiation Oncology Manager – Englewood Hospital and Medical Center

Mr. Mehmet Tuna, B.S., R.T.T. – Director of Radiation Oncology Services – HUMC

## SUMMARY

### Program Achievements and Progress

1. The on-line Moodle system is employed by all faculty to provide the student with PowerPoint presentations as well as supplemental reading material.
2. The program employs the Moodle on-line system to administer homework, quizzes, test, and exams, including exit/terminal exams.
3. The program has purchased three web-based registry review exams.
4. The program offers the student a Physics / Dosimetry review during the final semester. The program is fortunate to have a Certified Medical Dosimetrist to teach this review.
5. The program instituted an in-class registry review in preparation for the terminal exit exams and the national registry exam. The program is fortunate to have one of our graduates to teach this review.
6. The program collaborates with the Career Development Office to offer the student a Resume Writing and Interview Technique Workshop.
7. The program collaborates with the Library to provide the student with a Research Methodology Presentation.
8. The program collaborates with the Continuing Education Department to provide the student with Venipuncture competency training.
9. The program collaborates with the Tutoring Center to provide the Radiation Therapy student, who is not enrolled in a BCC MAT course, with Math tutoring relevant to Radiation Therapy dosimetry and dose calculations.
10. The program introduced a math assessment test to be administered in the beginning of the Fall and Spring semesters. These tests are used to increase the student awareness of their level of mathematical knowledge and to provide the student the opportunity for mathematical tutoring to support success in the program.
11. The program collaborates with Q-Fix, an immobilization device company, to provide the student with an entire one-day immobilization device laboratory focusing on hands-on experience in the fabrication of immobilization devices essential to the practice of radiation therapy.
12. The program collaborates with St. Joseph Hospital and Medical Center to provide the student with CPR training and certification at no cost to the student.
13. The program provides career development and employment opportunities through field trips. Field trips include Memorial Sloan Kettering in Manhattan, ProCure Proton Treatment Center in Summerset, NJ and PetCure Veterinary Radiation Oncology in Clifton, NJ.
14. Critical thinking skills have been heightened in multiple content areas of the program. Although the program does not have an on-campus laboratory, we are fortunate to use the equipment in the Radiation Therapy Department at the Valley Health System – Luckow Pavilion after clinical hours:
    a. The RTT 120 and RTT 220 Laboratory experience has incorporated Treatment Plans with multiple mistakes for the mid-term and final exams. The student is required to identify the mistake, rectify it and determine the consequences of the mistake. Additionally, the student is required to accurately create radiation therapy portals on the virtual simulation workstation.

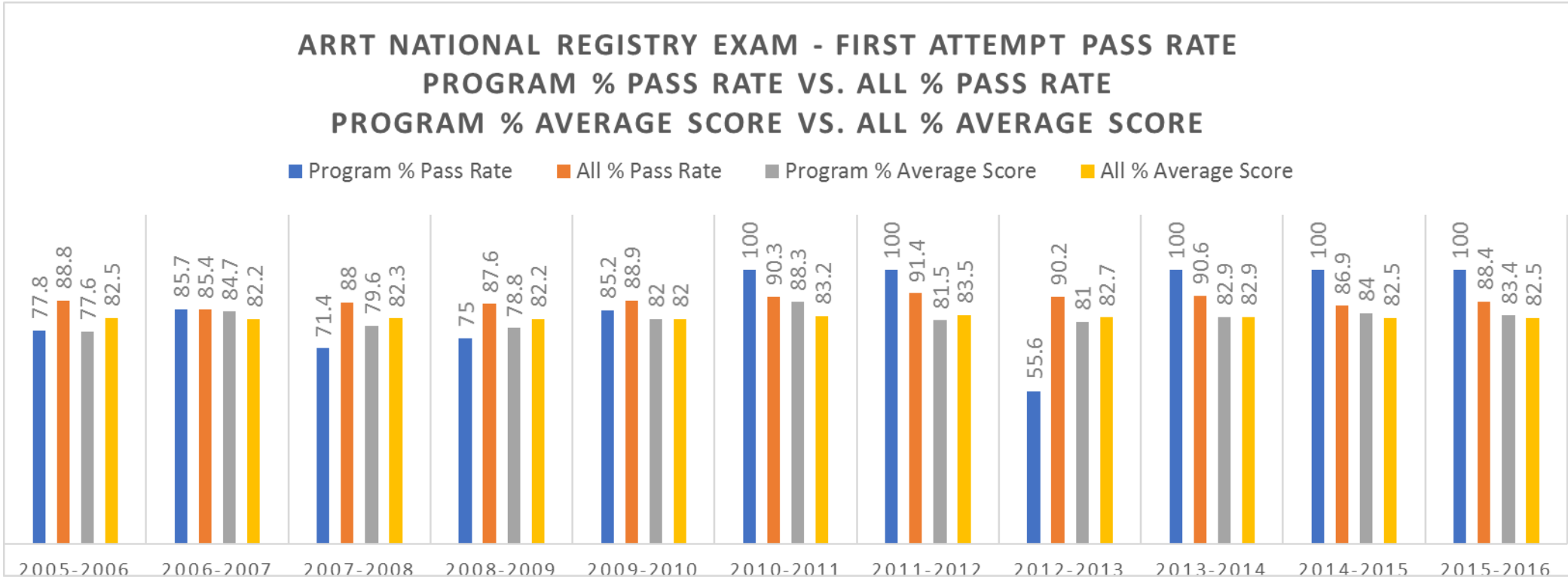
The RTT 220 final exam incorporates a real patient set-up with multiple challenges.

b. In the RTT 230 Laboratory final exam, the student is expected to perform a morning Quality Assurance warm-up procedure and determine specific faults that result in machine failure.
c. Treatment Concept Evaluation forms have been created and incorporated into the clinical component of the program, RTT 121, RTT 221 and RTT 222. Clinical and didactic competencies have been correlated with the use of these forms. They require the student to review the patient chart for each of the 18 required treatment competencies and correlate history and physical, stage of disease, grade of disease, and doctor and nursing progress notes to determine a probable long-term prognosis.

15. Active reading strategies were incorporated in RTT 230 Advanced Procedures, with a professional journal article critique assignment. In RTT 200 Survey of Diseases, the student is given the opportunity to create mock registry exam questions using the ARRT content specifications for the registry exam in Radiation Therapy.
16. One additional clinical education center has been added to our existing five sites. The program continues to seek out additional clinical education centers to better accommodate the student who resides outside of Bergen County.
17. The program has collaborated with the BCC Foundation to provide scholarship opportunity for graduates of the BCC Radiography Program who desire to further their education by attending the Radiation Therapy Certificate Program.
18. From 2011 to present the program has achieved a 100% ARRT National Registry Exam Pass Rate for all years except 2013. In addition to a 100% ARRT National Registry Exam Pass Rate, the program has maintained a % Average Score at or above the national average since 2014.
19. The program is in the process of revising admission criteria to include a patient care component in addition to the existing academic evaluation component. The program aspires to utilize the Health Professions Integrated Teaching Center for this patient care assessment.

    The following chart tracks the progress made in the development of this program since its inception in 2005.

| Year | Program % Pass | All % Pass | Program % Average Score | All % Average Score | # of BCC students |
|---|---|---|---|---|---|
| 2005-2006 | 77.8 | 88.8 | 77.6 | 82.5 | 9 |
| 2006-2007 | 85.7 | 85.4 | 84.7 | 82.2 | 7 |
| 2007-2008 | 71.4 | 88 | 79.6 | 82.3 | 7 |
| 2008-2009 | 75 | 87.6 | 78.8 | 82.2 | 4 |
| 2009-2010 | 85.2 | 88.9 | 82 | 82 | 9 |
| 2010-2011 | **100** | 90.3 | 88.3 | 83.2 | 3 |
| 2011-2012 | **100** | 91.4 | 81.5 | 83.5 | 4 |
| 2012-2013 | 55.6 | 90.2 | 81 | 82.7 | 9 |
| 2013-2014 | **100** | 90.6 | **82.9** | 82.9 | 9 |
| 2014-2015 | **100** | 86.9 | **84** | 82.5 | 10 |
| 2015-2016 | **100** | 88.4 | **83.4** | 82.5 | 10 |



The data below is a comparison of all Radiation Therapy Programs in New Jersey, New York, Pennsylvania, Connecticut and Massachusetts.

20. The Bergen Community College Radiation Therapy Program offers the student the value of a community college and the convenience of a one year program in a nationally accredited education curriculum with clinical training in the top New Jersey hospitals and cancer treatment centers.

| State | Program | JRCERT Capacity | Length and Award | Average Class Size 2012-2016 | 2012-2016 | | | Tuition NJ Resident |
|---|---|---|---|---|---|---|---|---|
| | | | | | PCR % | ARRT- CEPR % | JPR % | |
| New Jersey | ***Bergen Community College*** | ***15*** | ***12 mth. Cert*** | ***8.2*** | ***95*** | ***90*** | ***89*** | ***$6,800.*** |
| | St. Barnabas Medical Center | 16 | 12 mth. Cert. | 5.2 | 83 | 96 | 96 | $7,000. |
| New York | Erie Community College | 37 | 24 mth. A.A.S | 14 | 82 | 74 | 71 | $5.164. |
| | Memorial Sloan Kettering | 24 | 23 mth. Cert. | 7 | 100 | 97 | 100 | $5,000. |
| | Nassau Community College | 51 | 24 mth. A.A.S | 10.8 | 85 | 96.3 | 91.5 | $4,934. |
| | New York Methodist Hospital | 33 | 22 mth. Cert. | 11.6 | 91 | 81 | 80 | $15,000. |
| | S.U.N.Y Upstate Medical University | 36 | 21 mth. B.S. | No data | 100 | 100 | 100 | $8,805. |
| Pennsylvania | Community College of Allegheny | 49 | 12 mth. Cert.<br>24 mth. A.A.S | 15 | 86 | 85 | 79 | $4,100. |
| | Gwynedd Mercy University | 52 | 40 mth. B.S. | No data | 92 | 88 | 83 | $41,385. |
| | Thomas Jefferson University | 17 | 12 mth. B.S. | 16 | 89 | 92 | 80 | $29,337. |
| Connecticut | Gateway Community College | 28 | 22 mth. A.A.S | 5.6 | 46 | 88 | 100 | $3,598. |
| | Manchester Community College | 23 | 21 mth. A.A.S | New | No Data | No Data | No Data | $6,300. |
| Massachusetts | Laboure College | 26 | 24 mth. A.A.S | 4.8 | 100 | 83 | 92 | $26,000. |
| | MCPHS University | 49 | 33 mth. B.S. | 10.8 | 94 | 91 | 93 | $26,600. |
| | Suffolk University | 22 | 21 mth. B.S. | No Data | 85.7 | 87.5 | 86.2 | $31,592. |
| | UMass Memorial Medical Center | 16 | 15 mts. Cert. | 1.8 | 64 | 100 | 90 | $4,500. |

Program Completion Rate (PCR) - ARRT Credentialing Examination Pass Rate (ARRT-CEPR) –Job Placement Rate (JPR)

**Mission/Goals/Objectives**

- Annual Graduate survey data shows 95% agreement that the program Mission Statement is demonstrated by the program and 100% agreement that the Program Goals are demonstrated by the program.
- Employing a 5 to 1 Likert Scale, graduate survey data indicates a 4.5 average rating of the program curriculum and a 4.7 average evaluation of preparation for entry level employment.

**Strengths**

- Five-year data documents:
- ✓ Program Retention Rate: 95%
- ✓ Program Job Placement Rate: 89%
- ✓ ARRT National Credentialing Examination First Attempt Pass Rate: 90%
  (Excluding the class of 2013, the program has demonstrated a 100% first attempt pass rate since 2011 and an average score at or above the national average since 2014.)
- The BCC Radiation Therapy Program is the only college based program in NJ.
- The broad spectrum of equipment and treatment techniques provided at our clinical education centers equips our graduates with a diverse clinical experience and fosters adaptable personality traits to optimize employment opportunity potential.
- Financial assistance through financial aid and chargeback opportunity is available for eligible students. Scholarship opportunities are available to BCC Radiography Program graduates.
- The program is honored to represent BCC as a program committed to excellence and continuously striving for perfection. The program is grateful for the continuous support from BCC Administration.
- The program is proud to have faculty who are willing to help students who are having difficulty with didactic and/or clinical instruction. Our extraordinary faculty share the common goal of graduating the best Radiation Therapists in the profession.
- The program is grateful for the support, confidence and effort demonstrated by the entire community and, in particular, our clinical education centers. Our clinical education centers offer training on state-of-the-art equipment. Communication between the college and the clinical education center is a key strength. All of our clinical sites currently employ at least one and up to four BCC Radiation Therapy graduates. This is a significant percentage of a staff that ranges from three to eighteen therapists.
- The program is grateful to document the success of our graduates. The majority of our graduates are employed throughout New Jersey, Pennsylvania and New York. One graduate from the class of 2014 is employed at Memorial Sloan Kettering Cancer Center in Manhattan. Memorial Sloan Kettering is a leading cancer treatment center with its own Radiotherapy school. Additionally, we have graduates who have achieved chief and senior therapist positions. Many of our graduates have continued their education to achieve a B.S. Degree, some in Medical Dosimetry.

**Challenges**

Technology:

- The program identifies the lack of an on-campus laboratory as a work yet to be done.
- In addition to an on-campus laboratory the students would greatly benefit from an electronic clinical tracking and grading system.

Program capacity:

- The program capacity is highly correlated to clinical education center capacity. The program determines clinical capacity based on clinical site preference rather than JRCERT capacity assessment. Together, our clinical education centers can accommodate nine to ten students per year; however, that number is variable. Circumstances that may result in a decreased student capacity include an unexpected decrease in the patient load at the clinical education center, a change in administration and workforce at the site and the installation of new equipment and the training of staff.
- The required prerequisite entrance requirements may delay entrance of the applicant into the program; however, this time interval also allows the applicant to discern this career choice, hence, the program holds a 95% completion rate.

Qualified teaching faculty:

Maintaining a stable and experienced staff is a challenge:

- The Clinical Coordinator is required to have achieved a Bachelor's level academic degree. Finding a qualified clinical coordinator is a challenge since the majority of radiation therapists in NJ possess an associate level academic degree.
- Finding qualified faculty members with several years of experience is a challenge. Most Radiation Therapy Departments run on a daytime schedule. This limits the pool of potential didactic instructors for the program.

**Celebration and Recognition**

JRCERT Accreditation Status:

- In 2007, the maximum initial accreditation of three years was awarded to the program.
- In 2010, again the maximum accreditation of eight years was awarded to the program. This accreditation had no citations.

From the class of 2015, Ms. Laura Nappi achieved a 95 on the ARRT National Registry Examination. This score placed her in the 100-percentile rank in the country.

Program faculty have developed a registry review for our students. The program employs a certified medical dosimetrist for a dosimetry and treatment planning calculation review and a 2015 graduate of the program for a general review.

In 2014, the national radiation therapy registry review offered the attendants the opportunity to participate in a student bowl. Our students participated and placed second in this national student bowl.

**Recommendations for Change**

1. The program would greatly appreciate an on-campus VERT virtual laboratory. https://www.youtube.com/watch?v=8uHmlyn_0NI
2. Transition to an electronic tracking system for the clinical education component of the program. Trajecsys Corporation offers a comprehensive system for clinical recordkeeping for health education. https://www.trajecsys.com/Default.aspx
3. Extending grant and/or scholarship opportunities for students residing outside of Bergen County.
4. The program plans to utilize the Health Professions Integrated Teaching Center in three different capacities. 1. Criteria for acceptance into the program: Incorporate a patient care assessment component into the admission process. 2. RTT 121 Fall semester: Provide the student with training and competency testing for six patient care assessment competencies, and 3. RTT 222 Summer Semester: Provide the student with venipuncture competency training.
5. Acquisition of additional clinical education centers to accommodate students commuting from outside of Bergen County.
6. The Radiation Oncology community would benefit from an opportunity to network and acquire continuing education credits through a symposium format. The BCC Radiation Therapy Program aspires to initiate an annual on-campus Radiation Therapy Symposium that would be open to all Radiologic Science professionals.

**ACTION PLAN**

1) Goal: Acquisition of additional clinical education centers
   a) Objective: Provide clinical education centers at locations to better accommodate out-of-county students.
      i) Timeframe: Ongoing
      ii) Responsible Party(ies): Clinical Education Site / RTT Program Director / BCC Health Professions Contract Specialist / BCC Administration
      iii) Resource Implications: adjunct faculty – one to three per clinical education site.
   b) Objective: Offer the student additional clinical experience and the opportunity to network for post-graduation employment
      i) Timeframe: Ongoing
      ii) Responsible Party(ies): Clinical Education Site / RTT Program Director / BCC Contract Specialist / BCC Administration
      iii) Resource Implications: adjunct faculty – one to three per clinical education site.

2) Goal: Implement a Continuing Education Symposium for all Radiologic Science Professionals
   a) Objective: Expose the Radiation Oncology Community to new and innovative technologies that they may not have the opportunity to experience in their place of employment.
      i) Timeframe: Ongoing
      ii) Responsible Party(ies): Program Director with input from faculty
      iii) Resource Implications: Accommodations for a Saturday Symposium

b) Objective: Provide the Radiologic Science professional with an opportunity to acquire required continuing education credits.
   i) Timeframe: Ongoing
   ii) Responsible Party(ies): Program Director with input from faculty
   iii) Resource Implications: Accommodations for a Saturday Symposium

3) Goal: Incorporate the Health Professions Integrated Teaching Center into the Radiation Therapy Program.
   a) Objective: All students demonstrate six patient care competency as determined by the ARRT.
      i) Timeframe: Initiation Fall, 2017
      ii) Responsible Party(ies): RTT Program Director / Director of the Center for Simulation
      iii) Resource Implications: a schedule that will accommodate all involved.
   b) Objective: All students demonstrate venipuncture competency as determined by the ASRT Radiation Therapy Curriculum.
      i) Timeframe: Initiation Summer, 2017
      ii) Responsible Party(ies): RTT Program Director / Director of the Center for Simulation
      iii) Resource Implications: A schedule that will accommodate all involved
   c) Objective: Incorporate patient care and patient assessment into the Radiation Therapy Program admissions process.
      i) Timeframe: Initiation Summer, 2018
      ii) Responsible Party(ies): Program Director / Director of the Center for Simulation
      iii) Resource Implications: A schedule that will accommodate all involved