Indiana University Kokomo Radiography: Assessment of Goal #1 Classes of 2007– 2011

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

Expected Outcomes	Measuring Tools	Benchmark	Frequency of Review	Responsible Individual (s)
1.4 Students will practice radiation protection	A: Clinical Competencies Q# 8 "Maximizes radiation Protection": 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 average scores in Section "A" Radiation Protection	C. 8.0 (on a scale of 0.0 - 9.9)	C. Yearly in November	C. Program Director

Results A: Clinical Competencies Q # 8"Maximizes radiation Protection" **: Clinical comp forms R 182 and R 283**

Averages	2007	2008	2009	2010	2011
R 182	2.74	2.70	2.75	2.77	2.75
R 283	2.81	2.80	2.87	2.90	will be available in Dec 2011

Analysis A:

Scores have been relatively consistent from year to year during this assessment period for the same course. The averages are above the benchmark of 2.5 on a scale of 1.0 – 3.0. The program provides an introduction to radiation protection prior to students beginning their clinical education. The program communicates to all clinical sites the importance of proper radiation protection and safety. 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). This may be due to increased awareness of the use of radiographic accessories beyond the cardinal radiation protection principles of time, distance and shielding that they learn to correctly use as the progress through the first semester of courses and clinical experiences.

Action Plan "A"

We have monitored the component of outcome 1.4 (A) for four years. The result have been consistent and above our benchmark of 2.5// 3.0. The program will continue to provide radiation protection principles prior to student's initial clinical education experiences. Radiation safety and means of reducing radiation will be continued to be emphasized in all courses. Courses will evaluate students knowledge of how and when accessories can be used to reduced radiation. The program Will no longer use this component as a tool for measuring radiation protection. Beginning in 2011-2012 academic year the program will use Semester End Clinical Evaluations as one component used to assess student practice of radiation protection and safety. This is consistent with the program's 2012- 2015 Master plan of Assessment.

Results B: R 260 Radiation Protection of patients and imaging personnel quiz:

Average scores	2007	2008	2009	2010	2011
	80.1% *	82.5%	85.1%	86.5%	92.5%

(Benchmark 75%)

Analysis B:

2007: High score: 94%; low score for program students 81%.
2008: High Score: 93%; low score 83.7%.
2009: High Score: 95.4%; low score: 73.8%
2010: High score: 97.4% (38 /39); low score 77.3%
2011: High Score: 96.6% (28-29); Low score 89.5%

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%.**
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.
2008: The scores were consistent with 2007 for radiography students. The professor added extra worksheets to help as a study guide for the material in all chapters.
2009 Author (Sherer) included a workbook to augment her text. The students liked this workbook much better than Bushong material that I used in the past. This radiography class continues to be slightly below that of other years.
2010 Although the class average was higher one student scored relatively low and decreased the entire class average. The cohort was 11 students. Without this one student's score the class average was 92.3%. Both 2009 and 2010 correlated with the program's ARRT scores in section "A" which was 9.1 and 9.3 respectively.
2011. The students' average was increased significantly. I believe the main reason for this was that it was given as an open book opportunity. The campus had several days this year closed for bad weather. To cover the material, I allowed them to take an open book exam covering patient and imaging personnel protection. I will look for any positive correlation on the ARRT examination Section "A".
Action Plan "B"
The Dean agreed that non-radiography major will no longer be allowed into any core radiography courses. This component of outcome 1.4.B is considered complete. The professor in R 260 – Radiobiology/ Radiation Protection - will develop another assessment tool for the 2011-2012 academic year. This course is not given until the spring semester. The new assessment component of Goal #1 will be consistent with student outcomes and the Master Plan of assessment for 2012-2015.

Results C: ARRT exam average section "A" Radiation Protection

Average score	**2007**	**2008**	**2009**	**2010**	**2011**	**five year average**
(Benchmark 8.0)	9.1	8.7	9.1	9.3	9.1	9.06

Analysis C:
2007: The average score on ARRT radiography certifying exam section "A" for the 2007 graduating class was 9.1. The program considers this an excellent over-all average and above the national average of 8.7 in this section of the ARRT examination.
2008: The average score was 8.7 This score was lower than any year of the program. It was however, slightly above the national average of 8.6. This class, as a whole, was less productive in almost all areas of the program over the entire program length. The program has reviewed several possible reasons and all may have contributed to lower outcomes. This class as an average was seen by employers as more productive and technically competent than other class. This analogy was assessed in another Goal from our employer's survey.
2009: The average score on ARRT radiography certifying exam section "A" for the 2009 graduating class was 9.1. The program considers this an excellent over-all average and above the national average of 8.6 in this section of the ARRT examination. The represents the largest differential of the program score and the ARRT US national score. It is also the largest year-to-year increase, but that is primarily due to the relatively low 2008 score.
2010: The average score on ARRT radiography certifying exam section "A" for the 2009 graduating class was 9.3 This is the highest average in the program so far in this assessment period. The National average in this section was 8.7. Like last year, this was the largest differential in the program's assessment period. The 9.3 also tied the highest average score on any of the five ARRT sections.
2011: The programs average scores in section "A" of the ARRT Radiography certification for 2011 is 9.1. This score is also well above our benchmark of 8.0. It is also slightly above the five year average of 9.06.

The program considers this 9.06 an excellent over-all average. Statistics from the ARRT website allows for program comparisons. The average scores in

each of these years (07-11) were above the national average. The program considers this a excellent over-all average and is a positive indicator that the program emphasizes radiation protection and radiobiology and that the students understand how and when to used it affectively.

Action Plan C
The program will monitor the results of the 2011 ARRT exam in section "A" for comparison. If there is correlation, then the program will consider this component of assessing outcome 1.4.C complete. Beginning in 2012 the program will need to develop a new assessment outcome and component for goal-1.

Goal 2: Students will demonstrate a life -long desire for professional excellence while displaying ethical behavior and professional judgment

EXPECTED Outcomes:	MEASUREMENT TOOLS	Benchmarks	Frequency of Review	Responsible Individual(s)
2.4 Program graduates will demonstrate a desire for professional development.	A. Post Graduate Survey Q#16 will continue formal education	A. 50%	A. Yearly in January	A. Program Director
	B. Post Graduate Survey Q#17 "will participate in radiologic society"	B. 70%	B. Yearly in January	B. Program Director

Results A: Post Graduate Survey Q#14: Graduates will continue formal education

	2007	2008	2009	2010	2011	5 Year Average
Benchmark 50%	27%	42%	58.3%	90%	50%	53.4%

Analysis A:
With the continued use of a variety of medical imaging modalities, the IU Kokomo Radiography program surveyed area employers to see where future of imaging modalities were headed in this area and did research on a national scope to see if there was correlation. As a result of the survey and research, the program began to establish a 4 year degree in Medical Imaging Technology here at the IU Kokomo campus. In 2006, the degree was recognized by the Indiana Higher Education Commission. It is hoped that this degree will help fulfill this outcome of the program, but provide qualified imaging technologist for patient care needs of the area and nation. Before the degree was approved, students had to travel a minimum of 50 miles to the nearest on campus, BS degree offering. As stated above, 3 of the 11 2007 graduates have enrolled for the 07-08 MIT degree. One more of the 2007 graduates have indicated they want to continue with their education, if only part-time this fall. It is hoped that the degree will allow students and graduates a place to continue their education.
2008: 5 of 12 2008 graduates continued their formal education. All five enrolled in IU Kokomo Medical Imaging Technology BS degree program.
2009 : 7 of 12 May graduates are enrolled in formal education for the fall of 2009 at IU Kokomo MIT program. This meets our benchmark of 50%. We believe with the availability of RT's in our area and the economic down turn (unemployment in this region is above 15%), the BS option in MIT is a means that graduates can (1) obtain knowledge and experience for future imaging career and certification because the job market is better for Technologists who hold multiple certifications (2) Allow them to earn a BS degree for possible career advancement and (3) provide a means to delay re-paying school loans when they have not been able to find satisfactory employment in this region of the country.
2010: 9 of 10 graduates in 2010 chose to continue their formal education in the IU Kokomo baccalaureate degree program in Medical Imaging Technology. These graduates have been able to assess the employment situation. The IU Kokomo MIT program affords them the opportunity to specialize in another modality and gain additional certification. A few of the clinical sites for the MIT students are the same as the AS Radiography program, but many are more dispersed. The MIT program has gained wide acceptance in the larger Indianapolis metro area where employment seems to be more available (although there is greater completion). The availability of multi-certified technologists is much desired in the Indy Metro area also. This is especially true for walk-in clinics, physician groups and HMO's.

2011: Although the program has not sent out our post-graduate survey yet, the number of students in enrolled in a formal educational setting is known. Six of the twelve 2011 graduates enrolled in the IU Kokomo, BS, MIT program. Four of the other graduates are working in our service area and two are pregnant and have not been seeking employment or continuing their formal education. The five year average is above our benchmark of 50%. This was a very aggressive benchmark in 2007 when the BS, MIT program at IU Kokomo began. The program believes the numbers of students continuing their education has been influenced by the local economy as much as a desire to continue their education. The employers in our area now have multi-credentialed RTs from the IU Kokomo Medical Imaging Technology Program and have stated that they would prefer to hire these individuals because of their versatility. However, many of these BS,MIT graduates go to larger cities/ facilities and there still seems to be a market for radiographers with one certification. Our area of the country has seen a rebound and the unemployment is lower than any surrounding state. Hopefully this will mean that the BS, MIT program at IU Kokomo will have to work harder at attracting Radiography graduates. It is good for both the AS radiography program and graduates to have a choice.

Action Plan A:

The BS, MIT degree program at IU Kokomo began in 2007. Modality tracts available tin 2007-2008 were CT, MRI and US. In 2009 the program became CCI approved and added echo as well as Mammography and breast US. In 2010 the program was able to add a specific modality major in vascular US and a PACS tract. All these reason have lead to the increase in popularity of our AS graduates continuing their formal education towards a BS degree. Although the program does not forecast a 90% continuance of formal education every year, we believe that 50% or more will be the norm since the MIT program has added tract that are in demand from students and employers. The MIT program is looking to collaborate with other IU campus to provide more expertise and opportunities as the radiologic profession evolve. We will continue to monitor this stat in the next assessment cycle of 2012-2015. The ARRT mandating at least an Associate degree for ARRT certification and the fact that educating students is a primary mission of this program and campus feel compelled to monitor this outcome for at least two more years to assess the consistency of graduates seeking continued formal education. The monitoring for two more years should allow for the ups-and –downs of the economy to be less of a factor.

Results B: Post Graduate Survey- Q#15: Graduates will participate in some radiologic society

	2007	2008	2009	2010	2011	5 Year Average
Benchmark 70%	70%	67%	83%	90%	83%	78.6

Analysis B:

Most graduates participate in the ASRT rather than the ISRT. This is most likely due to: 1. The ASRT ability to help provide and keep tract of CEs and 2.the lack of a strong state supported educational offering. The last two years the percentage has increased. We believe this corresponds to the increased enrollment in the IU Kokomo BS, MIT degree. Data for 2011 was received in late December, 2011. The Program had 6 returned post graduate surveys returned. Five of the six surveys indicated that they participate the ASRT. Only one participated in both ASRT and ISRT (Indiana State Society of Rad. Tech.).

Action Plan B

The program has now had 3 consecutive years above our benchmark of 70%. The results are at or above our benchmark, we will consider this outcome component complete and move to a different assessment for 2012-2015 of Goal # 2 “professional excellence”.

Goal 3: Students will demonstrate problem solving skills, critical thinking, and effective communication.

EXPECTED Outcomes:	MEASUREMENT TOOLS	Benchmark	Frequency of Review	Responsible Individual(s)
3.3 Students will demonstrate effective written and verbal communication skills.	A. Diversity in Medicine Project: Written and oral in R205	A. 80%.	A. Yearly in December	A. Faculty
	B. Student Semester Clinical Education Evaluation Q# 5 – patient communications - in R182 and R290.	B. R182: 2.0 (on scale 1.0 – 4.0) R 290: 3.0 (on scale 1.0 – 4.0)	B. Yearly in May	B. Clinical Coordinator
	C. Student Semester Clinical Education Evaluation Q#7 – interpersonal communications- in R182 and R290.	C. R182: 2.0 (on scale 1.0 – 4.0) R290: 3.0 (on scale 1.0 – 4.0)	C. Yearly in May	C. Faculty

Results A: Average score on Diversity in Medicine **written project**

	2007	2008	2009	2010	2011	Five Year Average
Benchmark 80%	95%	88%.	94%	92%	95%	92.8%

Average score on Oral Presentation:

	2007	2008	2009	2010	2011	Five Year Average
Benchmark 80%	86%	82%	92%	92%	93%	89%

Analysis A: Diversity project was moved to R205 in Fall Semester. Previously had been in R 208 Topics in Radiography. The project was moved when a new faculty member began teaching the R 208 course and he did not want to continue with this outcome in his course material. Not enough data available to draw a conclusion at this time in light that it was taught by two different professors from 2005 -2006. There was a change in the Rubric used by each. We will continue to monitor the project in R 205 and compare. All students in the graduating class of 2007 seemed to have appropriate written and oral communication skills.

This project has been addressed in several different courses, and we believe as students, who enter the program have become more computer literate, this project becomes a little easier for them. It would be nice to see more of their communications in required general education courses would be geared more toward interpersonal communications since we have a small cohort and the students seem to present their material very well in a small group seminar type setting which they become accustomed to throughout their time in the program.

Action Plan A: Both scores are above the benchmark, with the oral presentation being close to the benchmark. This project has been moved around over the years as we have had various instructors for R100 and R208. The last two years it was done in R100 and the students seem to have a good grasp on getting the written portion the way it needs to be. There is a slight bit of difficulty in their presentation style, but it has improved, as the students seem to be more comfortable with the technology afforded to them in today's society. Will continue to start this project in the R181 course with the students doing a personal diversity presentation during their introduction portion of the course. Will also address this with the rest of the faculty to see if there are any suggestions on improvements for this assessment.

Results B: Student Clinical evaluation end of Semester Q# 5 – Interpersonal Communications average scores

R182	2007	2008	2009	2010	2011	Five Year Average
Benchmark 2.0	3.27	3.29	3.38	3.40	3.44	3.36
R290	2007	2008	2009	2010	2011	Five Year Average
Benchmark 3.0	3.40	3.64	3.73	3.75	3.80	3.66

Analysis B:

2007: R182: All students scored a minimum of 2.0/4.0 on question #5; R290: All students scored a minimum of 3.0/4.0 on question #5
2008: R182: All students scored a minimum of 2.0/4.0 on question #5; R290: All students scored a minimum of 3.0/4.0 on question #5
2009: R182: All students scored a minimum of 2.0/4.0 on question #5; R290: All students scored a minimum of 3.0/4.0 on question #5
2010: R182: All students scored a minimum of 2.0/4.0 on question #5; R290: All students scored a minimum of 3.0/4.0 on question #5
2011: R182: All students scored a minimum of 2.0/4.0 on question #5; R290: All students scored a minimum of 3.0/4.0 on question #5

Analysis:

All students are meeting program benchmarks. They appear to be better at communicating with patient as they gain experience. This is what is hoped. There could be a trend developing with the scores both clinical education courses as we progress with the program. I believe the professors are better at communicating with the students and therefore the students are better to assimilate the information and translate the understanding to the clinical situations.

Action Plan B:

Will discuss these results with the faculty to see if we need to change this assessment tool or raise benchmark score according to our plan of assessment for the forthcoming academic year. The program will seek a method to assess communications in conjunction with the program's 2012-2015 Assessment Plan. The program will present the options at the Radiography Advisory Board meeting in October 2011.

Results C: Student Clinical Evaluation end of Semester Q# 7 – Interpersonal Communications with healthcare team members:

R182	2007	2008	2009	2010	2011	Five Year Average
Benchmark 2.0	3.58	3.50	3.33	3.52	3.50	3.48

R290	2007	2008	2009	2010	2011	Five Year Average
Benchmark 3.0	3.90	3.25	3.66	3.70	3.50	3.60

Analysis / Action Plans C

2007: R182: All students scored a minimum of 2.0/4.0 on question #7,
R290: All students scored a minimum of 2.5/4.0 on question #7,
2008: R182: All students scored a minimum of 2.0/4.0 on question #7.
R290: All students scored a minimum of 2.5/4.0 on questions #7
2009: R182: All students scored a minimum of 3.0/4.0 on questions #7
R290: All students scored a minimum of 3.0/4.0 on questions #7
2010: R182: All students scored a minimum of 3.0/4.0 on questions #7
R290: All students scored a minimum of 3.0/4.0 on questions #7
2011: R182: All students scored a minimum of 3.0/4.0 on questions #7
R290: All students scored a minimum of 3.0/4.0 on questions #7

Analysis/Action Plan C: For the Graduating Class of 2007, these scores remained constant for this group of students over the 12 month period for which they were monitored. For the Graduating Class of 2008, these scores increased over the 12 month period for which they were monitored. In 2009 we decided to increase the benchmark to 3.0 out of possible 4.0 for both courses. All students earned at least a 3.0 minimum score on their semester evaluation from the respective clinical sites in 2009 – 2011. The program put an emphasis on proper communications both verbal and writing. The program has demonstrations in class and lab before students go to clinical education. The faculty also emphasis this when we meet with the clinical instructors and during our clinical visits to each site. We also speak to the Clinical Site's Radiologist(s) yearly about our students' ability to write proper history and what they wanted to have included at each site. The Clinical Coordinator then creates lessons with these talking points.

Action Plan C: The results do demonstrate an improvement in communications between the spring of the first year and the spring semester of the second year. The program is satisfied with this outcome and recommends capturing interpersonal communication using a different measure beginning the spring semester 2012. It is a recommendation by the JRCERT to access means of communications. It will be the Clinical Coordinator's assignment to create valid outcomes

for this goal. Currently the Clinical Coordinator of the program teaches the Procedures 1, 2, & 3 (R101, R201 & R205) courses, where there are exercises during lab exams on obtaining the patient's history. These questions are also reviewed during the lecture and image analysis portion of these courses and in the Introduction to Clinical portion of R181 Clinical Experience 1. It seems as the students get past their fears of making mistakes and speaking with patients, and they learn some of the pathologies' effect on certain bodily systems, this area becomes a skill that becomes better for the students.
The program will seek a method to assess communications in conjunction with the program's 2012-2015 Assessment Plan. The program will present the options at the Radiography Advisory Board meeting in October 2011.

GOAL 4 Students will be prepared for duties and responsibilities of entry-level, registered radiographers.

EXPECTED Outcomes:	MEASUREMENT TOOLS	Benchmarks	Frequency of Review	Responsible Individual(s)
4.1 Employers will hire IU Kokomo future graduates	A. Employer Survey Q#14	A. 90 %	A. Yearly in January	A. Program Director

Results A: Employers will hire IU Kokomo Graduates:

*2006	2007	2008	2009	2010	2011
100%	100%	100%	100%	100%	100%

*Included 2006 to have 5 years of data

Analysis A:
We believe the number of employment places and satisfaction with our graduates indicates the quality of our program. Although most of graduates are employed by hospitals in the IU Kokomo service region, our graduates are also employed in the Indianapolis market, Muncie, Northern Indiana and a few out of the state. The program is extremely pleased with the employer feed-back results especially in light are graduates are spreading to other areas having other radiography programs graduates to choose from not having seen our students in clinical rotations.
2006 – 2009 all graduates (50) wanting employment found employment graduates have employment within six month of graduation.
2009 – Three graduates have found employment at IU Health- Arnett Hospital and or clinic in Lafayette. They opened a new hospital in Fall 2008. In the fall of 2009, they became a JRCERT identified clinical affiliate. In 2009 four graduates students actively looking for employment. The other 7 have enrolled in our BS Medical Imaging Technology (MIT) degree program. They began the MIT program in the fall of 2009.
In 2010, nine of ten graduates are continuing their formal education in the BS, MIT program (The eleventh graduate in 2010 did nto graduate until December 2010). Both of these graduates employer's survey was returned and stated they would hire future program grads.
The program is extremely pleased with the returned employer survey indicating they would hire future IU Kokomo grads.
The Radiography will need to review how this question is asked of employers in the future if the percentage of AS graduates continues to pursue a BS degree at 50% or more. The numbers going forward may make it difficult to assess if less than 50% of the graduates seek employment. For 2010 the response was either 100% or 0%. Happily it was 100%, but again the small number makes this problematic.
2011: The program received five surveys back from employers of our Radiography program. All six who were seeking employment found employment. Two graduates were pregnant at the time and did not seek employment. The other four went into the IU Kokomo BS, Medical Imaging Technology program and were not seeking employment at the time of entry. All employer surveys returned indicated they would hire future IU Kokomo Radiography graduates. They scored all graduates at or above average in all survey categories.
Action Plan A:
The program may consider using some other assessment for this assessment of preparedness of entry level RTs. It will be in conjunction with the 2012-2015 program assessment plan. However, information concerning employer satisfaction will be continued as part of the program's effectiveness assessment required by the 2011 JRCERT Standards.