

Portland Community College
Radiography Program
Program/Discipline Review
2010-2011

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Program History

Portland Community College's Radiography Program was established in 1969 and each year graduates students highly skilled and prepared to begin careers as entry-level radiologic technologists. The two-year program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT) and was awarded an 8 year accreditation in 2005. Community affiliates include 12 hospitals, their satellite clinics and 4 large metropolitan free-standing clinics.

The Radiography Program review process incorporated the PCC document *Program/Discipline Review Guidelines* to evaluate the effectiveness of the Programs curriculum, teaching methodologies and the competency of its graduates.

Due to accreditation standards and requirements, the Radiography Program continually assesses program outcomes and must report these to the JRCERT as requested. The previous five years of program outcomes and assessments were also used to develop this program/discipline review.

In addition the following were used in this five year review process:

College Goals and Core Outcomes:

The College established goals and core outcomes as a means to measure college-wide success in the teaching and learning process.

Program Goals and Outcomes:

The instructor established goals and outcomes to evaluate the Program's effectiveness in graduating students with appropriate skills and who demonstrate high levels of competency.

Program Overview

Program Mission Statement and Goals

Mission Statement

It is the mission of the Radiography Program to deliver quality education that provides the means for each student to gain and apply the knowledge and skills necessary to be successful in the field of radiography and to become a productive individual in society.

Program Goals

1. The Program will foster the development of appropriate communication skills essential in the practice of radiography and the provision of quality patient care.
2. The Program will graduate students that are clinically competent and skilled at delivering professional patient care.
3. The Program will facilitate the development of critical thinking and problem solving skills that are essential to the practice of radiography.
4. The Program will help fulfill the employment needs of the community.

How do Program goals compare with national and/or professional program trends or guidelines? Have they changed since the last review, or are they expected to change in the next five years?

The Program goals have been changed grammatically to be more in line with the preferred College language. They correspond to both College and national professional goals and standards and are reflected in the Program's master outcomes plan. The Program does not expect current goals to change within the next few years.

In addition, the Program follows the Professional Standards of our accreditation association, the JRCERT.

The JRCERT Standards are as follows:

Standards for an Accredited Educational Program in Radiologic Sciences

Standard One: Mission/Goals, Outcomes, and Effectiveness:

The program, in support of its mission and goals, develops and implements a system of planning and evaluation to determine its effectiveness and uses the results for program improvement.

Standard Two: Program Integrity:

The program demonstrates integrity in representations to communities of interest and the public, in pursuit of educational excellence, and in treatment of and respect for students, instructor, and staff.

Standard Three: Organization and Administration:

Organizational and administrative structures support quality and effectiveness of the educational process.

Standard Four: Curriculum and Academic Practices:

The program's curriculum and academic practices promote the synthesis of theory, use of current technology, competent clinical practice, and professional values.

Standard Five: Resources and Student Services:

The program's learning resources, learning environments, and student services are sufficient to support its mission and goals.

Standard Six: Human Resources:

The program has sufficient qualified instructor and staff with delineated responsibilities to support the program's mission and goals.

Standard Seven: Students:

The programs and sponsoring institution's policies and procedures serve and protect the rights, health, and educational opportunities of all students.

Standard Eight: Radiation Safety:

Program policies and procedures are in compliance with federal and state radiation protection laws.

Standard Nine: Fiscal Responsibility

The program and the sponsoring institution have adequate financial resources, demonstrate financial stability, and comply with obligations for Title IV federal funding, if applicable.

Radiography Program Curriculum

Reflect on learning outcomes and assessment, teaching methodologies, and content in order to improve the quality of teaching, learning and student success.

A. Addressing Course-Level Core Outcomes: Identify and give examples of assessment-driven changes made to improve attainment of course-level student learning outcomes.

Outcome results for 2009-2010 did not indicate any areas where students, as a whole, failed to meet the College and/or Program goals. However, outcomes from **2008-2009** assessments resulted in the SAC agreeing on the following changes for **2009-2010** courses:

RAD 203 – Applied Radiographic Topics

- PCC CO1, Program Goal 1, Course Outcome 2 – Communication
Additional information on communication with diverse populations, clinical personnel and patient's family members was added to this course following input from clinical affiliates. Affiliate radiography department managers asked their clinical instructors to initiate a discussion about more instruction on communication skills at our Advisory Committee meetings. Hospitals are required to have employees knowledgeable on age specific needs and requirements as well as multicultural issues. Although the Program had been including these topics in courses, it was felt that additional learning experiences during the second year of the Program would reinforce these concepts. All of the added information was directed toward improved and appropriate communication in the clinical setting.

Course requirements included group discussions, projects and homework assignments. Students also were required to do oral presentations.

RAD 105 – Patient Care in Radiology

- PCC CO3, Program Goal 3- Critical Thinking and Problem Solving
Both clinical instructors and managers indicated on assessment tools that some students were not as adept as they should be in critical thinking situations. This was apparent in situations that involved trauma patients or patients in compromised conditions requiring a change in protocols and positioning techniques. Additional lab experiences were involved that challenged the students to work through "unusual" situations. The Nursing Program's simulation lab was also used to evaluate the student's ability to assess a patient, with changing vital signs and conditions, while performing radiographic procedures.

In summary, the faculty addressed the comments made by industry that seemed to be shortcomings of certain graduates. These changes became part of the 2010 Program Outcomes Assessment.

The following table demonstrates how the Program addresses College Outcomes

CTE Assessment Plan

Medical Imaging Department

AAS: Radiography

Outcome	Map to Core Outcome	Setting/Method	Benchmark	When Will Assessment Take Place
<p>Uses effective written and oral communication skills in educational and clinical settings</p>	<p>CO 1 - Communication</p>	<p><u>Classroom: RAD 209</u> Advanced Radiographic Procedures – 2nd Year Course</p> <p><u>Writing Skills:</u> <u>Method/s:</u> Student Portfolio Rubric used for grading consistency on student papers. Students submit papers on topics approved by instructor and which pertain to unit topics.</p> <p><u>Clinical: Hospital Affiliates</u></p> <p><u>Oral Skills:</u> <u>Method/s:</u> End of Term Clinical Assessment from Clinical Instructors (8th term)</p> <p>Clinical instructors will complete their final assessment of student according to Program and professional standards. Criteria is quantified and standardized for consistency from all clinical sites. A standard Program form is used by all sites.</p>	<p>85% of students will score ≥ 7 on a 9 point scale on written assignment.</p> <p>90% of students will be ranked at ≥ 4 on a 5 point scale used for evaluating behavioral and performance skills</p>	<p>End of 5th term in 2 year program</p> <p>End of each term in 2-year program. End of 8th term – (capstone clinical course) used for graduation clearance.</p>
<p>Demonstrate problem solving skills in the clinical setting</p>	<p>CO 3 – Critical Thinking</p>	<p><u>Clinical Hospital Affiliates</u></p> <p><u>Method:</u> <u>Employer Survey</u></p> <p><u>Employer Survey:</u> Managers will complete Program graduate survey answering questions that pertain to</p>	<p>90% of respondents will rank graduates ≥ 4 on a 5 point scale, used for evaluating behavioral and</p>	<p>6 months following completion of Program</p>

		critical thinking skills in patient care and radiographic procedures. These skills are vital in performing non-routine procedures or challenging patient conditions.	performance skills. And 90% of respondents will rank graduates ≥ 8 on a 10 point scale, used for evaluating professional/technical skills	
Successful completion of national certification examination (ARRT)	CO5 –Professional Competence	<u>ARRT Examination Pass Rate</u> Students who successfully complete two-year program will sit for national certification examination. Upon successful completion of this exam (at least a score of 75%), they will be certified in radiologic technology.	85% of graduates will score 75% or higher on first attempt	Annually with statistics provided by the ARRT
The graduate provide s appropriate care that ensures the safety, comfort and on-going assessment/response to the patient condition	CO6 – Self-Reflection	<u>Method: Graduate Survey</u> Program will send graduates a survey 6 months post-graduation that poses questions of self-reflection. Questions pertain to their professional skills, safety and patient assessment, procedure performance, communication skills with staff and patients. Additional questions pertain to evaluating Programs success in teaching the skills required of an entry-level technologist.	Respondents will rank themselves and the Program at ≥ 3 on 4 point scale.	Annually
Identifies and understands barriers and misunderstandings associated with different cultures/ethnic groups and how these might affect competent patient care.	CO4 - Cultural Awareness	<u>Classroom/Clinical Setting</u> Students will complete modules and group exercises in RAD 100, 106 and 203. Group discussions/project in RAD 203 includes development of scenario that specifies a conflict/barrier in the clinical	Students must	5 th term of

		setting. The group presentation will include possible resolution/s to their conflict.	achieve ≥ 8 out of 10 points possible. Grading rubric includes points for both individual and group involvement.	Program
Applies/adheres to radiation protection standards. Maintains safety practices for the community, coworkers and self. Demonstrates adherence to professional ethics and standards.	CO2 – Community and Environmental Responsibility	Students are evaluated each term by clinical instructors using standardize “End of Term “assessment form. Criteria are 10/11/2010 based upon program and accreditation standards.	90% of students will be ranked at ≥ 4 on a 5 point scale used for evaluating behavioral and performance skills	End of each term, with 8 th term assessment used for graduation clearance.

Completed Assessment Plan for Class of 2010

CTE Assessment Plan

Medical Imaging Department

AAS: Radiography

Outcome	Map to Core Outcome	Setting/Method	Benchmark	Outcomes
Uses effective written and oral communication skills in educational and clinical settings	CO 1 - Communication	<p><u>Classroom: RAD 209</u> Advanced Radiographic Procedures – 2nd Year Course</p> <p>Writing Skills: <u>Method/s: Student Portfolio</u> Rubric used for grading consistency on student papers. Students submit papers on topics approved by instructor and which pertain to unit topics.</p> <p><u>Clinical: Hospital Affiliates</u></p> <p>Oral Skills: <u>Method/s: End of Term Clinical Assessment from Clinical Instructors (8th term)</u></p>	<p>85% of students will score ≥ 7 on a 9 point scale on written assignment.</p> <p>90% of students</p>	<p>100% of students received ≥ 8 on a 9 point scale – average was 8.9.</p> <p>100% of CIICs</p>

		Clinical instructors will complete their final assessment of student according to Program and professional standards. Criteria is quantified and standardized for consistency from all clinical sites. A standard Program form is used by all sites.	will be ranked at ≥ 4 on a 5 point scale used for evaluating behavioral and performance skills	ranked graduates at ≥ 4 . Class mean was 4.8. High scores were 5.0 and lowest score was 4.5.
Demonstrate problems solving skills in the clinical setting	CO 3 – Critical Thinking	<u>Clinical Hospital Affiliates</u> Method: <u>Employer Survey</u> Employer Survey: Managers will complete Program graduate survey answering questions that pertain to critical thinking skills in patient care and radiographic procedures. These skills are vital in performing non-routine procedures or challenging patient conditions.	90% of respondents will rank graduates ≥ 3 on a 4 point scale, used for evaluating behavioral and performance skills.	100% of employers ranked graduates at ≥ 3 on a 4 point scale: 50% received 3's and 50% received 4's.
Successful completion of national certification examination (ARRT)	CO5 –Professional Competence	<u>ARRT Examination Pass Rate</u> Students who successfully complete two-year program will sit for national certification examination. Upon successful completion of this exam (at least a score of 75%), they will be certified in radiologic technology.	85% of graduates will score 75% or higher on first attempt	<u>100%</u> of the 2010 graduates passed the national certification examination on first attempt, the class average score was 91.4%. The mean score was <u>9.1</u> on a 10 point scale. The national mean was <u>8.5</u> .
The graduate provide s appropriate care that ensures the safety, comfort and on-going assessment/response to the patient condition	CO6 – Self-Reflection	Method: <u>Graduate Survey</u> Program will send graduates a survey 6 months post-graduation that poses questions of self-reflection. Questions pertain to their professional skills, safety and patient assessment, procedure	Respondents will rank themselves and the Program at ≥ 3 on 4 point scale.	<u>Teaching Communication Skills:</u> 100% ranked Program ≥ 3 (4 = 69%, 3 = 31%) <u>Entry Level Prep:</u>

		performance, communication skills with staff and patients. Additional questions pertain to evaluating Programs success in teaching the skills required of an entry-level technologist.		100% ranked Program as ≥ 3 (4 = 92%, 3 = 8%)
Identifies and understands barriers and misunderstandings associated with different cultures/ethnic groups and how these might affect competent patient care.	CO4 - Cultural Awareness	<u>Classroom/Clinical Setting</u> Students will complete modules, and group exercises in RAD 100, 106. Not all activities are for grades. In RAD 203 students must submit individual papers written on the subject of diversity and patient care. A rubric was used to determine points assessed.	Students must achieve ≥ 23 out of 30 points possible (75% or above).	100% of students received ≥ 23 points out of 30 possible. Class average was 28.3. High score was 30, low score was 26.
Applies/adheres to radiation protection standards. Maintains safety practices for the community, coworkers and self. Demonstrates adherence to professional ethics and standards.	CO2 – Community and Environmental Responsibility	Students are evaluated each term by clinical instructors using standardize “End of Term” assessment form. Criteria are 10/11/2010 based upon program and accreditation standards. The 5 point scale is used for the skills that are most critical to graduates.	90% of students will be ranked at ≥ 4 on a 5 point scale used for evaluating behavioral and performance skills	100% of graduates were ranked ≥ 4 on a 5 point scale. The class norm was 4.8. The lowest score was 4.45, the high was 5.0.

During our department meetings as we discussed how the College Core Outcomes are met by the Program and the table was developed to outline this, we also reflected on each outcome as it pertains to radiography graduates and professionals. Our thoughts are as follows:

Communication: Coherent and appropriate communication is essential in the patient care setting. We stress this to applicants and also to students throughout the two-year program. Proper communication involves more than the written and spoken words, but also the behaviors and mannerisms that are displayed by the professional while with patients, families, medical personnel or management. No matter how much we stress this, demonstrate and monitor, there are always instances where students do not meet the standards. Fortunately, we assess communication and related behaviors in both didactic and clinical settings on a consistent basis. Counseling sessions with students who are not meeting Program and professional standards are held and clinical improvement plans are developed to monitor their progress.

Community and Environmental Responsibility: If providing high quality patient care to the Community relates to this goal, then the Program is in compliance. Because the focus is based on professional standards and performance, we may not be as attune to this goal as other disciplines might or can be.

Critical Thinking and Problem Solving: So many of our assessments of the students include their ability to be critical thinkers, whether they demonstrate this in writing, lab exercises and testing or in the clinical setting. By challenging them to critically think, we are assisting them in those real-life situations in clinical and in the community when things are not just like “in the book”. We feel strongly that we are not just educating our students to work in a specific profession, but to be able to succeed in other walks of life, using skills they gained will enrolled at the College. A successful person is well-rounded and can be flexible and creative when necessary.

Cultural Awareness: As the population of the country becomes more diverse, we would be remiss not to embrace the importance of awareness and competency. Our health profession students must treat all patients with the same respect, concern and professionalism while considering any differences that might impact their interactions. The awareness and respect of other cultures is essential for being a thoughtful member of the community and also in the profession. Again, we are not just educating students for a profession, but as members of the community as a whole. We feel our program has made great strides in providing students with many opportunities to explore their own beliefs and cultural habits while learning about others.

Professional Competence: In looking back over the past 5 years our instructors are confident that without fail we have graduated students with the skills necessary for the entry-level radiographer. However, there have been a few who were not as poised or polished as we would like to see. We have adjusted our clinical assessment forms with the assistance of our Advisory Committee to make them easier for the clinical staff to rate student performance and provide us with the type of feedback that supports their scores. Without documents that clearly demonstrate concerns for certain behaviors and required skills, the student may be unaware of the need for improvement, the clinical instructors and coordinator will not realize that counseling is necessary, and patient care is affected. We feel our new forms have demonstrated a more accurate assessment of students in general, and have provided us documented proof that problems need to be addressed.

Self-Reflection: From their first orientation session to the day they graduate from the Program, our students are challenged with self-reflection on their values, beliefs, prejudices, skill level and interactions with others. Radiography requires up-close and personal interactions with others, who are often vulnerable due to their condition or level of comprehension of the English language and “American” customs.

As much as it would be nice to begin each person in the Program with *Tabula rasa, or the mind is a blank slate*, we have students who already have life experiences, set beliefs and prejudices and cultural habits and customs. It is how we encourage our students to be tolerant, accepting and appropriate that matters. The instructors engage in many discussions and exercises that involve self-reflection.

We are also providing the Program's national certification examination results to demonstrate the success of students and also how the PCC program results compare to national ones.

Portland Community College: 2005-2011

Calendar	Number		Section Means				Total	Percentile			
	Year	Group	Candidates	A	B	C		D	E	Mean	Rank
2005		Program	44	9.1	9.2	9.1	9.0	9.5	91.4	92	100.0
2005		USA	13200	8.5	8.4	8.4	8.4	8.8	84.8	-	89.4
2006		Program	47	9.3	9.2	9.2	9.1	9.3	92.0	96	100.0
2006		USA	14061	8.7	8.4	8.3	8.4	8.8	84.8	-	90.5
2007		Program	43	9.2	9.2	9.2	9.2	9.3	92.2	96	100.0
2007		USA	14142	8.7	8.3	8.3	8.4	8.8	84.7	-	90.8
2008		Program	42	9.1	9.0	9.2	9.1	9.3	91.3	92	100.0
2008		USA	14210	8.6	8.2	8.4	8.4	8.8	84.6	-	91.0
2009		Program	33	9.2	9.3	9.3	9.3	9.5	93.0	98	100.0
2009		USA	13762	8.6	8.2	8.4	8.4	8.9	84.8	-	91.4
2010		Program	32	9.1	9.0	9.1	9.1	9.3	90.9	92	100.0
2010		USA	13550	8.7	8.2	8.3	8.5	8.7	84.9	-	92.4
2011		Program	30	9.2	9.2	9.4	9.5	9.4	93.8	99	100.0

<https://edweb.arrrt.org/Content/Reports/NationalComparison.aspx>

To what degree are courses offered in a Distance modality? Have any significant revelations, concerns or questions arisen in the area of DL delivery?

True Distance learning delivery courses are not included in the two-year Radiography Program but two courses are hybrid in design. These courses are RAD 100, Introduction to the Radiologic Sciences and RAD 105, Patient Care. RAD 100, taught during the first summer term of the Program has two in-class sessions for lectures and discussion combined with group projects and course examinations. The instructor has developed many learning experiences and assignments using Desire 2 Learn and these are completed by the students outside of the classroom.

For RAD 105 students attend in-class lectures every other week and are involved in group or individual projects also using Desire 2 Learn. The labs associated with this course are held weekly as you cannot demonstrate patient care skills and test students on their performance any other way.

Another reason why Distance Learning is not appropriate for this profession is that Radiography students must demonstrate competency in the labs for the procedures they will perform in the clinical setting. This requires both instruction and practice in weekly lab sessions. Courses on radiation physics, safety and equipment design and function also have lab sessions that required both group and individual projects and competency testing.

The instructor has found that best practices include supervised, hands-on instruction with validation of continued competency prior to completion of the Program. Although RAD 105 is hybrid in nature, the number of classroom instruction dates were increased after the first year of offering in this fashion due to the course assessments of students indicating more lecture time would benefit the learning of course information.

It is the opinion of program instructor that the delivery of radiography education via distance learning fails to meet the standards of the profession.

Has the SAC made any curricular changes as a result of exploring/adopting educational initiatives (e.g., Service Learning, Internationalization of the Curriculum, Inquiry-Based learning, Honors, etc.)?

The Program carefully follows the national curriculum developed by the American Society of Radiologic Technologists (ASRT). The complex and extensive required didactic courses and clinical competencies make the above initiatives difficult to incorporate into the program's curriculum. The instructor and Program Director would like to have students involved in service learning experiences, but the skills associated with the profession are not always applicable to service opportunities. In addition, radiography students spend 40 hours per week between didactic courses, labs and clinical rotations. The time to participate in service learning projects would be limited.

Inquiry based learning can be seen throughout the two –year program in both didactic and clinical courses. Students must be able to critically think and be creative and flexible when they are performing radiologic procedures on real patients. Instructor have found that by posing “what if” questions to students this stimulate much discussion and enhances learning. Lab sessions involve many inquiry based learning projects. The courses where inquiry based learning is used most frequently are RAD 100 Introduction to Radiology, RAD 105 Methods of Patient Care and RAD 203 Applied Radiographic Topics.

In each course, there are individual and group projects that force students to gather information, synthesis this, and share their thoughts and/or decisions. Topics include ethics, multiculturalism, values, legal responsibilities and practice standards.

Identify and explain any other significant changes that have been made to course content and/or course outcomes since the last review.

Example of changes to course content:

RAD 105- Patient Care– this course was traditionally taught entirely in classroom and lab. A new instructor for the course revised the course to a hybrid format, with fewer in-class sessions, more on-line components that were interactive and some restructuring of lab sessions. Additional information on patient care skills in neonatal care was added and utilizes the expertise of a NICU nurse.

The on-line assignments now include chat rooms for students to share their clinical experiences, compare clinical sites and express their feelings about things that may have been upsetting, such as witnessing the effects of severe trauma on the human body, the sometimes non-professional behavior of others and how difficult it can be to be treated as “just a student” when you have already had other careers and are older than some of the technologists who supervise you. In the traditional lecture format, the students indicated in their course surveys that they did not feel comfortable mentioning these topics in front of so many people. The need to express these feelings is very important for new students.

RAD 203 - Applied Radiography Topics - this course was developed as a result of revisions to the national curriculum and feedback from students and clinical affiliates. During Advisory Committee meetings our clinical instructors brought to the table the need for a review of professional standards, legal issues and continued discussions on cultural competency.

The instructor assigned to this course designed it to address these topics using a combination of lecture, group and individual projects and structured class discussions. Having this course during the second year of the program has validated the need for additional discussion as students demonstrated a lack of retention of important information. In particular, they had forgotten legal terminology and how certain behaviors of radiographers could result in legal consequences.

The Medical Imaging profession embraces cultural awareness and competency and fosters this through changes or additions to the national curriculum. RAD 203 addresses these additions and also enforces the Program’s and Colleges Missions and Goals.

RAD 206 – Survey of Medical Imaging Diseases - this course had been taught by an instructor who retired last year. It was assigned to another instructor who has made significant changes to the delivery of course content, involved students in learning experiences at affiliate hospital's trauma and oncology board review meetings, and included presentations from physicians in the community. Certain topics in the course were de-emphasized from previous years and the addition of new information was done to increase the student's awareness of new disease protocols and standards of care. There are presentations required from students and numerous critical thinking projects. What we are witnessing are students being more engaged in the learning of the required course information instead of the previous format of straight lecture.

Needs of Students and the Community: are they changing?

Student Demographics:

Demographics of the past four groups of the Radiography Program have not indicated significant change in any category. The majority of students are clustered in the 26-40 years of age span, a high percentage are White Non-Hispanic and in most years, females out number males.

Class of:	2010-2012		2009-2011		2008-2010		2007-2009	
# of Students	34		34		35		36	
Race:		%		%		%		%
Asian/ Pacific Is.	3	9%	3	9%	2	6%	4	11%
African Am	0	0	1	2%	0	0	1	2%
Hispanic	1	2%	1	2%	2	6%	1	2%
Am. Indian A. Native	0	0	0	0	1	2%	1	2%
Caucasian	27	84 %	27	84%	30	86%	29	81%
Black	1	2%	0	0	0	0	0	0
Other:	0	0	2	6%	0	0	0	0
Age Range								
18-20	0	0	2	9%	1	2%	1	2%
21-25	7	22 %	4	12%	10	29%	7	19%

36-40	0	0	0	0	0	8%		
41-50	8	25%	5	15%	3		7	19%
50+	3	9%	1	2%	1	2%	0	0

A. What is the effect of student demographics on instruction?

The biggest challenge has been working with English as Second Language (ESL) students once they have accepted into the program. Communication skills are very critical when working with patients, clinical staff, physicians and patient’s family members.

As with other health profession programs and nursing programs, applicants to the program are evaluated on academic achievement in prerequisite course, their over-all grade point averages, and for the Radiography Program, an objective interview with clinical instructors during clinical shadowing experiences. The Health Professions advisors encourage ESL students to enroll in additional courses to improve language skills but the selection process does not have methods that can appropriately evaluate their proficiency.

What has been the Programs’ experience is that unless the ESL student has been in this country long enough to gain substantial English speaking skills, they have communication difficulties in the clinical setting. The more we investigated their individual circumstances, we determined that although ESL students complete a number of ESL courses, the language that is used in said courses does not include the common terminology used in clinical or medical settings.

The Program embraces diversity and its clinical partners are also supportive of diverse students. However, with limited time per patient procedure, clinical staff may not be able to assist ESL students with their language skills on a regular basis.

Research has revealed grant projects from national and international educational programs addressing these issues. Current practices include the development of courses for ESL students that provide them with interactive classes on “clinical English”, using simulation and practice sessions for these skills.

The Radiography Program director and a member of PCC’s Nursing Program were working together to develop similar courses or workshops for their incoming ESL students. A grant application was submitted for this project. Students would attend this additional introductory training before entering clinical courses, with the intention of making them familiar with and comfortable with clinical language. The course would include common phrases that would make their interactions with patients and staff less stressful and their instructions to the patients more appropriate. Unfortunately, the grant request was not approved and the project is currently on hold.

The Program has also seen an increase in the average age of student and also the increased number of those who are older with previous careers. We have found that learning styles between the older and younger students are quite varied. The younger students seem to want less lecture and more audio-visual

instruction. The older students still want lecture, structure, outlines and can still take notes. Younger students ask for printed lecture notes. What we have noticed is that regardless of the learning styles or ages, most students are successful and complete the Program and pass the national certification examination on first attempt.

B. Current and projected demand and enrollment patterns.

Due to a severe shortage of radiographers both locally and nationally, the PCC Radiography Program agreed to an expansion program, increasing enrollment from 36 to 48 students per year beginning in 2004. The increased enrolment continued for a three year period until graduate surveys indicated fewer employment opportunities and hospitals reported reductions in staff or hiring freezes. The Program now selects 34 students per year based on the current market.

An agreement was made with Program affiliates to increase enrollment if employment trends indicate an increased need. At this time, employment opportunities for graduates remain somewhat limited but with new facilities entering the marketplace, this should change.

On the following pages we have included statistics from national surveys on the radiography job market.

The American Society of Radiologic Technologist survey of the Radiography Job Opportunities for the nation revealed an overall reduction in demand for radiographers.

A Radiology Staffing Survey questionnaire was e-mailed on June 1, 2010, to 12,604 managers/directors/chiefs of U.S. radiology facilities. At the close of the survey on July 6, 2010, a total of 1,654 completed questionnaires had been submitted resulting in a response rate of 13.1%.

The sample size of 1,654 yields a margin of error for overall percentages (at the 95% confidence interval for the population percentage) of a maximum \pm 2.4%.

To keep the report at a minimal length, questions 2 through 4 and verbatim responses to open-ended questions were not included, but can be provided upon request.

Staffing of the Facilities

Facilities reported their 2010 mean budgeted full-time employees (FTEs) as:

- R (10.6).
- CT (5.0).
- CVIT (4.6).
- S (4.1).
- M (3.9).
- MR (3.8).
- NMT (2.9).
- Staff with other specialties (4.6).

The 2010 budgeted FTEs in each specialty, along with vacant and recruiting figures, produces estimated percent unfilled positions as:

- S (4.6%).
- CVIT (3.5%).
- MR (3.4%).
- CT (2.6%).
- NMT (2.1%).
- R (2.1%).
- M (1.8%).
- Staff with other specialties (3.9%).
- Radiography has experienced a decline of 8.2% when tracked longitudinally over the past seven years, with the estimated percent unfilled FTE positions at 10.3% in 2003 down to 2.1% in 2010.
- The mountain geographic region (ID, MT, WY, NV, UT, CO, AZ, NM) has the highest overall vacancy rate across all disciplines at 3.9%, with the east south central region (KY, TN, MS, AL) having the lowest at 1.3%.
- Exactly 71.2% of the respondents reported no increase in budgeted FTEs for any of the specialties in which their facilities provide services.

- About 62% of the respondents reported no decrease in budgeted FTEs.

Demographics

The services provided at facilities were reported as:

- R (87.3%).
- S (69.5%).
- CT (66.0%).
- MR (66.0%).
- M (60.1%).
- NMT (50.7%).
- CVIT (30.2%).
- Exactly 42.4% of the respondents chose "Department/facility manager or director" as closest to their job titles and 33.5% chose "Chief technologist."
- Approximately 30% of the respondents considered their facilities to be in rural locations, 40% suburban and 30% urban.

Recruitment and Retention

- A majority (54.4%) of the respondents indicated that their facility is "currently not recruiting" new FTEs.
- When asked about their facility's employee turnover rate, 46.5% indicated "there has been no turnover."

Calculation of Percent Vacancy Rates

The estimated proportion of unfilled positions for a given specialty for the population of U.S. hospital-based radiology facilities is defined as:

$$\frac{(\text{total \# of FTEs vacant and recruiting})}{(\text{total \# of FTEs budgeted for that specialty})}$$

which is equivalent to:

$$\frac{(\text{mean \# of vacant and recruiting FTEs per facility})}{(\text{mean \# of budgeted FTEs per facility})}$$

The percentage of unfilled positions equals the proportion of unfilled positions times 100%.

For example, in radiography the mean for budgeted FTE is equal to 10, when divided by the mean for vacant and recruiting FTE positions (.25), this yields a percent of unfilled FTE positions of 2.5%.

Only facility/specialty combinations for which both the number of budgeted FTEs and the number of vacant and recruiting FTEs were reported (or, in the case of missing vacant and recruiting but nonzero budgeted implied to be zero) were included in the calculation of vacancy rates.

Knowing that the job market had significantly reduced, the Program, dean and Advisory Committee agreed to limit enrollment to 34 students per year. The graduates of the 2008, 2009 and 2010 classes found few full-time opportunities. A small percentage of the graduates who found part-time employment have now gained full-time status but most of the part-time employees are still on limited hours.

The Program understands the fluctuation in the medical job market, seeing rapid inclines and declines in the past, and feels comfortable with educating the current number of students in our program. We made a promise to our community partners that if the demand for radiographer's increases, we will respond with increased enrollment to meet their needs.

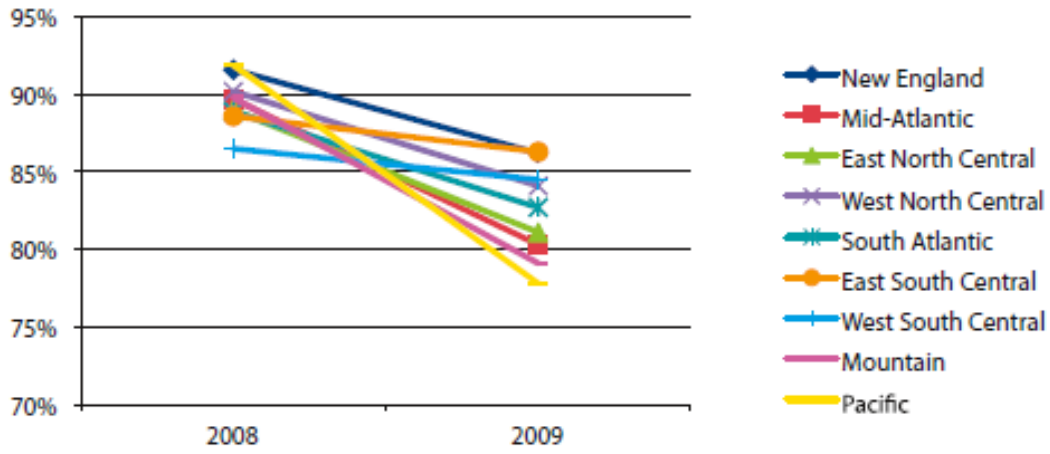
Nationally, enrollment in radiography programs increased when there was the shortage, and now surveys reveal reduced enrollments due to the status of the economy.

Job Placement of Graduates

What is the job placement percent rate of students finding employment in their discipline within six months of graduation from your program?

		Radiography		Radiation Therapy		Nuclear Medicine Technology	
		2008	2009	2008	2009	2008	2009
New England (ME, NH, VT, MA, RI, CT)	N	25	25	6	7	4	4
	Mean	91.6%	86.2%	82.0%	84.2%	83.8%	63.8%
Mid-Atlantic (NY, PA, NJ)	N	50	50	5	6	8	9
	Mean	89.7%	80.3%	85.4%	83.2%	79.4%	61.6%
East North Central (WI, MI, IL, IN, OH)	N	91	89	10	11	10	11
	Mean	89.0%	81.1%	82.6%	70.4%	76.7%	63.6%
West North Central (ND, SD, NE, KS, MN, IA, MO)	N	43	46	7	7	6	7
	Mean	90.2%	84.1%	98.4%	85.3%	86.0%	69.6%
South Atlantic (DE, MD, DC, VA, WV, NC, SC, GA, FL, PR)	N	92	93	14	13	11	11
	Mean	88.9%	82.7%	70.5%	70.5%	80.0%	72.4%
East South Central (KY, TN, MS, AL)	N	32	32	6	6	6	5
	Mean	88.6%	86.3%	64.2%	63.3%	91.2%	87.4%
West South Central (OK, TX, AR, LA)	N	55	60	9	8	7	7
	Mean	86.5%	84.5%	80.1%	79.8%	90.1%	77.0%
Mountain (ID, MT, WY, NV, UT, CO, AZ, NM)	N	30	32	.	.	3	3
	Mean	89.8%	79.1%	.	.	87.3%	81.7%
Pacific (AK, WA, OR, CA, HI)	N	34	33	5	5	3	2
	Mean	91.9%	77.8%	96.4%	92.0%	83.9%	76.7%
Overall	N	452	460	62	63	58	59
	Mean	89.3%	82.2%	81.1%	77.4%	83.2%	70.6%
	SD	16.5%	19.4%	23.5%	22.6%	21.1%	26.4%

Radiography Job Placement Percent Rate

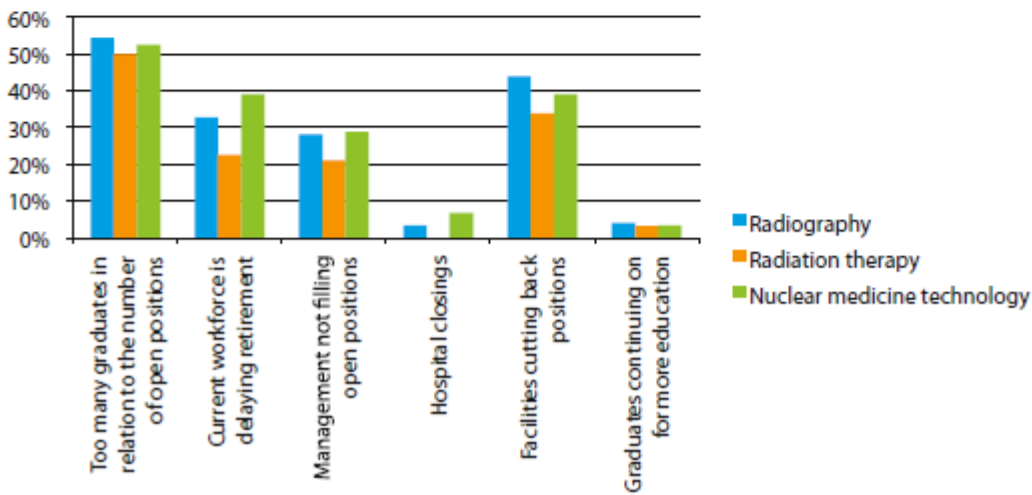


For those students who haven't been able to find employment after graduation, what do you believe is the primary reason?

		Radiography	Radiation therapy	Nuclear medicine technology
Too many graduates in relation to the number of open positions	Count	253	35	35
	%	59.70%	56.50%	59.30%
Current workforce is delaying retirement	Count	139	14	23
	%	32.80%	22.60%	39.00%
Management not filling open positions	Count	119	13	17
	%	28.10%	21.00%	28.80%
Hospital closings	Count	14	0	4
	%	3.30%	0.00%	6.80%
Facilities cutting back positions	Count	186	21	23
	%	43.90%	33.90%	39.00%
Graduates continuing on for more education*	Count	17	2	2
	%	4.00%	3.20%	3.40%
Poor economy*	Count	25	3	2
	%	5.90%	4.80%	3.40%
Other	Count	20	6	3
	%	4.70%	9.70%	5.10%
Total	Count	424	62	59

*Coded from verbatim responses

For those students who haven't been able to find employment after graduation, what do you believe is the primary reason?



What strategies are used within the program/discipline to facilitate access and diversity?

The Radiography Program does not engage in any focused efforts to increase diversity in its candidate pool due to the nature of the application process. Applications for the Radiography Program are open to all students, but only those who complete all required prerequisite courses with satisfactory grades are considered. Due to the rigor of the curriculum, grade point averages and the grades received in math and science courses are key determinants of which students will be selected to spend observation time and be interviewed at participating clinical sites.

Advisors from PCC's Health Admissions office offer Informational Sessions at all campuses in which they discuss the College's health professions and nursing programs. Following a presentation that describes each program, the prerequisites and pertinent points to consider for each career, students are able to engage in question and answer periods to learn more about the professions. These sessions are available to all PCC students and a number of sessions are held at local high schools.

Attendees are encouraged to interview individuals who work in the profession/s they are interested in and to find volunteer opportunities if possible. The Program's website also includes information about the profession, physical requirements, which hospitals are affiliated and how to apply. Links to professional organizations for more information on the professions are also available on the site.

Counselors in both the general and Health Professions office encourage students to enroll in the on-line course "Exploring the Health Professions" as another means of learning more about professions. They are also encouraged to take career assessment surveys to see where their aptitudes and interests lie.

Although diversity numbers may be more significant in the information sessions, by the time the Advisory Committee is interviewing applicants, the numbers typically have declined. The reason/s for this is/are not clear but this trend continues each year.

The Health Professions counselors are cognizant of the need for good communication skills and counsel ESL students on the importance of this and encourage them to enroll in additional ESL courses and workshops before they begin the application process. If ESL students are in the top percentage that are sent to clinical affiliates for shadowing and interview experiences, the clinical instructors assess their communication skills and this can be a determinant in the final selection process.

C. Has feedback from students, community groups, transfer institutions, business, industry or government been used to make curriculum or instructional changes? If so, describe.

The Radiography Program routinely meets with its Advisory Committee, which consists of clinical instructors from each affiliate and College instructor. Members discuss current trends in imaging, what procedures are new or rarely performed or have moved into another imaging modality, additional skills that should be taught in the curriculum, etc. Adjustments to the curriculum are made according to this feedback as necessary, but adherence to the national curriculum is adhered to.

The Radiography relies heavily on course and Program outcomes to evaluate the achievements of students in both didactic and clinical courses. The SAC discusses Program outcomes during term meetings,

instructors meet with the Program Director to discuss course and instructor assessments and the Advisory Committee is provided with Program assessment summaries on a routine basis.

Student feedback includes course assessments, an End of 4th Term Self-Evaluation, Program Exit Survey and Graduate Survey. There have been changes made to a number of things based on feedback from these instruments.

The 4th Term Self-Evaluation allows us to see how students rate themselves, the didactic and clinical courses and instructors after a full year in the Program. A summary of their comments is shared with both college and clinical instructor and discussed at Advisory meetings. During the past five years we have adjusted the length of clinical rotations based on their comments, revised learning objectives for certain clinical assignments and reduced the number of required competencies for less frequent procedures that students indicated they were rarely seeing.

The ability for the Program to acquire a used mobile fluoroscopy machine (C-arm) for our positioning lab was a direct result of continued comments by students on course and program assessments. These machines are used in surgery, bedside and within diagnostic imaging departments. A clinical affiliate who was well aware of our students requests, donated a unit that was being replaced at their site. The students can practice the manipulation of the large, cumbersome c-arm while in lab and can then demonstrate more confidence in the clinical setting when called upon to operate this machine.

A sample of a 4th Term Self-Evaluation follows:

4th Term (12 month) Student Self Evaluation

This self-evaluation MUST be completed by the end of summer term. It will be reviewed by the Program Director and the PCC Clinical Coordinator and will be added to a summary that will be shared with the CIIC's and PCC Instructor. The comments and scores will be used to determine strengths and weaknesses in the Program and is also intended to have you critically think about yourself as a student technologist. By reviewing your progress as a student technologist you will be able to recognize your current levels of skills, confidence and achievements. Please be honest. This is an anonymous evaluation - only the Program Director and the PCC Clinical Coordinator will see your name. Your names are required only so we can track who has completed this assignment.

* Required

Clinical Affiliate * Please select your clinical affiliate.

- Adventist
- Kaiser
- Legacy: Emanuel
- Legacy: Good Sam
- Legacy: Meridian Park

- OHSU
- Prov: Milwaukie
- Prov: Portland
- Prov: St. Vincent's
- Prov: Willamette Falls
- SW Washington
- Tuality

SELF-EVALUATION QUESTIONS.....

Ability to manipulate/operate routine diagnostic equipment. *

1 2 3 4

N/A or no experience above average

Ability to manipulate/operate fluoroscopy equipment. *

1 2 3 4

N/A or no experience above average

Ability to manipulate/operate mobile and c-arm equipment. *

1 2 3 4

N/A or no experience above average

Ability to critique images for diagnostic quality. *

1 2 3 4

unsure above average

Relationship with CIIC - Clinical Instructor. *

1 2 3 4

poor above average

Relationship with Clinical Staff. *

1 2 3 4

poor above average

Rate your overall progress for the first four terms of the Radiography Program. *

1 2 3 4
poor above average

RATE YOUR COMFORT LEVEL WITH THE FOLLOWING.....

Sterile Technique *

1 2 3 4
not confident very confident

Standard Precautions *

1 2 3 4
not confident very confident

Patient Assessment and History Taking *

1 2 3 4
not confident very confident

Communication Skills with Patients *

1 2 3 4
not confident very confident

Communication Skills with Clinical Staff and Physicians *

1 2 3 4
not confident very confident

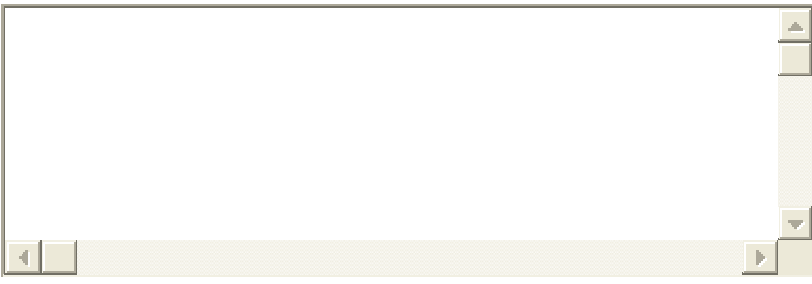
Trauma Procedures *

1 2 3 4
not confident very confident

Assisting Radiologists or other Physicians *

1 2 3 4
not confident very confident

ANY COMMENTS YOU WOULD LIKE TO MAKE?

Comments 

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The following is the combined comments from the Class of 2011 4th Term Self-Assessment:

Class of 2011 4th Term Self-Evaluations: Comments Summary

"Things are going very well. At the half way point I've noticed a very stark division in my comfort level regarding material I still need to learn. I know a great deal and the things I feel I must learn are fewer, but strikingly tougher to learn.

Overall I feel confident I will have very good entry level tech skills upon graduation."

I think that my progress is going well although I could work on the speed of my exams. I hope that I will get the chance to do clinical at a busier hospital for spring switch to work on this.

I know it's not really possible to force them to do it, but I would appreciate the clinical instructor encouraging the techs to quiz me on things like techniques and image critique more. If I ask them to do it I feel like I'm bothering them or taking away from their free time. I also felt like it would have been easier had we discussed what techniques we would use for each specific body part as we went along a little more than we did.

The confidence and clinical skills are dependent on the ability and willingness of the RT to train the students. RT should ask themselves how much they teach/train the students instead of telling the students "You should know this or you should know that."

"My assessment reflects all situations. For example, in most exams I am very confident with the DR/CR equipment. However, if it locked up or in some other way behaved in an abnormal manner, I am not as confident as the techs that have experienced this.

AS I have not worked with many traumas or all the physicians, I could not say I was confident with all of them."

Things are going good. This summer has made so much difference in getting a flow of working through each exam for me.

I feel like I've learned how to do this job, and now I'm learning how to do it really well, and quickly. Looking forward to year two!

Working through each of the rotations during the first year of clinical, I feel I have worked with and learned from a wide array of RT's, each offering their insight into the world of radiography. It's been a joy learning thus far, and expect nothing but the same in the future. For that I truly am honored and delighted to work beside the team, and actively take part in each patient's recovery.

The only thing I can think of right now is **the c-arm**. I wish that there were some way to practice with the equipment before being thrown into the OR. It is a hard place to learn on the spot. This is the only place where I really don't feel very confident.

I feel very confident in my abilities for my level of experience in all area except surgery and some **flouro** cases. I feel like I still need a little more practice and repetition in those. Also, with experience I will feel comfortable and less intimidated around the doctors.

"Because of language barriers, I still have difficulty in communication with radiologist and technologist. Luckily, right now some of techs are helping me to overcome the language and pronunciation problems. Also, I try to open myself and hope will improve the relationship with the hospital clinical instructor."

"I realized how much I have learned when I was able to step into multiple clinic sites this summer and perform real exams just like a grown up radiographer. Woo-hooo!!! Of course a lot remains to be learned, but it feels good to be making noticeable progress.

I think that all students need to have an opportunity for an extended rotation in a **trauma facility**. That being said, I think that my clinical site has been a great place to train. As for my confidence level, I think that it is getting better, but I know there is still more practice needed for me to feel complete confidence in what I am doing.

Things are really starting to come together for me. I look forward to the start of another year.

At the beginning of this term my scores for myself would have been drastically lower, but throughout my summer I've been working extremely hard to hone my skills. I don't begin to assume I'm prepared to be a full time tech and I don't mean at all to come across as arrogant, but I do feel that I am at a good place for my position in this program. I'm able to do most exams that I come across without much assistance from techs and work constantly every day to try and build positive relationships with the people I work with. In areas where I need improvement or am given feedback, I have tried very hard to be receptive and gracious for the honesty and the experienced views that I receive. I feel lucky to have gotten in to the clinic site that I did.

I am really enjoying the summer term. I love interacting with patients and learning from the techs.

A Sample of a Graduate survey follows:

**PORTLAND
COMMUNITY
COLLEGE**

Radiography Program
Syl., HT - 306
P.O. Box 19000
Portland, Oregon

Mailed 32 Questionnaires to 32 2010 Graduates

Received 13 Responses

RADIOGRAPHY PROGRAM ALUMNUS QUESTIONNAIRE

EMPLOYMENT

1. Are you currently employed as a radiographer?

Full-time-2 Part-time-1 On-call- 7 -4 No (skip
to question
#4)

2. What type of institution are you employed at?

Hospital Hospital Hospital Clinic or Other
500+ bed 200-500 bed <200 bed office

-2 -3 -2 -1

3. Have you encountered any job responsibilities that you feel you were inadequately prepared for?

NO- 8 YES- 1 Yes and no. I start IV's at one of the jobs I work at. Starting them on a manikin arm is very different than doing it on a human being! But, I have been trained on the job and becoming good at it.

CONTINUING EDUCATION

YES-7

NO-5

4. Since graduation, have you furthered your education? If yes, how?

-Yes I am positioning for some Ct exams, and would like to train in CT or Mammography

-1 Full-time college leading to degree in: _____

-Radiation Therapy

Part-time college leading to degree in: _____

-6 Specialization or additional certification in: _____

-Mammography-X3

-MRI Certification

-CT

-ACLS Certification

-1 Classes, conferences, self-directed study in Radiography: _____

-Self directed study

PROGRAM EVALUATION

5. Listed below are the stated goals of the PCC Radiography program. Please evaluate on a scale of 1 to 4 how successful you feel the program was in accomplishing each of its goals.

How well did the program prepare you to:

(Goal #1) Utilize effective oral and written communication with patients and health care personnel.

 -9 -5*

4

3

2

1

Very successful

Unsuccessful

#3 *I think I learned this at the hospital and not in the classroom

(Goal #2) Provide appropriate care that ensures the safety, comfort, and ongoing assessment/response to the patient's condition.

-11

4

-2

3

2

1

Very successful

Unsuccessful

(Goal #3) Apply knowledge of anatomy, physiology, and pathology to perform radiographic procedures and produce quality radiographs.

-10

4

-3

3

2

1

Very successful

Unsuccessful

(Goal #4) Perform the duties of an entry-level radiographer, exhibit professional ethical behaviors in the work place and continued growth within the field of radiography.

-12

4

-2

3

2

1

Very successful

Unsuccessful

(Goal #5) Demonstrate problem-solving skills in regard to radiographic quality, patient condition and equipment use.

-8

4

-4

3

2

1

Very successful

Unsuccessful

(Goal #6) Operate equipment appropriately.

-11

4

-2

3

2

1

Very successful

Unsuccessful

CONTINUING EDUCATION

6. Please list any graduate level coursework you would like PCC to offer: _____

-Phlebotomy for CT, S-Ray; MRI professionals' course

-Angiography

-Computed Tomography Certificate

7. Any other comments? _____

-Great Program!

-I am so grateful to PCC & the Radiography Program. I am awaiting that perfect job, the one Full-time w/benefits. But each day I work, I love my career & patients/customers. This is an excellent match for me. I enjoy it every day!

-No

PROGRAM IMPROVEMENT

8. How could PCC's Radiography program be improved?

Curriculum:

-Cover Skulls sooner so have longer to do exams since they aren't very common.

-Over all, I think it is a wonderful program. I fully recommend it. The instructors are Great and have a lot of heart towards Radiography.

-No suggestions, this part is excellent.

-GREAT!

-More practical discussion of selecting techniques

Laboratory:

-Audit all of the lab critique answers & correct the errors. I know, huge task, I know.

-Make sure all answers on film critique keys are correct.

-C-Arm to practice & updated equipment.

-Excellent: Wish we had a little more help understanding the skull angles – one on one

- “Y” view shoulder should be taught AP instead of PA Nobody uses PA compared to AP.

- **Newer equipment would be nice.**

- **NEWER EQUIPMENT!**

Clinical:

-Would be nice if all clinical had the same/standardized rules & disciplinary procedures

-Follow one tech around for a whole day and learn from them, not 10 different techs in 1 day.

It's too confusing; everyone has their own style. It's easier to learn from one person when every thing is so new & nerve wracking! :)

-No suggestions, I think you guys have an excellent program and it was a privilege to be there. Thank you.

Other:

-I loved the PCC Program 😊

FEEDBACK TO THE PROGRAM AFFILIATE CLINICAL INSTRUCTORS (CIICS)

TO: CIICS
FROM: VIRGINIA VANDERFORD
SUBJECT: SUMMARY OF 2009 ASSESSMENT OF PROGRAM
DATE: 11/23/2011

I am summarizing the recent assessment that the students completed about the Program. I did not include all comments but a good sampling of them, as many were repeated.

1. How would you rate the Program's curriculum in preparing you to enter the Radiography Profession?

Exceptional (20) Very Good (9) Blank (5)

Comments:

- I feel comfortable with my preparedness with a lot of concepts, may know more than some techs who have been out for a time
- Classroom mixed with clinical training is the absolute best
- Pretty well-rounded
- During this program I exceeded my expectations. My hospital is very happy with my progress.

2. Please rate the presentation of the curriculum during the past two-year period:

Exceptional (13) Very Good (15) Blank (6)

Comments:

- First term of clinical was very difficult as we knew very little. Those clinical hours would be more easily utilized to their full potential later.
- Organized and thorough
- Some was very good, some was average
- Sometimes too much detail, but I am sure all info is good info
- Upon review, I realize how much I really did learn
- Great- you are able to use you knowledge on a day to basis in clinical

3. Overall, how would you rate your clinical education throughout the two-year program?

Exceptional (19) Very Good (10) Average (1) Bland (4)

Comments:

- Lack of variety at my hospital might be a setback if I seek employment elsewhere
- My CIIC was wonderful but I think there is much frustration on the part of the techs who train us because they think we should know more by the end of year 1. What they don't consider is we only have 2 days per week in clinic and those two days are spent in different areas, etc.
- All techs were helpful and it was nice to visit other sites.

- The amount of hands on training and feedback varies greatly with the tech that you are working with.
- My clinical site has been very good with me—they are very open and honest so I always know what is expected of me.
- I am going to miss you all!
- I'm ready!

4. Please list strengths of the Program:

- Clinical education coinciding with class
- Film/screen in lab so we at least get some experience
- Positioning class well organized
- All information given to you is well organized—many tools at student's disposal
- Repetition
- Top rate instructors
- Superior support system available
- Excellent clinical sites
- I feel I am well prepared to work on my own. The Program has given me the building blocks needed and the clinical site has allowed me to expand and practice that knowledge.
- Testing on real people
- Flexibility of clinical and class time
- Ability/options to rotate to other clinical facilities
- Being in clinical from the beginning
-

5. Please list weaknesses of the Program:

- 2 days of clinical during 1st year is a weakness. It is nice to have more repetition
- Though filled with years of knowledge, it was difficult to absorb the mass of information from the instructors
- No time for personal life!
- Too much busy work from instructors
- The patient care lab was not helpful at all as most of the things we learned were more geared toward nursing
- Some coursework was confusing
- Too much information at times
- The equipment is a old
- **Need more practice to prepare for trauma situations**

Employment:

Do you have a job in radiography when you graduate?

Full time (3) Part-time (9) On-call (8) Up in the Air (14)

Hourly salary:

From \$20.00 to \$26.65

Is employment at your main clinical site?

Yes (13) Maybe (3) Elsewhere (4)

PORTLAND COMMUNITY COLLEGE RADIOGRAPHY PROGRAM

ADVISORY COMMITTEE MEETING

February 21, 2008

Members in Attendance:

Jean Overbay Kathryn Walter Joan Daly Joan Trujillo Clara Dublin Les Dennis Cindy Hartline
Maria Garofoli James McGonagle Stefanie Howell Ashley Buller DJ Popowski Duane Simpson Nancy Madsen
Debi Hayer Lia Castoe Virginia Vanderford Julia Harshberger

Jean Overbay called the meeting to order:

The minutes of the January meeting were approved.

OLD BUSINESS:

Final version of reapplicant questions -

Virginia had provided the board with an updated version of the questions that will be used this year for reapplicants. Members felt the changes were correct and accepted the form for use. The cover page for new applicants will also be used for reapplicant's. Each student can earn up to 15 points per interview.

NEW BUSINESS:

Student Representatives:

The first year representatives introduced themselves. They are Maria Garofoli and Clara Dublin. They stated that they were not certain how many first year students would be attending the OSRT annual meeting in Bend as cost for rooms and travel might be prohibitive. Virginia recommended that they get to know the second year representatives and learn about fund raising ideas.

The second year students discussed the fund raising baskets they will be displaying at educational meetings and also the hospitals. They have donations from a few businesses to help defray the cost of making the baskets.

The representatives also asked for clarification on the process for applying for temporary licenses. The process was discussed, including the Clinical Integrity form that is signed by all students.

Clinical Issues:

Clinical Switch:

Joan emailed all CIICs the switches that students will be doing. She explained that a few students were not on the list due to a change in their clinical sites already. The CIIC's were also given the guidelines to assist them in preparing the paperwork needed by students during the switch. All CIIC's were asked to contact the home CIIC for a student to find out what rotations they would need during the switch.

Joan also reminded everyone that students need to fill out and turn in their evaluations of their rotations to Shriner's and EPIC. At least 26 students want to do a rotation to EPIC. Students from OHSU, SW Washington and Providence Milwaukie will rotate during Summer term. In the Fall it will be students from Tuality, Meridian Park, Emanuel and Providence Portland. For Winter term it will be Adventist, Willamette Falls, Kaiser and St. Vincent's.

Due to feedback from students and CIICs, students will not be required to write a resume for class this year. The interview process has changed and many places do not require resumes. They will still have a speaker to address the interview process and the office at PCC that can be of assistance for job seekers. Each site will have the students meet with the manager to learn about the interview process for the site or the system. This needs to be done before the switches or by week 6 of Spring term.

The meeting was adjourned at 2:40 pm

Changes to courses as a result of outcomes assessment:

RAD 105 – Patient Care:

Course assessments and graduate surveys indicated a need for more role playing and student practice in critical thinking experiences for the clinical environment. Additional role-playing scenarios were included in subsequent labs to promote impromptu and critical thinking in order to help students adapt to changing situations and environments within the clinical setting. Students were evaluated using a rubric and instructor observation.

The Nursing Program at PCC has been very cooperative with our requests for sharing their simulation lab or mannequins with our students. They have also prepared the mannequins for the trauma labs which provided the students with a more realistic experience. Trauma situations had been stressful for new students, as mentioned in the exit summaries of second year students. Refer to the following summary of the Class of 2009.

Also for this course, students spent one lab session in the Nursing Simulation Lab role performing patient care skills using the simulation mannequins. They were evaluated on their ability to adapt to changing patient conditions as well as performing basic patient assessments.

RAD 206 –Survey of Medical Imaging Diseases-

As mentioned previously, this course was revised by the new instructor based on their and the Program's vision of how the subject information might best be structured and presented. A major factor in the redesigning of the course was in response to outcomes of course assessments from previous years. Students were unhappy with course structure, teaching methods, assignments and examinations. Although the previous instructor did make some adjustments to the course following discussions with the Program Director, there were still many issues remaining and a new approach to the course was essential. This is the first year for the new instructor and at the end of the term the instructor and director will discuss the outcomes.

Although certain changes to the Program have occurred, we are still held to the national curriculum and follow it closely in order to graduate students with appropriate skills and knowledge.

Instructor: reflect on the composition, qualifications and development of the instructor

A.

i. **Rationale for the size, distribution and composition of the instructors in the subject area:**

The AAS degree in Radiography requires a minimum of 119 credit hours, which include 16 general education and 1 Health Education courses. There are three full-time and 2 part-time instructors for the 102 programmatic credit hours.

The Clinical Coordinator is a full-time instructor member whose main responsibility is overseeing all clinical courses in the two-year program. The JRCERT, our accreditation agency, requires this position to be a dedicated full-time instructor member with a minimum of a baccalaureate degree. Each term there are first and second year clinical courses ranging from 4 to 9 credit hours each. In addition, the coordinator teaches a 3 credit hour Patient Care course to the first year students in their first term. The fte for this position ranges from .912 to 1.048 per term or a .98 fte yearly average.

The other two full-time instructors teach didactic courses in each of the 7 terms of the Program. Their fte loads range from .822 to 1.162 (.992 yearly average) and from .844 to 1.264 per term (1.054 yearly average). During the summer term between the first and second year of the Program, these two instructors each teach a 1 credit hour course.

Two part-time instructors teach in the positioning labs, which are held each term during the academic year. Each lab is 3 credit hours and these instructors work with a full-time instructor member in every lab session. The students are rotated between three areas in the lab each session, learning different aspects of imaging and engaging with the instructor for each section. The number of instructors for each lab is necessary due to the amount of information the students must learn.

The Program Director position is predominantly administrative but due to instructor contracts, this position also requires overseeing the two clinical courses in summer term. A minimum of a Master's degree is required for this position per the accreditation agency.

ii. **Quantity and quality of the instructor needed to meet the needs of the program/discipline:**

The Program has been able to accommodate the educational needs of the students with the number of instructor involved. However, at times the need for an additional instructor arises due to illness, pregnancy leaves and outside professional requirements. This can be problematic, as qualified instructors are limited within the community.

Each instructor must meet the minimum standards that include a designated length of professional experience. The Clinical Coordinator must hold a minimum of a baccalaureate degree and be well versed in clinical practice.

One full-time instructor has additional responsibilities teaching in PCC's CT and MRI programs. Although given a small amount of release time from their teaching load in the two-year program, the amount of instruction and responsibility for these new programs surpasses that reduction. Due to budget constraints, only minor assistance in

the clinical setting has been possible, using a part-time instructor as liaison between affiliates and the programs. The compensation for this instructor member is at the non-instructional rate.

In reflecting on the instructional needs of the Medical Imaging department, which is the umbrella term that includes the two-year radiography program, CT, MRI and CE courses, an increase in the part-time instructor budget would allow the director more flexibility in distributing work load among the instructors.

iii. **Extent of instructor turnover and changes anticipated for the future:**

Two of the current full-time instructors have been in their positions for at least twenty years. Last year the Clinical Coordinator retired after 31 years. A part-time instructor who had been teaching in the lab for 4 years applied for and was hired as the replacement. Part-time instructor positions in the positioning lab have seen more turnovers. At least one of the two positions needs to be filled every other year.

The Program does not anticipate any turnover in the next few years unless unforeseen circumstances should arise. Having consistency in instruction by the full-time instructor has led to the Programs success in student retention, excellent certification pass rate and employer satisfaction.

iv. **Extent of the reliance upon adjunct instructor and how they compare with the full-time instructor in terms of educational and experiential backgrounds:**

Adjunct or part-time instructors are hired based upon their professional experience as well as their educational backgrounds. A minimum of an associate degree is required for part-time lab instructors, with a minimum of two years of clinical experience. In the continuing education courses, instructors are responsible for course development, instructional materials, and examinations and grading. They are also certified in the advanced modality that they are teaching, such as mammography.

For full-time instructors, a baccalaureate degree is required, and at least 3 years of clinical experience is preferred. Previous teaching experience is preferred. All instructors must participate in continuing education by attending educational meetings, college courses and participation in professional meetings. They are also encouraged to participate in workshops or presentations in the Teaching and Learning Center.

v. **How the instructor composition reflects the diversity and cultural competency goals of the institution:**

Currently, the instructor members in Radiography are not diverse in terms of ethnicity, gender or race. The greatest diversity would be in age, but even then, the majority falls within a common age range. There is only one male instructor who teaches during the entire academic year. Another male instructor taught during fall term, 2010, while a female instructor was out on maternity leave.

Three years ago we hired a part-time lab instructor who was a person of color. Unfortunately, they resigned after one term in order to pursue their legal career. Since, then we have not had any applicants that meet diversity goals.

The Program embraces and teaches diversity and cultural competency, but the applicant pool for any instructor position is always small and not very diverse. We have seen this to be consistent with the profession in general, and in particular, in this region of the country.

B. **Report changes the SAC has made to instructor qualifications and the reason for the changes:**

The Joint Review Committee on Education in Radiologic Sciences (JRCERT), the accreditation organization for radiography programs, decided to elevate the minimum educational level of Clinical Coordinator to a baccalaureate degree. Prior to their change in standards, the preferred qualifications as determined by the PCC Radiography Program SAC listed either an associate or baccalaureate degree. The minimum degree requirement is now at the baccalaureate level.

C. **How has professional development activities of the instructor contributed to the strength of improvements? If such activities have resulted in instructional or curricular changes, please describe:**

Instructor members actively participate in professional development activities. To maintain certification, a minimum of 24 CEUs must be achieved each biennium. These are typically earned at state, regional and national meetings.

When instructors attend workshops and also give lectures that pertain to subject areas they teach, updates and additions to their course materials are added. In addition to meetings, instructor members have contributed to professional textbooks and one instructor member in particular, is very active on state and national professional boards and committees. This participation provides the Programs with insight into current trends and any upcoming changes to the national curriculum. Barb Smith is currently a member of the national curriculum committee.

Examples of textbooks and publications that our instructors have contributed to include, but are not limited to the following:

Barb Smith:

- Coeditor of Merrill's Atlas of Radiographic Positions & Radiologic Procedures, a three volume text that is used in a majority of radiography programs
- Professional articles for Advance Magazine for Imaging and Radiation Therapy Professionals
- Principles of Radiographic Imaging, An Art and a Science textbook

Dawn Coakes:

- Coeditor of Patient Care in Radiography

Gayle Wright:

- Computed Tomography chapter in Merrill's Atlas of Radiographic Positions & Radiologic Procedures

The Association of Educators in Radiologic Sciences, ACERT, conducts an annual educational meeting geared to teaching methods, clinical instructors and curriculum design. The materials shared at this meeting are always referred to as instructors review their courses and prepare for each term. We also encourage our clinical instructors, who are employed by local affiliates, to attend and learn from clinical instructors around the region.

All instructors in the Radiography Program are also accomplished in hands-on technical skills. They keep current with the professional practice within the community.

The Radiography Program at Portland Community College is recognized nationally for its high standards in instruction and successful graduates. Instructors are skilled in computer applications and have attended training sessions and also been the trainers for others on how to use technology in the classroom. Due to the skills and interested of one instructor, Gayle Wright, the Program now uses Google Documents for tracking students in the clinical setting, with many documents now interactive between clinical sites, students and the instructor. This change has significantly reduced the Programs use of paper and allowed us to support the College's green initiatives.

Facilities and Support

A. If classroom space, computers/technology and library/media, laboratory space and equipment impact success, please describe:

The classroom used for the didactic courses is of ample size and provides comfortable seating for the students. The room is equipped with a podium and provides the media equipment needed by the instructor. Any additional equipment is arranged in advanced through the technology department.

The laboratory space, although adequate, can be overcrowded during lab sessions unless students are divided into smaller groups and moved to different areas during the labs. The small classroom within the lab can only accommodate the instructor and approximately 16 students at a time. It can only be used for small groups during lab sessions. There is no equipment for that room, and an audiovisual cart must be brought in as needed.

Another small classroom is used for group projects, small lecture sessions, patient care lab instruction and houses the computed imaging plate readers and monitors. Any audiovisual equipment must be arranged in advance by the instructor.

The two energized x-ray machines are definitely the weakest link in the Program. One unit is over 35 years old and is not at all comparable to the equipment used by students in the clinical setting. The other unit is approximately 15 years old, and although it has features more in alignment with hospital or clinic machines, it has frequent repairs and down time, which affects the student's ability to complete all lab experiences on time. Currently, it has a loaner tube installed until a refurbished one arrives from the vendor.

Approximately 95% of clinical affiliates and associated clinical rotation sites have replaced standard film/screen imaging systems with digital and computerized plate systems. The Program only has a few computerized imaging plates that can be used with the current equipment and then the images are displayed on a monitor. This is the only way the Program is comparable to the clinical setting. There is an extra expense accrued by the Program for processing chemicals and film. Because many of the hospitals and clinics have become computerized, local vendors for processing supplies and repairs have discontinued their business and we rely on the few who remain in business.

Although request for new equipment have been submitted for years by the Program, no financial support has been provided to update the lab. We have reached a critical point in delivering quality educational experiences in our lab and comments from students and affiliates reflect their frustration with our circumstances. Support from our affiliates is commendable, but certain hospitals have agreed to train students from other radiography programs alongside the PCC students and we are concerned that this may impact our “favored” status, as these programs all have digital equipment in the labs for the students to train on.

The current bond project is to include money for new energized equipment. The lab area will required some modifications to accommodate new equipment and more efficient teaching spaces within each area.

B. Describe how students are using the library or other outside-the-classroom information resources

RAD 106, Radiographic Equipment 1: Students must do research on a physics principle and submit a 3 page paper to the instructor following guidelines outlines in course syllabus. Their research can include both on-line resources and library materials.

RAD 122, Radiation Protection and Biology: Students also are assigned an 8 page paper on topic related to radiation biology . The bibliography must include professional reference materials, library sources and may also include on-line sources.

RAD 203, Applied Radiographic Topics: An 8 page paper on a current topic in medicine covered in the class follows the same guidelines as mentioned for RAD 106 and RAD 122.

RAD 211, Advanced Imaging Modalities: A radiology journal article review on an advanced imaging modality is required for this course. These journals are housed in the Radiography Program lab library.

C. Provide information on clerical, technical and administrative and/or tutoring support.

The Administrative Assistant for the Radiography Program provides students with registration information and answers questions they have concerning the Program and the College. This person is also responsible for making sure that classrooms are appropriate for each course and works closely with scheduling to coordinate any changes or special request. Another important responsibility is to work with the Financial Aid and Registration offices to be sure students have access to all important information.

The Program Director also works closely with students concerning the application and selection process, advisement, Program policies and procedures and serves as a liaison between the student and clinical sites. The Director maintains an “open door” policy as much as possible so that when students are on campus they can meet to ask questions or discuss any concerns.

Tutoring of students is accomplished in a number of ways: 1) instructor meet often with students who request help with understanding course information, 2) peer tutoring occurs between classmates on a regular basis during study groups or one-on-one meetings, and 3) students are encouraged to meet with the Student Success office for assistance on how to study, learning styles, etc.

D. **Provide information on how Advising, the Office for Students with Disabilities and other student services impact students:**

The Radiography Program relies heavily on the Health Admissions Office for providing students with the appropriate information needed to be a successful applicant. Advisors in PCC's Advising Offices are not as familiar with program prerequisites and how the application process works.

Health Admission advisors meet regularly with students to discuss transcripts, develop course completion outlines, discuss methods to improve academic records and requirements of the professions.

Throughout the year this office also holds information sessions that provide students with information on the Program that includes program length, structure, physical requirements, general responsibilities and how to prepare for the application process. Because we have worked closely with these advisors, they understand the need for applicants to have good communication skills and often advise ESL to enroll in additional courses to continue to enhance their skills.

Occasionally we have students who require additional assistance with testing in our courses. This is arranged through the Office of Students with Disabilities and coordinated with the instructors.

Instructors also refer students to the Student Success Center for assistance with testing anxiety, learning styles, etc. We have witnessed good results from their assistance and have seen students move beyond their difficulties and successfully complete the Program.

Occasionally a student needs to speak with a counselor in Counseling Services. This office is very quick to schedule a student if we feel immediate assistance is needed. The counselor who is assigned to our Program often meets with students who are overwhelmed with the stresses of classes, clinical and personal life. I have had discussions with these students prior to my referral and have always had them report back to me that their sessions were very helpful.

Program Strengths and Weaknesses

Strengths:

The strengths of the Radiography Program include:

- A well-planned and integrated curriculum
- A supportive relationship with community partners
- An active Advisory Committee involved in implementing changes and enforcing policies and procedures.
- Instructor with years of professional experience, teaching experience who actively participate in continuing education opportunities.
- Accreditation by the JRCERT

- Ongoing strategic planning, curriculum review and revisions, and adherence to the national curriculum.
- Quantitative evidence of high Program outcomes, such as 100% pass rate on national certification examination, high ratings on both graduate and employer surveys and very low attrition rate.
- National Comparison reports from the American Registry of Radiologic Technologists for the past 5 years document that the PCC Radiography Program student examination scores rank in the top 10% as compared to other programs in the country. The range is from 92% to 98% with an average of 95.5%.
- Instructor involvement on local, regional and national committees and professional organizations provides continual feedback of professional trends and updates to curriculum and teaching strategies.
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The weaknesses of the Program include:

- Without a doubt, the foremost and most concerning weakness of the Program is the outdated energized equipment in the Radiography lab. Instructor and students have been frustrated with disconnect between the equipment used by industry and what we have in our labs. Each year our students graduate and comment on their Exit Summary that this is the weakest part of the Program. It has been difficult to teach digital imaging concepts without having this available in the labs. The current machines need frequent and often costly repairs.
- Lack of funding opportunities for equipment acquisition. Although the Foundation and Grants offices have tried to assist the Program with grant writing, the availability of grants for this purpose are extremely limited and difficult to qualify for.
- Small instructor numbers, which reduces flexibility in covering courses when illness or absences occur. The teaching loads for the two full-time instructors are high and if an extended leave or illness is required for either, it would be difficult to have anyone to step in and be ready to teach.

Recommendations

This 5 Year Review provided the SAC with valuable insight into both strengths and weaknesses of the Program. As the SAC reflected upon what was learned through this process, it was decided or recommended that the following topics be part of on-going discussion and program analysis:

1. Include additional data for teaching and learning assessment. We should determine if current tools include enough of the criteria that measure success/failure. The Joint Review Committee on Education in Radiologic Sciences has recommended that programs use different tools and measure different outcomes from time to time to better assess all areas of their curriculum and training.
2. Due to the Program's structure, faculty experience a high degree of autonomy. More group discussion on course materials, test questions and student portfolios should occur to be sure the Program is truly measuring student learning in a consistent and appropriate manner. The SAC should continue to hold monthly meetings as well as the scheduled College Sac meetings to foster this collaborative effort.
3. The small number of faculty teaching in the Program may be a detriment in the event of an extended absence of any member. It is important to pursue the hiring of additional part-time faculty to both learn the courses of the Program but also to fill-in for absent instructors.
4. Without the financial assistance from the Bond Measure, the Program cannot afford to replace the antiquated energized equipment in the lab. We recommend that the Bond project team consider our lab as being a project that could be moved forward on their list when the HT building is on-line for improvements.

