

Indiana University Kokomo Radiography: Assessment of Goal #1 Classes of 2005– 2007

GOAL 1. The students will demonstrate clinical experience education to prepare students for entry-level, registered radiographers.

EXPECTED Outcomes:	MEASUREMENT TOOLS	Benchmark	Frequency of Review	Responsible Individual(s)										
1.1. Students will demonstrate competency in radiographic positioning	A. Employer Survey – Question # 5 (a)	A. 2.0 (on scale 1.0 -3.0)	A. Yearly in January	A. Program Director										
	B. Final lab comps in R 201 Procedures	B. 80%	B. Yearly in May	B. Faculty or C.C.										
	C. Terminal competencies in R 290	C. 2.5 (on scale of 1.0 – 3.0)	C. Yearly in May	C. Clinical Coordinator										
Results A: Employer survey question #5 (a), exam skills general radiography extremities / spine/ head:														
<table border="0"> <tr> <td>Average</td> <td><u>2005</u></td> <td><u>2006</u></td> <td><u>2007</u></td> <td></td> </tr> <tr> <td></td> <td>2.33</td> <td>2.60</td> <td>will be available in January 2008</td> <td></td> </tr> </table>					Average	<u>2005</u>	<u>2006</u>	<u>2007</u>			2.33	2.60	will be available in January 2008	
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Analysis / Action Plan A:														
<p>2006: 2 of 6 scored a “3” which is above average and 4 indicated a “2” which is acceptable</p> <p>2007: 3 of 5 returns scored our graduates with a “3”, above average and 2 scored graduates a “2”, acceptable</p> <p>2007 results were higher than 2006. Fall of 2007 purchased a thorax phantom to help with positioning labs and image critique. The thorax allows for imaging chest, ribs, clavicle and thoracic spine. All these are routinely performed at our clinical sites. Will continue to monitor and look for a trend when we have 4 – 5 years of data due to the low number of students and returned surveys.</p>														
Results B: Final lab comps in R 201 Procedures														
<table border="0"> <tr> <td>Average score:</td> <td><u>2005</u></td> <td><u>2006</u></td> <td><u>2007</u></td> <td></td> </tr> <tr> <td></td> <td>Not available</td> <td>90%</td> <td>87.5%</td> <td></td> </tr> </table>					Average score:	<u>2005</u>	<u>2006</u>	<u>2007</u>			Not available	90%	87.5%	
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Analysis / Action Plan B: Final lab comps in R 201 Procedures														
<p>2006: All students scored above 80% on <u>lab</u> final R 201 (Radiographic Procedures)</p> <p>2006 Written test average was 88% in Spring 06. Two students fell below 80%, but surpassed 75% to the exam.</p> <p>2007: All students scored at least 80% on <u>lab</u> final in R 201 (Radiographic Procedures)</p> <p>2007 Written test average was 85% in Spring 07. One student scored less than 80% (78%). 2007: One student had ADD. Needed to provide more time for test. This student did pass both the written and positioning portion of the final in R 201.</p> <p>The scores have been consistent and correlate with the individual’s average scores in their clinical education evaluations and clinical competencies. The students in both years who scored the highest completed their clinical comps quickly and scored well, and those with the lowest also had the lowest scores and had to be prompted to complete their comps. The faculty believes there is correlation between the ARRT certification examinations in section “D” Radiographic Procedures to the written test scores when we compared scores in 2005 with 2006. We will compare ARRT results in 2007 (available in November 2007) to see if trend continues. The faculty member did change texts between 2005 and 2006 so this may make this comparison less relevant and this is why we need to continue to monitor since there are less variables between 2006 and 2007.</p>														
Results C: Terminal clinical competencies in R 290 average scores:														
<table border="0"> <tr> <td></td> <td><u>2005</u></td> <td><u>2006</u></td> <td><u>2007</u></td> <td></td> </tr> <tr> <td></td> <td>Not available</td> <td>2.65</td> <td>2.75</td> <td></td> </tr> </table>						<u>2005</u>	<u>2006</u>	<u>2007</u>			Not available	2.65	2.75	
	<u>2005</u>	<u>2006</u>	<u>2007</u>											
	Not available	2.65	2.75											
Analysis / Action Plan C:														

2006: All 11 students completed terminal competencies in R 290 with a minimum score of 2.5 / 3.0
2007: All 11 students completed terminal competencies in R 290 with a minimum score of 2.5 / 3.0
 Will continue to monitor and see if there are issues where students are having difficulties in mastering these required competencies. There is a trend when including 2005 in the statistics that final comps R290 average scores have increased. We think this is a result of a couple of factors. One is familiarity with clinical education sites and there examinations. Since 2005 was our first graduating class, there was a large learning curve for the students who had no other students to seek information or mentoring. The second reason is that the clinical sites also had to learn what was acceptable for the students and the program standards. Even though we had meeting with all the staff and clinical instructors, until situation occur, it is difficult to interpret what the guidelines we suggested were. We think that having graduates among the clinical staffs has helped mentor the students to what is acceptable “by the book”.

Expected Outcomes	Measuring Tools	Benchmark	Frequency of Review	Responsible Individual (s)
1.2. Students and Graduates will be able to select appropriate technical factors	A. Employer Survey – Question # 6	A. 2.0 (on a scale of 1.0- 3.0)	A. Yearly in January	A. Program Director
	B. Chart on R 202 final changes in technical factors	B. 80 %	B. Yearly in May	B. Faculty
	C. Question #2 on mid semester evaluation clinical site	C. 3.0 (on a scale of 1.0 – 4.0)	C. Yearly in June	C. Faculty

Results A:
 Average: 2005 2006 2007
 2.375 2.75 will be available January 2008

Analysis / Action Plan A

2006 - A total of 8 employers rated these questions. (Above average is 3.00 ; acceptable score is 2.00) Q#6: The average combined score for Q# 6 was 2.625/3.00. 5 said above average; 2 said average, 1, below average.

2007: Only had 6 returns of 9 sent for 2006. All employers (100%) indicated our graduates ability to adjust technical factors and image quality was average or above. Q# 6: Average was score was 2.75/3.00. 4 of 5 returned above average, 1 average

In 2006 one employer survey rated graduate as below average. This director was asked to resign her position shortly after returned survey so I could not follow-up. Graduate is employed at different facility as of May 2007. I contacted her new director and the director said the graduate was performing at acceptable level (2.0). New director stated that perhaps the, graduate / director issue, resulted from personality conflict and not ability of graduate. This one low score skewed average because of the low number of returns. Will continue to monitor employer surveys for at least 3 years to see if trend occurs and to get sufficient number and variety of returns.

Results B: Technical Chart on Final in R 202:
 Average: 2005 2006 2007
 Not available 92.5% 94.8%

Analysis / Action Plan B

The average score on this chart in 2007 was higher than 2006. I reviewed grids and their effects on radiographic images during R 202 in 2007. This was believed to be a contributor to the increase in 2007. The average score on the entire final for 2006= 82.8%.; 2007 = 83.4. There may have been a bigger emphasis on doing well on the chart instead of the over-all examination. Taking out the chart, the final score in 2006 / 2007 was virtually equal.

Only 2 of 7 clinical sites have film screen analog imaging. The core factors still have an effect on the image, but the ability to change the image window width and level along with the ability to magnify has less total affect on the image in the digital world. Will need to include some factors that affect image presented on the monitor also. 2008, I plan to place a greater emphasis on factors that affect the digital image.

Will monitor the changes and compare to ARRT scores in section “C” Image production and evaluation to establish a moving 5 year average.

2005 ARRT Program Average

Image Eval. & Prod. – 9.0

2006 ARRT Program Average

Image Eval. & Prod. – 8.9

2007 ARRT Program Average

Not available until November 2007

Results C: Question #2 (student’s ability to chose technical factors) on mid- semester evaluation at clinical site

Average score	<u>2005</u>	<u>2006</u>	<u>2007</u>
	Not available	3.10	3.17

Analysis / Action Plan C:

Clinical sites indicated students’ ability to correctly set technical factors at least at an adequate level for their level of education. R 282 is at the mid-point of students’ education. Will like to compare this to scores R290, the students’ final semester in the program to see if they are improving, keeping abilities.

Expected Outcomes	Measuring Tools	Benchmark	Frequency of Review	Responsible Individual (s)
1.3. Students will demonstrate competency in age specific competencies for patients aged < 6 years old.	A. age specific competencies in clinical experience in R 281 and R 283.	A. 2.5 (on scale of 1.0-3.0)	A. Yearly in June (R 281) and December (R 283)	A. Program Director and Clinical Coordinator
	B. Pediatric quiz in R 281	B. 80%	B. Yearly in August	B. Faculty

Results A: Age specific competencies in clinical experience in R 281 and R 283

R 281: Average score	<u>2005</u>	<u>2006</u>	<u>2007</u>
	Not available	2.75	2.80
R 283: Average score	<u>2005</u>	<u>2006</u>	<u>2007</u>
	Not available	2.80	2.90

Analysis / Action Plan A:

2006: 10-11 students completed age comps for < 6yrs old in R 281 and R 283. All completed before graduation

2007: 11- 11 (100%) of students completed age comps <6 yrs old in R 281 or R283

The average scores are very acceptable to the program in both years. The improvement in 2007, we hope, comes as a result of being able to send our students to observe at IU Riley Hospital for children for a day. Before 2006 clinical requirement for age competency we contact the UIPUI campus and asked if we could send our students a day of observations in the pediatric hospital. We contacted them as a result of our graduates resurvey and conversation with program students on ways we could improve the program. One suggestion was to increase the number of pediatric patients. We cannot just increase this number, but we thought this observation would be a means of at least allowing greater exposure to the pediatric environment. In 2007 we also developed a quiz over pediatric considerations. We believe this didactic information re-enforced the information and patient care expected to properly perform pediatric age competencies.

<p>Results B: Pediatric quiz in R 281. Average Score: <u>2007</u> Not given prior to 2007 95.2 % All students scored at least 85% on this quiz.</p>																
<p>Analysis / Action Plan B: This is the 1st year to give this quiz. It was created to, after conversations / course evaluations 2006. All students scored at least 90%, but this was an open book quiz. This quiz is given in conjunction to students' observation rotation at IU's Riley Hospital for Children. Might want to compare this quiz with one given in R 205 Procedures III given in the fall semester. R205 quiz is not an open book quiz, and compare results.</p>																
Expected Outcomes	Measuring Tools	Benchmark	Frequency of Review	Responsible Individual (s)												
1.4 Students will practice radiation protection	A: Clinical Competencies Q# 8: R 182 and R 283.	A: 2.5 (on scale of 1.0-3.0)	A: R 182 Yearly in May: R283 Yearly in July	A: Clinical Coordinator and Program Director												
	B. Quiz R 260 radiation protection for patients and imaging personnel	B. 75%	B. Yearly in May	B. Faculty												
	C. ARRT scores in Section "A" Radiation Protection	C. 8.0 (on a scale of 0.0 - 9.9)	C. Yearly in November	C. Program Director												
<p>Results A: Clinical Competencies Q # 8:</p> <table border="1"> <thead> <tr> <th>Averages</th> <th><u>2005</u></th> <th><u>2006</u></th> <th><u>2007</u></th> </tr> </thead> <tbody> <tr> <td>R 182</td> <td>not available</td> <td>2.74</td> <td>2.72</td> </tr> <tr> <td>R 283</td> <td>not available</td> <td>2.81</td> <td>2.85</td> </tr> </tbody> </table>					Averages	<u>2005</u>	<u>2006</u>	<u>2007</u>	R 182	not available	2.74	2.72	R 283	not available	2.81	2.85
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R 182	not available	2.74	2.72													
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<p>Action Plan A: Scores have not changed significantly from year 1 to year two for the same course. The averages are good and the program will continue to provide an introduction to radiation protection before clinical education begins. R 260 Radiobiology and Radiation protection is given in the Spring of the students second year of the program (last semester). However, the significance to the program is that the student's scores did improve from the student's first year (R182) to the students 2nd year (R283). Will monitor one more year and then re-evaluate if this component needs to be changed or assessed differently.</p>																
<p>Results B: R 206 Radiation Protection of patients and imaging personnel quiz chapters 7 and 8:</p> <table border="1"> <thead> <tr> <th>2006:</th> <th>Average scores</th> <th><u>2005</u></th> <th><u>2006</u></th> <th><u>2007</u></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>Not applicable</td> <td>80.1%</td> <td>78.5%</td> </tr> </tbody> </table>					2006:	Average scores	<u>2005</u>	<u>2006</u>	<u>2007</u>			Not applicable	80.1%	78.5%		
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<p>Analysis / Action Plan B: 2005: used different text and did not equate to these results. 2006: High score: 93%, low score was 70%. Every student but one scored 80% or higher. 2007: High score: 94%; low score for program students 76%.</p> <p>The average scores for 2007 include one person who is not in the core radiography program (dental hygiene student who received Dean's permission to take the course). The radiography student's average was 85.64%.</p>																

The program used a new edition of text covering radiobiology and radiation protection (Sherer 5th ed.). The chapter numbers changed therefore I changed the benchmark from chapters to material covered from those chapters. Also used the workbook that accompanied this text. Had used Bushong and his workbook. Will need to look for a trend. The students did indicate they liked the Sherer workbook better than Bushong.

Will also recommend, to the Dean, that no non-radiologic science major be able to take this course. It slowed the course down to explain knowledge rad sci. major had learned through-out their first 18 months.

Results C: ARRT exam section “A” radiation Protection

Average score	<u>2005</u>	<u>2006</u>	<u>2007</u>
	9.1	9.4	9.1

Analysis / Action Plan C:

Scores increased in 2006 from 2005. 2005 was the first year of the graduates ARRT results. The program is very pleased with first two years with the average score being 9.25 on this section and the higher score in 2006. Will see what happens in light of slight decrease in average final scores in R 260 Rad Bio and Protection. 2007 R260 radiobiology / Radiation protection final score was lower in 2007 than previous 2 yrs. The average ARRT score on ARRT certifying exam section “A” for the 2007 graduating class was 9.1. This score indicates that a valid reason for over-all tests scores to be lower than previous 2 years was the admission of a non-major student. This student was allowed by University policies to take this course. The student scored the lowest in the class on radiation protection quizzes and final test in R 260. Recommended to the Dean that we change the prerequisites so only students in the radiography program can take the Radiation Protection / Radiobiology course R 260.