



HOSPITAL

ACMH Hospital School of Radiologic Technology

Mission Statement

Consistent with the standards of ACMH Hospital, the School of Radiologic Technology is committed to improving the health of patients through compassion and clinical care. It is the mission of the program to provide the essential knowledge and skills to become compassionate, entry-level radiographers.

Outcomes Assessment Plan Comprehensive Assessment – Form #58

Goal 1: Students will employ clinical skills of an entry-level radiographer.																						
Outcome	Measurement Tool	Benchmark	Timeframe	Responsible Party	Results																	
Students will employ proper radiation protection practices.	Clinical Simulation Evaluation (Category 5).	Average score of 2.5 or higher (3 point scale)	Fourth quarter of first year	Clinical Coordinator	2009-10: 2.95 2010-11: 2.94 2011-12: 2.96 2012-13: 2.92 2013-14: 2.92 2014-15: 2.99 2015-16: 2.96 2016-17: 2.91																	
	Clinical Competency Evaluation (Category 6).	Average score of 1.75 or higher (2 point scale)	Fourth quarter of first year and third quarter of second year	Clinical Coordinator	<table border="1"> <thead> <tr> <th>4th in 1st</th> <th>3rd in 2nd</th> </tr> </thead> <tbody> <tr><td>2009-10: 1.97</td><td>1.83</td></tr> <tr><td>2010-11: 1.97</td><td>1.88</td></tr> <tr><td>2011-12: 1.94</td><td>1.99</td></tr> <tr><td>2012-13: 1.95</td><td>1.96</td></tr> <tr><td>2013-14: 1.96</td><td>1.96</td></tr> <tr><td>2014-15: 1.97</td><td>1.79</td></tr> <tr><td>2015-16: 2.0</td><td>1.79</td></tr> <tr><td>2016-17: 1.87</td><td>1.81</td></tr> </tbody> </table>	4 th in 1 st	3 rd in 2 nd	2009-10: 1.97	1.83	2010-11: 1.97	1.88	2011-12: 1.94	1.99	2012-13: 1.95	1.96	2013-14: 1.96	1.96	2014-15: 1.97	1.79	2015-16: 2.0	1.79	2016-17: 1.87
4 th in 1 st	3 rd in 2 nd																					
2009-10: 1.97	1.83																					
2010-11: 1.97	1.88																					
2011-12: 1.94	1.99																					
2012-13: 1.95	1.96																					
2013-14: 1.96	1.96																					
2014-15: 1.97	1.79																					
2015-16: 2.0	1.79																					
2016-17: 1.87	1.81																					
Students will utilize appropriate positioning skills.	Clinical Simulation Evaluation (Category 2).	Average score of 1.5 or higher (2 point scale)	Fourth quarter of first year	Clinical Coordinator	2009-10: 1.95 2010-11: 1.98 2011-12: 1.96 2012-13: 1.95 2013-14: 1.93 2014-15: 1.96 2015-16: 1.91 2016-17: 1.90																	

	Clinical Competency Evaluation (Category 4 and 11).	Average score of 2.5 or higher (3 point scale)	Fourth quarter of first year and third quarter of second year	Clinical Coordinator	4th in 1st	3rd in 2nd
					<u>Category 4</u> 2009-10: 2.90 2010-11: 2.87 2011-12: 2.96 2012-13: 2.87 2013-14: 2.88 2014-15: 2.94 2015-16: 2.97 2016-17: 2.91	2.96 2.93 2.95 2.83 2.97 2.92 2.96 2.94
					<u>Category 11</u> 2009-10: 2.91 2010-11: 2.87 2011-12: 2.89 2012-13: 2.90 2013-14: 2.89 2014-15: 2.89 2015-16: 2.85 2016-17: 2.95	2.88 2.88 2.75 2.76 2.88 2.86 2.85 2.85
Students will select appropriate technical factors.	Performance Appraisal Evaluation for First Year Students (Category 13).	Average score of 3.25 or higher (4 point scale)	Fourth quarter of first year	Clinical Coordinator	2009-10: 3.95 2010-11: 3.74 2011-12: 3.88 2012-13: 3.58 2013-14: 3.39 2014-15: 3.55 2015-16: 3.76 2016-17: 3.46	
	Clinical Competency Evaluation (Category 10).	Average score of 2.5 or higher (3 point scale)	Fourth quarter of first year and third quarter of second year	Clinical Coordinator	4th in 1st	3rd in 2nd
					2009-10: 2.95 2010-11: 2.98 2011-12: 2.97 2012-13: 2.94 2013-14: 2.99 2014-15: 2.98 2015-16: 2.97 2016-17: 2.97	2.92 2.96 2.89 2.97 2.99 2.90 2.94 2.84

Action/Analysis:

Student Learning Outcome 1 - Students will employ proper radiation protection practices.

Measurement Tool 1 –

During the 4th quarter of the 1st year, category 5 from the clinical simulation forms were assessed, pertaining to the demonstration of evidence of radiation protection. The average score declined by just 0.05 compared to last year, but the score of 2.91 is still well above the benchmark of 2.5 and seems relatively consistent with the long term average. The practices of strict collimation, shielding, and use of appropriate technical factors were in evidence during simulations this quarter. Since these concepts are of vital importance for radiation protection, this measurement tool will continue to be used for subsequent assessment plans.

Measurement Tool 2 –

During the 4th quarter of the 1st year and the 3rd quarter of the 2nd year, category 6 from the clinical competencies was assessed, pertaining to the students’ abilities to demonstrate proper radiation protection.

Second year students demonstrated a slight increase from 1.79 to 1.81 compared to last year, which is above the benchmark of 1.75. First year students exhibited a decline of 0.13 compared to the previous year's score, but the score of 1.87 is still well above the benchmark of 1.75. This category will be looked at closely in the future. A large part of why this category may be lower than what we hope is due to the advances in digital imaging. Since wireless detectors in the new digital rooms do not come in a variety of sizes, students may have the tendency to not collimate their beam as closely as what they would have if they were given a fixed maximum size like they had when using computed radiography cassettes. Strict collimation is continually stressed during exam demonstrations and simulations, as well as competencies throughout the year for patient protection, as well as for enhanced image quality. This measurement tool will continue to be used for subsequent assessment plans but will change from the 3rd quarter to the 4th quarter during the 2nd year. The third quarter of the 2nd year often had a higher number of competencies performed using the skull phantom, since the deadline for skull competencies is March 31st. Since the phantom can't be harmed by the improper use of correct collimation and use of ALARA principles of keeping technical factors low is not as high of a priority to the students as it is with a real patient, the forth quarter was deemed to be a more opportune time frame for assessment.

Student Learning Outcome 2 – Students will utilize appropriate positioning skills.

Measurement Tool 1 –

Category 2 from the clinical simulation forms were assessed during the 4th quarter of the first year, pertaining to the student's ability to exhibit proper positioning skills. The score of 1.90 is still well above the benchmark of 1.5, with a minimal decline compared to the previous year of only 0.01. This score is consistent with the long term average, and this measurement tool will continue to be used for assessment plans in the future. Our requirement of 4 clinical experience check-offs for each exam ensures that students are prepared for their graded simulation.

Measurement Tool 2 –

Categories 4 and 11 from the clinical competencies were assessed during the 4th quarter of the 1st year and the 3rd quarter of the 2nd year, which pertain to the student's ability to position correctly and critique images for adequate quality. Second year students showed only a 0.02 drop compared to last year in category 4, ending with a score of 2.94, which is well above the benchmark. Scores from category 11 remained the same at an average of 2.85, which is consistent with the long term average of the scores from this criterion. First year students' average score from category 4 demonstrated a 0.06 drop compared to last year, but the score of 2.91 is still well above the benchmark of 2.5. The category 11 average increased from 2.85 to 2.95, exhibiting the highest score ever having been received utilizing this assessment method. Upon review of the assessment plan, adjustments were made in several student learning outcomes. One of these changes that will be assessed as its own outcome in the future is that the students are able to analyze radiographic images for diagnostic quality and describe how to amend, if warranted (Goal 3, SLO 3-2 in new 2017-2018 assessment plan); therefore, category 11 will from now on be assessed during the 4th quarters of both the first and 2nd year. Category 4 will continue to be assessed for student learning outcome 2, measurement tool 2 in subsequent assessments, but will also change from the 3rd quarter of the 2nd year to the 4th quarter, for reasons stated above in student learning outcome 1, measurement tool 2.

Student Learning Outcome 3 - Students will select appropriate technical factors.

Measurement Tool 1 –

During the 4th quarter of the 1st year, category 13 was assessed, pertaining to the student's ability to understand and utilize technical aspects of the room, such as proper techniques, grids, and distances. Scores this year demonstrated a 0.3 decline compared to last year, which is a concern, even though the score of 3.46 is still 0.21

above the benchmark. A possible reason for lowered scores in this area may be due to the fact that our facility has different types of equipment in each of the x-ray rooms, making it more difficult to remember standard practices and techniques for each type of equipment (for instance, if a technologist asks what would be the mAs and kVp settings for a manual exposure without looking at the control panel consol). Also, some rooms have a universal grid that doesn't require adjustment, whereas other rooms require the grid to be manually changed to match the particular SID. For first year students, this inconsistency can require a longer time frame before it is mastered.

Measurement Tool 2 –

Category 10 from the clinical competencies is assessed during the 4th quarter of the 1st year and the 3rd quarter of the second year, pertaining to the students' ability to set up appropriate technical factors. Second year students demonstrated only minimal decline in the average score, from 2.85 to 2.84, while first year students demonstrated an identical score compared to last year of 2.97. These scores are consistent with the long term averages for scores in this criterion. Stress has been placed on the importance for selecting the appropriate technique. Students have been introduced to *Rad Notes: A Pocket Guide to Radiographic Procedures* by Rebecca L. Shoener, where there is an area to formulate a technique chart for each exam performed based upon the clinical observations, which will become a long term asset to the students. As new fully digital equipment has been introduced, the anatomically programmed radiography system software has taken so much of the guesswork and general memorization of manual technical factor selection out of the picture that this student learning outcome is being changed for subsequent assessment plans. Goal 1 in the future will include the 3rd student learning outcome (SLO 1-3 in new plan) stating that students will demonstrate proficiency in performing radiographic examinations. Measurement tools that will be used for analysis will include the clinical competency evaluation average for the 4th quarter of each year and a response from employer surveys. These were deemed to be more accurate for analysis in determining whether our students have the necessary clinical skills of an entry-level radiographer.

Goal 2: Students will apply effective communication skills.						
Outcomes	Measurement Tool	Benchmark	Timeframe	Responsible Party	Results	
Students will illustrate proper written communication.	Performance Appraisal Evaluation for First Year Students (Category 11). Category 4 for Second Year students.	Average score of 3.5 or higher (4 point scale)	Third quarter of first year and third quarter of second year	Clinical Coordinator	4th of 1st	* time frames changed in 2012-13 plan
					2009-10: 4 2010-11: 3.99 2011-12: 4	
					3rd in 1st (11)	3rd in 2nd (4)
					*2012-13: 3.86 2013-14: 3.64 2014-15: 3.75 2015-16: 3.90 2016-17: 3.56	4 4 4 3.96 4
	Urinary System Writing Assignment Grading Rubric	Average score of 25 points or higher (30 points possible)	First quarter of second year	Course Instructor for Urinary System course	2009-10: 26.75 2010-11: 27.14 2011-12: 27.625 2012-13: 28.071 2013-14: 26.875 2014-15: 25.625 2015-16: 26.429 2016-17: 27.5	

Students will demonstrate appropriate oral communication skills.	Performance Appraisal Evaluation (Category 4).	Average score of 3.5 or higher (4 point scale)	Third quarter of first year and third quarter of second year	Clinical Coordinator	3rd in 1st 2009-10: 3.87 2010-11: 3.86 2011-12: 3.88	* time frames changed in 2012-13 plan
					3rd in 1st *2012-13: 3.74 2013-14: 3.68 2014-15: 3.48 2015-16: 3.63 2016-17: 3.53	3rd in 2nd 4 4 4 3.96 4
	Endocrine System course oral presentation Grading Rubric (Categories 1 – 6)	Average score of 20 points or higher (24 points possible)	* First quarter of second year Fourth quarter of first year (change made 2011-12)	Course Instructor for Endocrine System course	2009-10: *22.375 2010-11: *22.386 2011-12: *22.875 and 22.857 2012-13: 22.125 2013-14: 21.5 2014-15: 23.125 2015-16: 23.2 2016-17: 22.36	
Students will demonstrate effective interpersonal communication skills in the clinical setting.	Clinical Competency Evaluation (Category 1).	Average score of 1.75 or higher (2 point scale)	Third quarter of first year and third quarter of second year	Clinical Coordinator	3rd of 1st 2009-10: 2 2010-11: 2 2011-12: 1.98	2nd of 2nd 1.99 2 2
					3rd of 1st 2012-13: 2.0 2013-14: 1.97 2014-15: 1.95 2015-16: 2.0 2016-17: 1.98	3rd of 2nd 1.86 2 2 1.98 2
	Performance Appraisal Evaluation for Second Year Students (Category 3 and 4).	Average score of 3.25 or higher (4 point scale)	Third quarter of second year	Clinical Coordinator	<u>Category 3</u> 2009-10: 4 2010-11: 3.93 2011-12: 4 2012-13: 4 2013-14: 4 2014-15: 4 2015-16: 3.94 2016-17: 3.88 <u>Category 4</u> 2009-10: 4 2010-11: 3.94 2011-12: 4 2012-13: 4 2013-14: 4 2014-15: 4 2015-16: 3.96 2016-17: 4	

Action/Analysis:

Student Learning Outcome 1 – Students will illustrate proper written communication.

Measurement Tool 1 –

Performance appraisal evaluations from the 3rd quarter were assessed from category 11 (student accurately obtains a history from patients and/or chart and/or records information) for first year students and category 4 (student communicates with the patient in a professional manner) for second year students. First year students demonstrated a significant drop of 0.34 compared to last year. This class of students consistently lacked the use of medical terminology when filling out history forms during everyday exams with technologists in the department, despite constant reminder by the clinical and educational coordinators and technologists. This category will be under close scrutiny in the future. Second year students demonstrated a perfect score of 4, which was a slight improvement over last year. This is expected since these students have had more classes involving the body systems, allowing them to get more familiar with the use of medical terms pertaining to exams involving those anatomical features. Since the second year measurement tool was not specific to obtaining a history in the appropriate manner, it was decided that changes would be made to include this criterion on second year performance appraisal evaluations (will be category 18) so that it can be assessed during the second year also. This allows analysis and comparisons for students throughout both years of education to ensure that improvement is made. Category 4 has been eliminated from this student learning outcome in future assessments since there isn't much written communication expected between technologists and patients other than that which is documented in patient histories.

Measurement Tool 2 –

A rubric was utilized in scoring this assessment of second year students. Although the score for the urinary system writing assignment has improved this assessment period from the previous year by 1.01 points and exceeds the average score of 27.00 points for the 8 years of assessment, there is still concern that students do not use proper written communication skills in this electronic age. Attention to spelling errors is given to answers on written assessments (quizzes and tests) as well as on the patient histories, which are recorded for each examination in the clinical environment. Notations are made and points are deducted when the patient histories are not thorough, location and landmarks are not utilized in the descriptions, and grammar and spelling is incorrect. Skills in writing, both grammar and punctuation, should follow the student throughout their lifetime. When students enter the program, they should be equipped with writing skills, but it is always a work in progress. Those students who are bachelor degree students have a written communication class in the core classes they have taken prior to arrival at the clinical site. Those in the associate degree program will be taking or have already taken a writing class. The process of written communication is a skill and requires practice to improve this skill. Through assessments, both didactic and clinically, the program hopes to maximize the opportunities for improvement while providing guidance, constructive feedback, and building confidence in expanding the students' writing skills. Specifically in the Medical Terminology class, the students are expected to spell words correctly or points are deducted. During other classes, points are also deducted for misspelled terms. The program deems written communication skills like that of confidence and work ethics. These are traits, which the majority of the time, are already ingrained in students when they begin their radiologic technology education.

Student Learning Outcome 2 – Students will demonstrate appropriate oral communication skills.

Measurement Tool 1 –

Category 4 from the 1st year performance appraisal evaluations (student carefully explains the procedure to put the patient at ease) and category 4 (student communicates with the patient in a professional manner) from

second year performance appraisal evaluations were assessed during the 3rd quarter. First year students once again demonstrated a drop of 0.1 compared to last year. Students continuously struggled to explain the procedures to the technologists' liking. It is continuously stressed that the explanations of the procedures, as well as what is expected of the patients during the exam, are vital ways that we can instill confidence in the patients and increase the likelihood of successful exams. This will be closely monitored in the future; however, changes are to be implemented on subsequent assessments. Second year students once again demonstrated a perfect score of 4 on this criteria, demonstrating their proficiency in communicating with the patients in a professional manner. Upon reflection of the assessment criteria, assessing both oral and interpersonal communication seemed duplicitous since almost all communication between technologists and patients is in an oral manner. Therefore, it was thought to be more appropriate to assess just interpersonal communication in the clinical setting.

Measurement Tool 2 –

All of the students utilized a Power Point when presenting the oral reports. Points were taken off for all the students utilizing the provided rubric for not committing the material to memory or being familiar with the material and just reading the information off of the Power Point. Consideration for future oral reports would be that Power Points could be utilized, but just having key words as bullets in the Power Point and then expand on those key points with information associated with the topic of the report. The scores, which exceeded the benchmark of 20 points or higher utilizing a rubric, for this year's class when compared to others years are average (22.36). This Measurement Tool for oral communication will not be included in the new assessment plan. Oral communication will be assessed through SLO 2-2 of the new plan – Students will demonstrate effective interpersonal communication skills in clinical setting. One of the measurement tools utilized will be Clinical Competency Evaluation – Category 7 – Patient Instruction and History. Category 7 incorporates both written and oral communication. The second year Performance Appraisal Evaluation also will utilized as a measurement tool looking at Category 3 – Carefully explains procedures to put patient at ease; and Category 4 – Communicates with patient in a professional manner. These two criteria assess the oral aspect of interpersonal communication.

Student Learning Outcome 3 – Students will demonstrate effective interpersonal communication skills in the clinical setting.

Measurement Tool 1 –

Category 1 (patient/technologist relationship) from the clinical competency evaluations was assessed in the 3rd quarter for both first and second year students. First year students exhibited a very minor decrease in scores by 0.02, however their scores are consistently well above the benchmark. Second year students received a perfect score of 2 in this criteria, demonstrating their ability to develop a good relationship with the patient. Upon reflection of student performances, interpersonal communication errors often occur during the description of the exam to the patient, asking patient history questions, and being able to ascertain which portions of their responses need recorded on the history sheets. Therefore, it was determined that category 1 not be included in future analyses and that category 7 (patient instruction and history) should be included instead to provide accurate assessment of student interpersonal communication skills.

Measurement Tool 2 –

Categories 3 and 4 were assessed during the 3rd quarter of the second year. Category 3, pertaining to the students' abilities to explain the procedure to put the patient at ease, demonstrated a minimal decrease in scores by 0.06, however scores were well above the benchmark. Category 4, pertaining to the students' abilities to communicate with the patient in a professional manner, had a perfect score of 4, demonstrating that another year of training and education assisted the students to develop these skills effectively, in comparison to the first

year students. These criteria will be assessed on future assessment plans for this student learning outcome (SLO 2-2 in new assessment plan).

Goal 3: Students will demonstrate critical thinking skills.						
Outcomes	Measurement Tool	Benchmark	Timeframe	Responsible Party	Results	
Students will modify routines to image a non-routine patient.	Clinical Competency Evaluation (Category 4, 5, and 10).	Average score of 2.5 or higher (3 point scale).	First and third quarters of second year	Clinical Coordinator	1st of 2nd	3rd of 2nd
					<u>Category 4</u>	
					2009-10: 2.92	2.96
					2010-11: 2.9	2.93
					2011-12: 2.97	2.95
					2012-13: 2.98	2.89
					2013-14: 2.91	2.97
					2014-15: 2.75	2.92
					2015-16: 2.94	2.96
					2016-17: 2.96	2.94
<u>Category 5</u>						
2009-10: 2.93	2.92					
2010-11: 2.79	2.94					
2011-12: 2.96	2.96					
2012-13: 2.95	2.99					
2013-14: 2.66	3					
2014-15: 2.96	2.94					
2015-16: 3.0	2.98					
2016-17: 2.90	2.91					
<u>Category 10</u>						
2009-10: 2.87	2.92					
2010-11: 2.88	2.96					
2011-12: 2.81	2.89					
2012-13: 2.93	2.96					
2013-14: 2.85	2.90					
2014-15: 2.99	2.89					
2015-16: 2.96	2.92					
2016-17: 3.0	2.84					
Students will revise routines for the trauma patient.	Performance Appraisal Evaluation for Second Year Student (Category 12).	Average score of 3.5 or higher (4 point scale)	First and third quarters of second year	Clinical Coordinator	1st of 2nd	3rd of 2nd
					2009-10: 3.93	3.93
					2010-11: 3.95	3.91
					2011-12: 3.95	4
					2012-13: 4.0	4
					2013-14: 3.75	4
					2014-15: 3.95	3.87
					2015-16: 3.87	3.84
					2016-17: 3.71	3.63
					Students will revise routines for the trauma patient.	Performance Appraisal Evaluation for Weekend and Evening Student (Category 20).
2009-10: 3.88	4					
2010-11: 3.78	3.75					
2011-12: 4	3.88					
2012-13: 4.0	4					
2013-14: 3.79	4					
2014-15: 4	3.8					
2015-16: 3.89	3.92					
2016-17: 3.63	3.69					

	Clinical Competency Evaluation (Category 4, 5, and 10).	Average score of 2.5 or higher (3 point scale)	First and third quarters of second year	Clinical Coordinator	1st of 2nd <u>Category 4</u> 2009-10: 2.92 2010-11: 2.9 2011-12: 2.97 2012-13: 2.98 2013-14: 2.91 2014-15: 2.75 2015-16: 2.94 2016-17: 2.96	3rd of 2nd 2.96 2.93 2.95 2.89 2.97 2.92 2.96 2.94
					<u>Category 5</u> 2009-10: 2.93 2010-11: 2.79 2011-12: 2.96 2012-13: 2.95 2013-14: 2.66 2014-15: 2.96 2015-16: 3.0 2016-17: 2.90	2.92 2.94 2.96 2.99 3 2.94 2.98 2.91
					<u>Category 10</u> 2009-10: 2.87 2010-11: 2.88 2011-12: 2.81 2012-13: 2.93 2013-14: 2.85 2014-15: 2.99 2015-16: 2.96 2016-17: 3.0	2.92 2.96 2.86 2.96 2.90 2.89 2.92 2.84
Students will evaluate information to draw sound conclusions.	Performance Appraisal Evaluation for Weekend and Evening (Category 23).	Average score of 3.5 or higher (4 point scale)	First and third quarter of second year.	Clinical Coordinator	1st of 2nd 2009-10: 4 2010-11: 4 2011-12: 4 2012-13: 4 2013-14: 3.97 2014-15: 4 2015-16: 4 2016-17: 3.75	3rd of 2nd 4 3.88 4 4 3.80 4 3.56
	Radiation Physics course – “Production and Control of High-Voltage Regulation of Current in X-Ray Tube” chapter test. Specific test questions incorporating formulas.	Average score of 28 or higher (33 possible points)	Fourth quarter of second year (2009-10 to 2010-11) Third quarter of second year	Radiation Physics Course Instructor	2009-10: 32 2010-11: 32 2011-12: 31 2012-13: 31 2013-14: 32 2014-15: 30 2015-16: 29 2016-17: 32	

Action/Analysis:

Student Learning Outcome 1 – Students will modify routines to image a non-routine patient.

Measurement Tool 1

Categories 4, 5, and 10 from clinical competency evaluations were assessed for 2nd year students during both the 1st and 3rd quarters (category 4 – positioning skills; category 5 – equipment manipulation; category 10 – correct exposure factors). All the scores in these categories were well above the benchmarks. Students exhibited the ability when performing competencies to position the patients and equipment effectively, as well as set up technical factors, according to their condition. Having the students obtain 4 clinical experiences for each exam before the student is able to perform a simulation or competency allows the student the opportunity to test and hone their skills. It is also stressed during student evaluations to limit movement of non-routine patients as much as possible. Upon review of assessment criteria, changes will be made to this student learning outcome, as well as the measurement tools utilized for assessment (see SLO 3-2 tool 2 below).

Measurement Tool 2

Category 12 (integrates modification in radiographic examination skills according to the special needs of patients) from the 2nd year performance appraisal evaluations was assessed during the 1st and 3rd quarters. Surprisingly, scores declined slightly during these time frames, from 3.71 to 3.63, with scores also being lower than they typically were in this assessment even though they were above the benchmark. The lower averages overall upon inspection are largely due to the underperformance of one particular student, whose overall initiative had declined slightly over the duration of the second year. This student had the tendency to hang back and technologists had to prod the student into getting more involved, especially in non-routine exams that required more critical thinking skills on their part. This student had been reminded to get more involved at various times during this time frame. This criterion will be monitored closely in the future to make sure its decline isn't a more permanent trend; however, additional categories for assessment are being added in the future (see SLO 3-2 tool 2 below)

Student Learning Outcome 2 – Students will revise routines for the trauma patient.

Measurement Tool 1

Category 20 (recognizes the needs for deviations from the norm resulting from patient conditions or unusual circumstances and is able to adjust to these situations) from the second year student performance appraisal evaluations for weekend and evening rotations were assessed during the 1st and 3rd quarters. Scores showed a decline compared to scores from the last several years. Upon review of individual student assessment summaries, the low scores of one particular student brought the average down significantly. This particular student has demonstrated an overall decline in initiative and has a tendency to stand back, especially during more hectic exams such as those on a traumatized patient. Only having 4 students in the class makes the poor aptitude of a single student reflect negatively on the entire group average. Students are reminded during their quarterly evaluations to consider patient comfort and minimize movement of all patients when performing multiple exams on the same patient, especially in the even of trauma. Upon review of assessment criteria, changes will be made to this student learning outcome, as well as the measurement tools utilized for assessment in subsequent assessment plans (see tool 2 below)

Measurement Tool 2

Categories 4, 5, and 10 from clinical competency evaluations were assessed for 2nd year students during both the 1st and 3rd quarters (category 4 – positioning skills; category 5 – equipment manipulation; category 10 –

correct exposure factors). All the scores in these categories were well above the benchmarks. Having technologists in the imaging department that exhibit this skill of performing all of the similarly positioned projections before moving the patient for the next views are a necessity in order for the students make this habitual when performing exams themselves. Our technologists go to great lengths to do this for all patients, not just traumatized ones, which causes it become second nature for the students. Upon review of the assessment criteria, it was deemed to be duplicitous to analyze student modifications for both the non-routine patient and the traumatized patient separately. In future assessments, both of these factors will be analyzed collectively in SLO 3-1 (students will modify the routine procedures to accommodate patient's needs (ie., pediatric, geriatric, trauma, altered state of consciousness)). Category 20 from second year weekend and evening performance appraisal evaluations will no longer be used. Since these evaluations can only be obtained during the student's weekend and evening assignments, it often resulting in a lower number of evaluations being turning in that would able to be analyzed. Since categories 4, 5, and 10 from the clinical competencies are not specific to these types of patients where modifications are necessary, they were eliminated as assessment criteria, and category 8 from the clinical competencies was changed to account for this. Measurement tool 1 will be the analysis of category 8, which will be for patient assessment. Students will be evaluated negatively if they fail to consider any physical or cognitive deficits the patient may have and fail to adapt routines according to the patient's age, status, or level of consciousness. SLO 3-1 measurement tool 2 will analyze not just category 12 from the 2nd year performance appraisal evaluations, but will include categories 13 and 14 also (13 – employs knowledge of sequencing positions on multiple procedures in order to minimize movement of the patient; 14 – anticipates the next step). Since more of the standard second year performance appraisal evaluations are turned in than those from weekends and evenings, it provides a more comprehensive assessment that what was used previously.

Student Learning Outcome 3 – Students will evaluate information to draw sound conclusions.

Measurement Tool 1

Category 23 from the second year student performance appraisal evaluations for weekend and evening rotations were assessed during the 1st and 3rd quarters. Scores showed a significant decline compared to scores from previous years. Upon inspection of the individual students' scores, the decline in the average is in large part due to low scores from one particular student. The student has declined both clinically and didactically slightly over the progression of the second year. It is evident to educators and the clinical staff that this student could put more effort into their studies, as well as more initiative into work in the clinical setting. Upon review of the assessment plan, the student learning outcome 3-2 was changed to a more specific outcome for student development – students will analyze radiographic images for diagnostic quality and describe how to amend, if warranted. Since it was noticed that not as many weekend and evening evaluations are turned in due to the limited number of those rotations, Category 23 was eliminated from the assessment plan. Measurement tool 1 for the new SLO 3-2 will be category 18 from 1st year performance appraisal evaluations and category 17 from 2nd year performance appraisal evaluations (critiques radiographic images for diagnostic quality). These criteria will be assessed during the third quarter of the 1st and 2nd year.

Measurement Tool 2 –

The average score of 32 out of a possible score of 33 is recorded for this class during this assessment period and exceeds the established benchmark of ≥ 28 . Of the four students included in this measurement tool, three of the four scored the total possible points of 33. The other student recorded a score of 28. For homework, worksheets, and tests, the students must show the formula they are using to find the answer without the values in the formula. They must then place the values from the problem correctly in the formula, show the work, and then round the answer to the nearest whole number and place the unit of measurement next to the answer. This format enables the instructor to locate areas of difficulty or where the student may have miscalculated if

necessary. The student’s assessment tool, which scored 28 points, is included in the assessment plan binder. The student did not correctly state the problem on #24 and #25; did not properly convert the information in the problem for placement in the formula that resulted in the incorrect answer; and for one answer this student rounded down instead of up to the nearest whole number. These errors lowered the overall score but the average score still was above the established benchmark. This measurement tool provides information for the SLO – Students will evaluate information to draw sound conclusions. This SLO will not be found in the new assessment plan and is being replaced by the SLO 3-2 – Students will analyze radiographic images for diagnostic quality and describe how to amend, if warranted. The rewording of this SLO is more specific as to what is to be assessed. Performance Appraisal Evaluation for First Year Student (Category 18) and Second Year Students (Category 17) both assess the critiquing of radiographic images for diagnostic quality and will be utilized as measurement criteria. Clinical Competency Evaluation Category 11 – Student Image Evaluation – will be applied as measurement tools for the new assessment plan for both first and second year students. These tools are both evaluating the students in the clinical environment, which is relevant to the education of an entry-level radiographer. These tools are demonstrating skills in the setting.

Goal 4: Students will develop a commitment to professional responsibility.					
Outcomes	Measurement Tool	Benchmark	Timeframe	Responsible Party	Results
Students will comprehend the importance of the professional organizations.	Orientation to Radiography course - “Growing With the Profession” section test. Specific test questions on professional organizations.	Average score of 15 points or higher (20 points possible)	First quarter of first year	Orientation to Radiography Course Instructor	2009-10: 17.875 2010-11: 18.25 2011-12: 19.14 2012-13: 19.04 2013-14: 17.375 2014-15: 17.635 2015-16: 18.5 2016-17: 18.75
	Exit Evaluation (Category #7 and #9) Previous to 2014-15, Category #5 and #7 were utilized)	A “yes” response 98% of the time or higher for all students.	Fourth quarter of second year (final day of education)	Educational Coordinator and Clinical Coordinator	<u>Category 5</u> 2009-10: 100% 2010-11: 100% 2011-12: 100% 2012-13: 100% 2013-14: 100% <u>Category 7</u> 2014-15: 100% 2015-16: 100% 2016-17: 100% <hr/> <u>Category 7</u> 2009-10: 100% 2010-11: 100% 2011-12: 100% 2012-13: 100% 2013-14: 86% <u>Category 9</u> 2014-15: 100% 2015-16: 100% 2016-17: 100%

Students will employ professional behaviors.	Performance Appraisal Evaluation for First Year Students (Category 9 and 16).	Average score of 3.5 points or higher (4 point scale).	Fourth quarter of first year	Clinical Coordinator	<u>Category 9</u> 2009-10: 4 2010-11: 4 2011-12: 4 2012-13: 3.87 2013-14: 3.81 2014-15: 3.92 2015-16: 4 2016-17: 3.81 <hr/> <u>Category 16</u> 2009-10: 3.98 2010-11: 3.91 2011-12: 3.97 2012-13: 3.91 2013-14: 3.82 2014-15: 3.92 2015-16: 4 2016-17: 3.70
	Performance Appraisal Evaluation for Second Year Students (Category 6, 15, and 16) (Category 5, 14 and 15 were used up through 2011-12).	Average score of 3.5 or higher (4 point scale)	Second quarter of second year	Clinical Coordinator	<u>Category 6</u> 2009-10: 4 2010-11: 4 2011-12: 4 2012-13: 4 2013-14: 3.92 2014-15: 4 2015-16: 4 2016-17: 3.96 <hr/> <u>Category 15</u> 2009-10: 4 2010-11: 3.93 2011-12: 3.97 2012-13: 4 2013-14: 3.92 2014-15: 4 2015-16: 4 2016-17: 3.92 <hr/> <u>Category 16</u> 2009-10: 4 2010-11: 3.96 2011-12: 4 2012-13: 4 2013-14: 4 2014-15: 4 2015-16: 4 2016-17: 4
Students will analyze the ARRT Code of Ethics.	Orientation to Radiologic Technology course- specific questions on “Ethics and Professionalism in Radiologic Technology” chapter quiz.	Average score of 7 points or higher (10 points possible)	First quarter of first year	Orientation to Radiography Course Instructor	2009-10: 9.25 2010-11: 9.875 2011-12: 9.357 2012-13: 9.875 2013-14: 9.875 2014-15: 9.6875 2015-16: 9.6875 2016-17: 9.5

	Performance Appraisal Evaluation for Second Year Students (Category 5).	Average score of 3.5 or higher (4 point scale)	Third quarter of second year	Clinical Coordinator	2009-10: 4 2010-11: 3.97 2011-12: 4 2012-13: 4 2013-14: 4 2014-15: 4 2015-16: 3.96 2016-17: 3.88
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Action/Analysis:

Student Learning Outcome 1 – Students will comprehend the importance of the professional organizations.

Measurement Tool 1 –

Since the onset of the current assessment plan, the students in this group recorded the third highest average with a 18.75 out of 20 possible points, which is above the benchmark of 15 points or higher. During the Orientation to Radiography course, chapters on professional societies, advancement in the profession, continuing education requirements, and maintaining professionalism in the career are discussed. The students are given a quiz on the material in this section to make them aware of the attributes of professionalism, what is available to them as students and technologists in the medical imaging career, as well as flyers and materials from the ASRT being available in the classroom environment. As the students get closer to graduation, more in depth instruction and discussion occurs where Power Points and videos offered by the ARRT and ASRT are shown to the second year class as a whole. As they approach graduation, they need to be more aware of their professional requirements as they embark on their new careers. For the new assessment plan, SLO 1 is being changed to read – Students will comprehend the importance of professional development (SLO 1-1). Professionalism is more than just being aware of professional organizations. Professionalism incorporates not only the knowledge of professional organizations but being members of these groups, benefiting from the resources the organizations offer, and expanding knowledge and continuing education in the profession of a radiologic technologist. This current tool was assessed during the first quarter of the student’s first year of education. At this time, the novel student is overwhelmed with knowledge, the new world of imaging, the workings of the radiology department and hospital, and balancing their time and new commitment as a student radiographer. Assessing professional development in the new assessment plan will be measured and reviewed during the student’s exit evaluation on the last day of education and again one year following graduation through the Commitment to Professional Responsibility survey, which asks questions in regard to knowledge of professional societies, memberships and continuing education and employment. The students are molded into an entry-level radiographer during their education and their professionalism is then a lifetime of learning and commitment.

Measurement Tool 2 –

Professionalism and ethics has become a larger part of the curriculum and the evaluation process. The subject of professionalism is initially mentioned on the first day of education. This topic includes appearance of the technologist as well as the imaging room; the mannerisms of the technologists; and communication. Professionalism is part of the Orientation to Radiography class. The areas of professionalism as assessed on performance evaluations as well as competency evaluations. The functions and significance of the American Registry of Radiologic Technologists (ARRT) and the American Society of Radiologic Technologists (ASRT) are also examined in the Orientation course. The Standard of Ethics, which includes the Code of Ethics and the Rules of Ethics, are reviewed in this class. During the students’ last week of education, the students view the various videos provided by the ARRT through the Educator’s Resource Toolkit. Videos are also accessed through the ARRT website in regard to testing, ethics, and certification and registration. The graduating student is given information during the exit evaluation. This information includes many handouts that include a copy of

the ASRT application; benefits of being an ASRT member; a print out of a ASRT continuing education record; various ways to obtain continuing education; a description of their individual biennium; information CQR (Continuing Qualifications Requirements); and the Standard of Ethics. Through the exit evaluation, students are asked if they have an understanding of the ARRT requirements for continuing education and CQR (Category 7) and if they intend to become a member of the ASRT (Category 9). The answers for these two questions were all affirmative in this assessment period as the majority of the answers have been in years past. The membership in the ASRT is also assessed one year after graduation in the Commitment to Professional Responsibility survey. These measurement tools will continue to be used in SLO 4-1 of the new plan – Students will evaluate the importance of professional development.

Student Learning Outcome 2 – Students will employ professional behaviors.

Measurement Tool 1 –

During the 4th quarter of the 1st year, the scores were averaged from categories 9 and 16 from the performance appraisal evaluations, pertaining to the students being receptive to suggestions and corrections and showing initiative and interest in their work. Students demonstrated a noticeable decline in both categories compared to last year's averages. Category 9 declined by 0.19 and category 16 declined by 0.30. Upon review of individual scores, the average was negatively impacted by the scores of one particular student that has a tendency to be easily intimidated by new situations and has to be continually prompted by various technologists in order to get much out of her. Despite reinforcement by school officials that the student needs to show more initiative, this student has been very backward and doesn't perform well for various technologists in the department, even though it doesn't seem to be due to her having a negative attitude. Further reminders will be given in order to stress this to the student again in the future. Upon review of the assessment plan, changes are being instituted to provide a more rounded comprehensive assessment of student abilities to exhibit professional behaviors. In future assessments, first year students will be assessed on categories 2, 6, and 8 from performance appraisal evaluations, while second year students will be assessed on categories 2, 5, and 6. The criteria evaluate the student's ability to exhibit patience and empathy when working with patients, communicating with the patient in a professional manner, and being cooperative and pleasant with staff, superiors, and fellow students.

Measurement Tool 2 –

During the 2nd quarter of the 2nd year, the performance appraisal evaluation categories 6 (willingness to cooperate), 15 (shows initiative and interest in work), and 16 (actively participates in assigned room) were assessed with only minimal declines of 0.04 in category 6 and 0.08 in category 15. Category 16 values stayed consistent with the maximum score of 4. Most students in this class demonstrated consistency in striving to exhibit a good work ethic and willingness to cooperate with all members of the imaging services department. One student in this class occasionally lacked initiative and required prompting to get involved, but scores didn't reflect this. As stated in the previous measurement tool analysis, changes are being implemented for this student learning outcome. A new measuring tool 2 for the outcome – Students will employ professional behaviors – will be category 4 from employer surveys that are submitted 1 year following graduation. It is important to assess professional behaviors as they follow our graduates into their careers. The foundation for professional behaviors of a radiologic technologist are discussed and assessed didactically and evaluated through performance appraisal evaluations and clinical competencies in the clinical environment as a student. It is the expectation of the program that the traits of professionalism continue into the graduates' careers.

Student Learning Outcome 3 – Students will analyze the ARRT Code of Ethics.

Measurement Tool 1 –

During the Orientation to Radiography course, the students receive instruction on the ARRT Standard of Ethics. The students are made aware of the two parts, the 10 Code of Ethics and the Rules of Ethics. They are made to understand that the Code of Ethics are guidelines for conducting themselves professionally, as well as personally; as well as The Rules of Ethics, which are mandatory and enforceable and are subject to sanctions. Towards the end of their education, the students receive additional instruction on the Standards of Ethics. Use of the ASRT tools and those on the ARRT website, this material is reinforced. With a total possible point assessment in this area, the students in this class received an average score of 9.5 (2.5 points above the benchmark). This SLO and measurement tool will not be found on the new assessment plan but will be measured in other SLOs and Measurement Tools throughout the plan through performance appraisals and competency evaluations. The Code of Ethics will continue to be stressed throughout the student’s education, both didactically and clinically. The Standards of Ethics are found in the student’s Policy and Procedure Manual. A copy of these guidelines is also given to the students on their last day of education.

Measurement Tool 2 –

During the 3rd quarter of the 2nd year, category 5 from the performance appraisal evaluations is assessed, pertaining to the students’ abilities to recognize and meet patients’ needs. The scores from this category (3.88) demonstrate a slight decline compared to last year of 0.08, but were still well above the benchmark of 3.5. Students develop the skill to constantly think ahead and evaluate what can be done to assist the patients to and from the radiography tables, covering patients with sheets for modesty, and always ask if there is anything that they can do for the patient before leaving their inpatient room when performing portable radiography, for example. This will now be assessed under SLO 4-2 in future assessment plans.

Goal 5: The program will assure the effectiveness of its educational offerings to the student radiographers and the communities it serves. (Class of 2016)					
Outcomes	Measurement Tool	Benchmark	Timeframe	Responsible Party	Results
Students will pass the ARRT Registry examination on the first attempt within 6 months of graduation.	ARRT Registry Results	Pass rate is greater than 85% each year	2 months after graduation or as the examination is taken	Educational Coordinator	2009-10: 100%
		JRCERT 5 year benchmark is not less than 75% on first attempt.			2010-11: 100%
					2011-12: 100% 6/6
					2012-13: 100% 8/8
					2013-14: 100% 6/6
					2014-15: 100% 7/7
					2015-16: 86% 6/7
					2016-17: 100% 7/7
					5 year average
					2012-13: 100%
					2013-14: 100%
					2014-15: 100%
					2015-16: 97% 33/34
					2016-17: 97% 34/35
For those seeking employment, students will secure employment in medical imaging	Graduate Survey (Question #2) and Commitment to Professional Responsibility Survey (Question #5 and #7)	Program placement rate of 75% or greater	One year following graduation	Educational Coordinator	2009-10: 100%
					2010-11: 60%
					2011-12: 83% 5/6
					2012-13: 80% 4/5
					2013-14: 100% 5/5
					2014-15: 71% 5/7
					2015-16: 100% 5/5
					2016-17: 100% 6/6

within 12 months of graduation.		JRCERT 5 year benchmark is not less than 75%.			5 year average 2011-12: 90% 27/30 2012-13: 85% 24/28 2013-14: 84% 21/25 2014-15: 79% 22/28 2015-16: 86% 24/28 2016-17: 89% 25/28
Students will demonstrate to employers the qualities of an entry-level technologist.	Employer Satisfaction Survey (Category 9)	Eighty percent or higher are "yes" responses (Yes/No answer)	One year following graduation	Educational Coordinator	2009-10: 100% 2010-11: 100% 2011-12: 100% 2012-13: 100% 2013-14: 100% 2014-15: 100% 2015-16: 100% 2016-17: 100%
Students will evaluate their educational offerings to be effective in the development of an entry-level radiographer.	Graduate Survey (Category 2)	The average response of 2.5 or higher (3-point scale)	One month following graduation	Educational Coordinator	2009-10: 3 2010-11: 2.8 2011-12: 3 2012-13: 3 2013-14: 3 2014-15: 2.83 2015-16: 2.83 2016-17: 2.71
Students will complete the program within 24 months or 150% of the stated program length.	Student Statistics (Graduating Students - Category 3)	Retention rate is 80% or greater each year	Within 150% of the stated program length of 24 months – one year following graduation	Educational Coordinator	2009-10: 87.5% 2010-11: 100% 2011-12: 75% 6/8 2012-13: 100% 8/8 2013-14: 100% 7/7 2014-15: 87.5% 7/8 2015-16: 87.5% 7/8 2016-17: 87.5% 7/8

Action/Analysis:

Program Effectiveness 1 – Students will pass the ARRT Registry examination of the first attempt within 6 months of graduation.

Both the annual program pass rate and the five-year ARRT certification and registration pass rate with a 100% and 97% , respectively, are above the established benchmarks of 85% or greater for the program and 75% or greater for the JRCERT 5 year benchmark. By continuing to utilize an Internet site suggested by the program, which focuses on ARRT radiography registry examination preparation, the students are more prepared for the wording and type of questions that are found in this examination. Seeing the explanation for why an answer is correct or incorrect reinforces the content of the question. Students have also found other websites to utilize as study tools for their ARRT certification and registration examination. Multiple choice questions are utilized in assessments throughout the educational process to prepare the student for the final test, which is given by the program for certification purposes, as well as the ARRT examination. The program's certification test is set up similar to the ARRT examination in which the content, type of questions, and time frame is consistent. Practice testing is also used in the classroom situation to prepare the student for the ARRT examination. When a student

finds a question, which they feel they do not understand the reasoning for the answer or feel that they have not been given during their education, they are asked to bring this to the attention to the instructors so that the content can be clarified. The program is proud of the pass rate on the ARRT examination. ARRT examination pass rate on the first attempt within 6 months of graduation will continue to be part of the program's effectiveness data.

Program Effectiveness 2 – For those actively seeking employment, students will secure employment in medical imaging within 12 months of graduation.

Of those 6 students in the class of 2016, who were actively seeking employment, each of the students obtained employment in medical imaging within 12 months of graduation. One of the graduates did not actively seek employment in medical imaging. This student focused on finding employment in sales and not in the medical imaging profession. Two of the graduates began employment in one healthcare facility and then secured employment in another one within the 12 month timeframe. One student had three employment opportunities offered in the year's timeframe. The program is pleased with the pursuit of the graduates in securing employment. The program's and the JRCERT's 5 year benchmarks (both 75% or greater) were surpassed during this assessment period. The program is pleased with the enthusiasm of the graduates in pursuing employment in the time when the opportunities for employment in healthcare are at a stand still or declining. Employment rate will continue to be monitored in the new assessment plan.

Program Effectiveness 3 – Students will demonstrate to employers the qualities of an entry-level technologist.

Only one employer survey has been returned (5 of 6 employer surveys have not been returned) as of the end of the assessment period on June 30, 2017 for the class of 2016. Follow up communication to employers has been forwarded to employers as to the importance of the return of this form. The employer is informed that the information contained in the survey is utilized by the program to assess the student's ability to function as an entry-level radiographer, which is one of the goals of our program. A self addressed stamped envelope is provided in this mailing to expedite the return of the survey. This information will be amended as employer surveys are returned to the program. The one employer, who returned the survey, was pleased with our graduate as an entry-level radiographer. This has been the trend throughout this assessment plan. This tool will continue to be used in the new plan.

Program Effectiveness 4 – Students will evaluate their educational offerings to be effective in the development of an entry-level radiographer.

The 2.71 average score (out of 3) is the lowest score in this category since the onset of this assessment plan. Two of the seven students rated the Category 3 (being prepared as an entry-level radiographer) with a 2 out of three rating. These two comments for Category 3 referred to more clinical time in the Operating Room. The students, during this assessment period, were scheduled a total of 16 weeks during the two years of education in the Operating Room. These weeks consist of two full clinical days and a half day of clinical assignment. The rotations are at a week's time to reinforce the workings of the Operating Room as well as the radiographic equipment utilized for the surgical procedures. This weekly rotation will give the student a variety of procedures throughout the timeframe. The students are also aware that if two separate cases are being performed in the operating room that an additional student can gain experience (assigned portable student or volunteer) in the second procedures (while adhering to the 1:1 technologist/student ratio). More in depth demonstration and practice with the mobile fluoroscopy equipment is now scheduled earlier in the educational process to familiarize the students with the equipment and not just observing the use and function of the C-arm.

This 2.71 score is above the established benchmark of 2.5. Again, the program will continue to assess this program effectiveness information in the new plan.

Program Effectiveness 5 – Students will complete the program within 24 months or 150% of the stated program length.

This is the fourth year that the percentage is 87.5% for those completing the program. Of the eight students who began the program, seven completed and graduated from the program. One student was dismissed from the class of 2016 for not meeting the academic requirements of the program at the end of the first year of education. The program recently affiliated with a community college to offer an associate degree in Technical Trades: Radiologic Technology. With successful completion of the courses at the community college and the ACMH program, the student will be awarded a certificate by the hospital program and the degree by the college. This then enables the student to take the ARRT Registry certification and registration examination. This opens up the opportunity to high school graduates and other applicants who do not have a previous associate degree or enrolled in a bachelor degree program for medical imaging. With this community college affiliation, it is more feasible for a representative of the program to visit high schools and attend career fairs to promote this opportunity for high school students. Through marketing, the program hopes to increase awareness of this option. A recent articulation agreement was also signed with Bloomsburg University of Pennsylvania. The university offers a bachelor degree in Medical Imaging. The program is optimistic that these new affiliations will open up the applicant pool to provide a greater number of qualified applicants for selection of our classes and in turn, 100% in the area of program completion rate. This will continue to be monitored in the new plan.

Last updated – 11/4/11, 6/14/12, 7/19/12, 7/25/13, 7/28/2014, 8/31/2015, 9/22/16, 7/3/3017

The mission statement and goals for the program were updated and revised and became effective July 1, 2009. This new assessment plan also became effective on the same date.