



PROGRAM REVIEW

A PROCESS FOR SELF-EVALUATION AND CONTINUOUS IMPROVEMENT

For the

AAS HP Radiography Program

Bergen Community College

PROGRAM: Radiography Program
PROGRAM REVIEW TEAM: Elizabeth Romano (lead), Joseph Mamatz, Maria Cerbone,
DATE OF THIS REPORT: **May 2015**

PERIOD OF YEARS BEING REVIEWED: 2010-2014

OVERVIEW

Radiography Program Mission Statement

The Bergen Community College Radiography Program is committed to providing our students with a professional education in diagnostic imaging. The cooperative effort between our faculty and students creates an essential climate for development of clinical competency and a multiplicity of other professional skills. Throughout the student's education in our program, the profession's ethical principles and practices are introduced and reinforced.

Radiography Program Goals

Goal 1: Perform all clinical responsibilities in a competent manner.
Goal 2: To use principles of critical thinking in solving issues.
Goal 3: Demonstrate competent and proficient communication skills.
Goal 4: Accomplish all tasks and pursue actions in a professional manner within the field of diagnostic imaging.

Alignment of College Mission, Program Mission, and Goals

The program mission statement aligns to the mission of Bergen Community College. Each goal has 2-3 learning outcomes that are measured annually. The program consolidated its goals from seven to three. All program data is reported to the external accreditor annually and is on the program web page for transparency for the community.

SUMMARY OF SIGNIFICANT DEVELOPMENTS SINCE LAST PROGRAM REVIEW

The program prides itself upon having up to date curriculum and state of the art equipment. Since the last external accreditation site visit, the program:

- Revised the curriculum to make the clinical credits succinct in its formulation.
- Revised the curriculum to enable educational equitability of clinical experiences. Mammography lecture is afforded to all students. Clinically, mammography is permissible for female students who wish to experience this modality. Waivers must be signed by those students who do not wish to attend clinical education in mammography.
- The lab was reconstructed to include two imaging rooms; one digital and computed system. In addition, there is one room that has a portable unit.
- The program coordinated with surgical technology and respiratory care to demonstrate radiographic imaging to the respiratory care and surgical technology students.
- The program has made two courses fully hybrid; the others are web enhanced.
- Web based testing; the exit (terminal exam) is given as a computer based examination.

FOCUS ON STUDENTS

Students Demographic Information on Race and Gender

The data collected by Institutional Research did not reflect the actual student population. Using the student contact list from 2010-2014, the program created a more accurate reflection of the students in the program. Below is the list of academic years, gender, and ethnic distribution.

Student Demographics

The data represents the student number.

	2010	2011	2012	2013	2014
Male	9	15	10	17	5
Female	12	14	8	12	14
Caucasian	18	10	13	22	13
Black	1	5	0	0	1
Hispanic	2	1	3	3	6
Asian	1	3	0	2	3
Other	0	1	2	2	2

Certification (ARRT) Examination Pass Rate:

The Radiography program has a **98.2 %** five year average for first a first attempt at the radiography certification examination sponsored by the American Registry of Radiologic Technologists (ARRT).

Year	Sample	Percent Pass	Analysis	Average Score										
2009	24	100%	24 out of 24 passed upon the 1 st attempt	87.4%										
2010	22	95%	21 out of 22 passed upon the 1 st attempt	84%										
2011	28	96%	27 out of 28 passed upon the 1 st attempt	87%										
2012	18	100%	18 out of 18 passed upon the 1 st attempt	87.6%										
2013	30	100%	29 out of 29 passed upon the 1 st attempt 1 graduate has not taken the ARRT	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> </table> 86.3%										

Employment Rate

The radiography program has a five average of 86.7% for job placement rate in the years indicated below.

Table 1.5 Program Five Year Employment Rate

1	2	3	4		5	6	7	
Year	Graduated	Responded to survey	Not seeking employment	Reason for Not seeking	Column 3-4 =	Seeking/not employed	Employed in the field within 12 months post-Graduation.	
2009	24	22	2	2 Studying other modalities.	20	8	12	
2010	28	18	3	1 studying other modalities; 1 radiation therapy; 1 ARRT failure	15	0	15	
2011	22	13	4	1 nuclear education; 1 ARRT failure; 2 oddities education	9	0	9	
2012	18	16	2	2 studying radiation therapy	14	3	11	
2013	30	27	2	1 family responsibilities; 1 pursuing former career	25	0	25	
72/83=86.7%								
Revision 9/16/14								

Student Retention Rate:

- The radiography program's retention rate average is **71%** for five years.

Year Ended	Year Started	Students Enrolled	Graduated	Percent	Causes for the loss				
					Academic	Career Mismatch	Familial Issues	Total	
2013	2011	44	30	77%	4	2	4	10	
2012	2010	27	18	67%	3	4	2	9	
2011	2009	36	28	78%	3	3	2	8	
2010	2008	28	20	71.4%	3	4	1	8	
2009	2007	46	28	61%	6	7	5	18	

Student Satisfaction

The completion of student and employer surveys has traditionally been challenge. The program sought other means for attaining annual graduate satisfaction surveys. Venues such as pen/ paper surveys, survey monkey and phone call surveys were done.

The radiography program's advisory committee made the following recommendation at the spring 2015 meeting:

- Explore the use of social media to form a network.
- Offer continuing education for the program's graduates.
- Form a graduate network through various means such as social media.

Learning Outcomes Assessments

- The program has in place a detailed Annual Outcomes Assessment Report that measures its goals and outcomes as it relates to the mission of the program and college.
- In addition to the published program goals, proficiency with communication, competency, and satisfaction are measured and published on the report.
- The report is crafted in matric form for ease of reading and comprehensibility. Outcomes, benchmarks, actual data, persons responsible for collection and reporting, and action plan for improvement are integral parts of the report.
- The report is shown to the community via the advisory committee; the body who reads and provides essential feedback for potential trends and most importantly, help to provide a plan of action.

Exhibit 1: Outcomes Assessment Report, 2014

Student Success

- Employment and Employer satisfaction returns rates are a challenge.
- The program faculties and advisory committee are in constant search for alternative ways of collecting this information
- A comparison of the data of other community college in New Jersey- Mercer, Burlington, Passaic, Morris, and Cumberland revealed:
 - In terms of completion rate, the BCC radiography program is 2% lower than its sister colleges.
 - In terms of certification examination rate, the BCC radiography program is 4% higher than its sister colleges.
 - In terms of job placement rate, the BCC radiography program is 12% higher than its sister colleges.
 - Graduates of 2014, three are pursuing their bachelor's degree in specialty imaging at Rutgers's University,
- The program analyzes attrition causes. In 2014-2015, the radiography program lost 8 students. Of the eight, 36% was due to poor performance.
- A 64% reduction was due to unsuitable career choice. Upon intensive study, the incoming students have not done the research necessary with respect to the field- study time, money, and future earnings. Many students enter with aspirations of perusing a higher modality (such as Radiation therapy, MRI, or CT scanning) and using imaging as a "stepping" stone.
- In the summer of 2015, the program will offer an intensive orientation to the field and the course of study to give the incoming students a realistic view of the program.

Data Needs

Data collection using pen/paper questionnaires, survey monkey, and phone calls is a challenge to perform. Non-response, employee time consumption, or contact is an issue.

- The program can benefit from a more accuracy of data collected. Currently, the information supplied to the program by Instructional Research is not correct. Graduate and employer satisfaction surveys need direct to measure the information that relates to the program.
- A more effective mechanism to acquire solid and accurate current and graduate would be greatly appreciated.

FOCUS ON FACULTY AND STAFF

Demographics

- The radiography program is staffed with two full time personnel.
- The Dean is a doctoral prepared Dental Hygienist and Educator. Her educational vision and leadership skills are a superlative resource to this program and the other disciplines in the Division. Importantly, Dr. Barnard embraces each director and clinical coordinator as the leadership of the future. She provides us with the tools that are absolutely needed to educate our students on the state of the art equipment.
- Joseph Mamatz is the Program Director; Masters Prepared Radiography Educator with 27 years' experience is a radiographer, educator, and leader. He is dual disciplined as well- radiography and radiation therapy technology. Currently, he is working towards an online doctoral degree in education through Capella University. Estimated time to completion is tentatively 2017.
- Elizabeth Romano has 40 years of experience as a technologist in mammography and radiography. She has been an instructor for Bergen Community College since 1993. The program was fortunate to acquire her skills as a full time instructor and clinical coordinator for the Program.

Need

The Radiography program would greatly benefit from a “laboratory manager”. This lab manager would be someone who would be responsible for the management and instruction. The imaging equipment is equipment is digital and complex. The manager would coordinate with vendors, its repair personnel, order and maintain the proper amount of supplies, and necessary accessories that is for student success.

Professional Activities

- Professor Mamatz:
 - Delivered one presentation to the AHRA group (managers, technologists, educators, and students on the Topic of “back to the Basics”
 - Presented along with other members of the Center of Intuitional Effectiveness on “Outcomes Assessment”
 - Presented on the “Multigenerational Population” for professional development twice for the college community. The second presentation was adapted to address the impact of apathy on the three generational populations.
 - Professor Mamatz presented Chest Imaging and Diseases to the RSP therapy students.
- Professor Romano
 - Developed an article on “alternative teaching strategies” to be published by the New York Society of Radiologic Educators.
 - Formulated a multi-disciplinary instructional approach with Mary Chmielewski to introduce the Surgical Technology and the Radiography students to imaging in the operating room and the operating room set up.

Adjunct Faculty

The radiography program has 30 adjuncts that teach in didactic, laboratory and clinical education courses.

Below is the breakdown of the faculty according to academic credentials:

- 28% are Certificate prepared faculty.
- 33% are Associate degree prepared faculty.
- 10% are Bachelor’s prepared faculty.
- 27% are Master’s prepared faculty.
- 3% is Doctoral Prepared.

The doctoral prepared faculty member teaches RAD 183- Radiographic Pathology. Joseph Mamatz and Elizabeth Romano teach all other didactic and laboratory courses.

The adjuncts teach in the laboratory and clinical courses in the RAD curriculum. Joseph Mamatz and Romano communicate electronically with the adjuncts to keep the abreast of the content being taught so as so better coordinate laboratory and clinical activities.

Support Staff

Mrs. Eileen Sabol assists the program by managing the ordering of the instructional supplies that are needed to manage the program. Mrs. Geraldine Farrell is an integral aspect of the operation of this program. She manages the tracking of attendance and is the key indicial in the organizing and all accreditation activities- site visits and reports.

Data Needs

What additional data that is currently not available would have been helpful to effectively evaluate this area of the program? None at this time.

FOCUS ON CURRICULUM

Summary of Program Curriculum

Overview

The radiography curriculum follows the specifications of the master curriculum that is published by the American Society of Radiologic Technologists. There is a curriculum grid published by the Joint Review Committee on Education in Radiologic Technology (external accreditor).

Exhibit 2: Curricular Map (EXCEL Spread sheet)

Learning Outcomes

Each didactic and clinical course syllabus contains detailed student learning objectives that are written in behavioral terms. Each objective is measurable through written and practical assessment tools.

Degree Requirement

Graduation from the radiography program and the award of the Associate of Applied Science (AAS) degree is given after the completion of 66 credits (general education, core radiography and clinical). Composition I and II, Anatomy I and II, Statistics, Humanities, and a Social science elective are part of the curriculum in addition to the core curriculum.

After the onsite visit in 2010 by the Joint Review Committee, the curriculum was revised as recommended. As a result of the onsite visit, the following changes have been made within the Radiography curriculum.

- ✓ Unification of clinical credit distribution.
- ✓ Eliminating mammography and any other gender specific imaging examination in which all students are unable to partake clinically.
- ✓ In light of the discontinuation of clinical participation, maximizing didactic studies of mammography are fully covered in the classroom.
- ✓ In 2014, Elizabeth Romano addressed the Joint Review Committee to allow for interested students to experience mammography. The external accreditor granted this request as long as waiver is signed by those not wishing to experience the modality.

Curricular Issues

The radiography program follows the curriculum established by the American Society of Radiologic Technologists. As long as the content is addressed, the program has flexibility in the courses to which the content is delivered. The program uses a progressive approach in the delivery of its content based on the volume of cases performed in the clinical sites.

1. No additional clinical articulations were formed.
2. The program is in search of office and imaging center articulations. The only dilemma associated with this endeavor is the number of students is not to exceed two per site. It is not economically feasible to have an instructor for two students.
3. RAD 180- Introduction to Radiography and RAD 184- Advanced Imaging Equipment and Patient care have been changed in their credit value and content
4. Tomography has been deleted from the curriculum. Presently teaching the imaging technique is to provide a historical perspective. Tomography is replaced by Computed Tomography, Magnetic Resonance, and Sonography

Lead-in Courses

- Any remedial courses (math and English) must be successfully completed.
- BIO 109- Anatomy and Physiology I must be successfully completed

The program is currently seeking another science prerequisite course that is offered at the secondary and college levels. In addition, the program is researching admissions tests that are more fitting and conducive to the academic needs of the program.

Health Professions admissions (HESI) examination is also used to assess skills in the program's stipulated modules on the entrance examination.

Follow-up Courses

There are no follow up within the field in medical imaging. However, graduates are encouraged to continue to pursue undergraduate, graduate education or another imaging or therapeutic modality.

General Education Outcomes

All students must take the following courses to meet the general education requirement for the AAS degree and accreditation mandates:

- ✓ English Composition I
- ✓ English Composition II
- ✓ MAT 150- Statistics
- ✓ Humanities Elective
- ✓ Social science elective

For most students, these many of the general education courses are completed prior to admission to the program. The radiography program does not assess these courses. Without being an expert in these content areas, the program relies on transcript grades to assess content competency. The radiography admissions committee discusses the outcome of assessment informally.

Scheduling

The program director and the clinical coordinator schedule and teach ALL academic courses. This is to assure that the content is taught to professional standards. Adjunct faculties teach laboratory and clinically. One adjunct teaches RAD 183- Radiographic Pathology.

Classes and clinical span five days of the week and flexibility is limited due to clinical activities. On class days, the scheduling of classes is based on student times and needs. All courses are web enhanced. Two are hybrid.

Assessment

The program director serves as the Academic Liaison to the Center for Institutional Effectiveness. Formerly, he served an Assessment Fellow for the Division of Health Professions.

Program mission, goals, and outcomes are published on the programs' web page. Additionally, a detailed curricular map, and program description was given to Center for Institutional Effectiveness.

Innovations or Changes in Last Five Years

- ✓ Integration of web enhanced courses in all courses of the program.
- ✓ Integration of computer based testing.
- ✓ Use of peer mentoring.
- ✓ Early warning mechanisms put into effect.
- ✓ Development of student action plans for improvement.

Data Needs

Not as it relates to the program. The program uses its competencies, affective domain assessment and tests as its primary tools for outcomes assessment data collection.

FOCUS ON SUPPORT

Technology

- The program in conjunction with IT uses radiography based software for remedial, reinforcement, and preparation for the certification examination in Radiography.

Facilities and Equipment

The program's faculties keep abreast of all new software packages that benefit students. They work collaboratively with Information Technology.

Learning Resources

The Library has Radiologic Technology, the scholarly journal for our discipline. There are many online resources available to the program. The library personal and the program officials work collaboratively to have all relevant resources available to the students.

Professors Connell, Romano, Cerbone and Mamatz have an early warning system set into place. The early warning is followed by action on behalf of the program to assure success with action by establishing study sessions or additional skills reinforcement time.

Marketing and Public Relations

All program related information is published on the web page. The web page has recently been updated to comply with the external accreditors mandates. Program effectiveness data is reported- credentialing exam outcome, job placement, and retention.

Support Services

The program does not job place. Elizabeth Romano posts positions for the graduates through email. All full time and adjuncts advise the students. Primarily, Elizabeth Romano and Joseph Mamatz serve as primary academic advisors to the students enrolled in the radiography program and students interested in the program.

Resources, Budget

- ✓ The program has two full time faculties; one director and one clinical coordinator. The State of New Jersey and the Joint Review Committee mandate this.
- ✓ The program has 25 adjunct faculties who teach in the laboratory and clinical education.
- ✓ The program has used Perkin's grant funding for digital technology in the laboratory.
- ✓ The budget is satisfactory for the fiscal needs of the program.

Data Needs

None are needed. The program's budget is adequate. The only concern is service contracts for the imaging equipment. Currently, the service contracts are astronomical. Therefore, one possible suggestion is to secure an individual to service the equipment as needed.

FOCUS ON COMMUNITY

Community Groups

Currently, the program is involved with the Ridgewood Academy and STEM. Joseph Mamatz works with Drs. Fitzpatrick and Davis is organizing Healthcare as a part of the educational initiative. For the STEM group, Joseph Mamatz integrates the importance of mathematics and practical science. The science and mathematics are the underpinning as they embark upon careers in medicine or engineering.

Community Issues Related to Program

Details related to the logistics with the Ridgewood Academy and STEM groups are collaborated between Dr. Fitzpatrick and Dr. Davis.

External Requirements or Considerations

The program is fully accredited by:

- Joint Review Committee on Education in Radiologic Technology and
- The New Jersey Radiologic Technology Board of Examiners

In 2014, the program completed its Interim Report for Maintenance of its eight year status. In May 2015, the program received its award letter from the external accreditor. Validation of continued accreditation from the NJ State Board of Examiners is expected shortly.

Advisory Boards

The Radiography Program Advisory consists of:

- 1 senior student
- 3 technologists
- 1 member from the community at large
- 3 instructors
- 2 managers

The aforementioned group of professionals offers the program wisdom on the issues and trend taking place in healthcare delivery. The advisory committee offers advice to the program with respect to its mission, goals, outcomes and annual outcomes report. The Advisory Committee plays an integral role in the evaluation of prudent program policies.

Data Needs

What additional data that is currently not available would have been helpful to effectively evaluate this area of the program?

Currently, there are no additional data collections resources needed.

SUMMARY

Program Achievements, Progress Made Since Last Review

This is the first internal program review. The program has had 5 on site evaluations since its inception in 1972.

Mission/Goals/Objectives

Annually, the program completes an Outcomes Assessment report that measure the extent to which the program meets its mission and goals. The program meets its published goals. The only issue is securing the graduates with full time employment. The graduates do secure per diem and part time employment.

To assist the students, the program has Mrs. Christine Mathew deliver a workshop on the development of resumes, interview skills, and job seeking strategies. Professor Montane from Rutgers's University offers her insight on Computed Tomography, Magnetic Resonance Imaging, and Mammography. Professor Chovanec, the Radiation Therapy Program Director delivers a presentation on Radiation Therapy. The combinations of

the aforementioned are all the ways in which the program assists the program to secure work and pursue additional education.

Strengths

- State of the art laboratory; digital, mobile and computer programs to offer the students an opportunity to learn the imaging techniques on site.
- A Dean who is dedicated to all program in meeting their goals and outcomes by providing the program leadership with the tools to manage their program effectively to achieve the concept of the “next generation of health care practitioners’
- A president and administrative team dedicated the success of all students in the program and all other health care disciplines.
- Faculties who are abreast of new trends and changes in imaging techniques and equipment

Challenges

One challenge is securing students who are dedicated to their chosen field. The attrition is due to a mismatch as opposed to academic abilities. In response, the program stated as “Fast Track” approach. One lecture from each aspect of the core curriculum is introduced to the newly accepted before obligating to the program. The senior level students explain the program from a student’s perspective and offer a major insight to study, balancing family, relationships, and work.

Celebration and Recognition

A “continued” eight year accreditation award by the Joint Review Committee on Education in Radiologic Technology is essential to the program.

Another positive outcome for the radiography program is the percent pass rate for the certification in radiography. In 2014, the program has 92% pass rate with a mean score of 83%.

The program has six students who graduated from the program whose tuition was subsidized by the Health Professions Opportunity Grant. Of the six, all six are employed either full times, part time or per Diem.

Recommendations for Change

The program is able to secure data to determine its effectiveness. The only aspect of data collection that proves to be a challenge is the return of graduate surveys. The program is working on a Graduate Networking program that intends to use social media resources and continuing education to keep the graduates connected to the program.

Program Action Plan

This plan for program performance improvement was created by the program and its faculty. The proposed plan was discussed and approved by the advisory board.

Program Action Plan for Performance Improvement

<i>Outcome</i>	<i>Plan</i>	<i>Timeline</i>
Student Retention	Develop and formulate a smart start program. This plan was to orient and familiarize incoming students to the curriculum and lifestyle of a health professional.	June 2015
Networking	From networking mechanisms for: <ul style="list-style-type: none"> • Improve survey responses • Potential employment • Program Input 	September 2015
Surveys	Create timely and accurate data collection systems to assess graduate and employer satisfaction levels.	Ongoing; in progress
Blended education	<p>Propose to the NJ Department of Environmental Protection for permission to broaden the delivery to encompasses more blended courses as an option.</p> <p>In the summer 2011, the program received an administrative from the DEP not to offer hybrid delivery.</p> <p>Members of the NJ Board of Examiners were invited to the campus. The members were shown hybrid delivery and online testing. The program already uses CBT.</p> <p>The fall of 2011, the order was lifted. The confusion was the belief that delivery was a curricular changed.</p>	Ongoing; in progress