**EXECUTIVE SUMMARY of STUDENT LEARNING OUTCOMES**

Radiation therapy is a radiologic imaging sciences specialty that is one of the disciplines in a radiation oncology center. Radiation therapists practice in a cooperative effort between medical and radiation oncology physicians, medical physicists, dosimetrists, oncology nurses and dietitians. Radiation therapists are responsible for accurately recording, interpreting, and administering the treatment prescribed by radiation oncologists. Radiation therapists help physicians use multiple imaging modalities including; fluoroscopy, x-ray, and/or computed tomography to localize and outline anatomical areas for treatment and patient alignment. These responsibilities require highly specialized clinical skills as well as complex critical thinking in order to effectively contribute to the team approach of patient treatment.

**Program Effectiveness**

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| **Program Effectiveness Measure and Performing Standard** | **Data Collected** | **Analysis** |
| Annual program completion rate class of 2018. There is no performance standard for this measure. | 19/19 = 100% | Admitted 19 students, and 19 completed. |
| ARRT Certification Board examination pass rate (class of 17). Performance standard, 75% pass rate on 1st attempt within six months of graduation. | 11/19 = 58% | This is the lowest first time pass rate that the program has experienced. In further review, the program was informed that students did not sufficiently study for the exam. Of the 8 students that did not pass initially, 6 of 8 have retaken it and passed (17/19=89%) are ARRT certified. |
| Job placement rate (class of 17). Performance standard, 75% of active job seekers will be placed within 12 months of graduation. This standard includes students that have gone back to school, and excludes those not willing to move for employment. | 16/16 = 100% | All 2017 graduates are either employed or in school one year post graduation. |
| Graduate satisfaction (class of 17). Performance standard set by program; 95% of returned graduate surveys will rate satisfaction 4 or 5, on a 1-5 Likert scale. | 6/7=85.7% | Class of 17, 6/7=85.7% ranked their satisfaction with the program as Excellent (n=3), Very Good (n=3) and Good (n=1)  Class of 16, 5/7=71.4 ranked their satisfaction with the program has Excellent (n=2) and Very Good (n=3). Two students ranked their satisfaction as Good (3 on Likert scale).  Class of 15, 90% satisfaction as defined by performance standard (n = 9/10). |
| Employer satisfaction (class of 17). Performance standard set by program; employers will rank graduates “above average” in OVERALL QUALITY measure. | 5/6=83.3% | Class of 17, 5/6 returned employer surveys ranked graduates above average or greater; 1 ranked graduate as “Good”  Class of 16, 4/4 returned employer surveys ranked graduates above average or greater  Class of 15, 10/10 returned employer surveys ranked students “above average” |

**Provide a response to last year’s University Assessment Committee review of the program’s Effectiveness report:**

* The advisory board asked for trend lines and/or a comparison of other University programs similar to ours. Included in this year’s Effectiveness report, MI program averages for completion, ARRT exam pass, and job placement were included for the past three years. Trends were discussed in the analysis column as well.
* It was suggested that graduate satisfaction be collected from students just prior to actual graduation. This was intended to capture a more captive audience, thus loosing fewer graduates to follow up. This data in included in this assessment. 92.8% (13/14) of the Class of 2017 ranked their satisfaction with the program has 4 or higher. One ranked their satisfaction as a 3.

#### Describe how the program’s outcomes support GVSU mission, strategic plan, and relevant school plan:

The program’s mission is to provide competent, entry level Radiation Therapists who shape their profession, society, and lives. The program provides students opportunities to develop technical knowledge and personal skills necessary for a career in the radiation sciences. The curriculum is designed to combine compassion with integrity in order to shape a student into a professional. The program provides a unique learning environment which includes state of the art equipment, class room instructions, as well as multiple clinical rotations. By recruiting the help of highly qualified Radiation Oncology faculty, students acquire skills necessary to become successful Radiation Therapists.

**List all of the program’s goals**:

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| **Learning Outcome** | **Year of Last Assessment** | **Assessed This Year** | **Year of Next Planned Assessment** |
| Students will demonstrate clinical competence | FY 16-17 | AY 17-18 | 2019 |
| Students will develop critical thinking and problem solving skills | FY 16-17 | AY 17-18 | 2019 |
| Students will communicate effectively to patients and healthcare professionals | FY 16-17 | AY 17-18 | 2019 |
| Students will demonstrate professional behavior in clinical areas and the profession | FY 16-17 | AY 17-18 | 2019 |

**Outcomes and Past Assessment**

**Learning Outcome 1:** Students will demonstrate clinical competence

**Is this outcome being reexamined? X** Yes No

**Assessment Activity**

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| **Outcome Measures**  *Explain how student learning will be measured and indicate whether it is direct or indirect.* | **Performance Standard** *Define and explain acceptable level of student performance.* | **Data Collection**  *Discuss the data collected and student population* | **Analysis**   1. *Describe the analysis process.* 2. *Present the findings of the analysis including the numbers participating and deemed acceptable.* |
| Students will appropriately simulate treatment delivery. | 90% of lab evaluations will score 3 or higher on a Likert 1-5 scale, for the objective of “**Evaluate accuracy of machine parameters”**. | Collection will be during the 1st semester throughout RIT 331 (class of 19) | 1) Class of 2018: 59/59 (100%) of evaluations scored 3, 4, or 5. 53/59 (89.8%) scored 4 or 5. This data is for one lab section, data was not collected for the other lab section.  Class of 2017: 100% >3  2) Class 2019 117/117 (100%) of evaluations were 3 or higher |
| Students will demonstrate correct positioning of patients for treatment. | 95% of clinical evaluations will score “fair” or better on student’s first clinical evaluation for “**ORGANIZATION OF DUTIES:**Logical & efficient performance”. Fair is considered our minimum acceptable score. | Collection will be in the 2nd semester after 1st clinical evaluation (class of 19). | 1) Class of 2018: 57/57 (100%) of evaluations collected reported “fair” or better. Better would indicate scores of “good” or “excellent” (46/57 or 80.7%).  Class of 2017= 100%  2) Class of 2019:64/65 (98.5%) |
| Students will illustrate correct simulation of a variety of patients | 95% of clinical evaluations will score “fair” or better on student’s 2nd clinical evaluation for “**ADAPTABILITY:**Achievement of routine procedures on non-routine patients”. | Collection will occur during the 2nd clinical evaluation, completion of the 3rd semester (class of 19). | 1) Class of 2019: 61/61 (100%)  Class of 2017 100% met standard  Class of 2018 98.25% met standard |
| 95% of clinical evaluations will score “good” or better on student’s last clinical evaluation for “**ADAPTABILITY:**Achievement of routine procedures on non-routine patients”. | Collection will occur during the last clinical evaluation, completion of the 5th semester (class of 18). | 1) Class of 2018 (126/139)=90.6% reported good or better, benchmark not met.  2)Class of 2017 (55/57)=96.5% reported good or better  Class of 2016 67/69, 97.1% met standard |

**Interpretation of Results**

**Extent this learning outcome has been achieved by students:**

* Using the four learning objectives, both the class of 2018 and 2019 have met our standard for goal #1 respectively. The lab final (Class of 2020) incorporated a written portion as well as a demonstration which incorporated critical thinking skills which we discussed incorporating into the initial laboratory course so they will be even more prepared for clinic.

**Program strengths and opportunities for improvement relative to assessment of outcome:**

* Strength: Utilizing the lab for their preparatory clinical education and with the addition of the VERT, it will further strengthen the laboratory learning. Also having Trajecsys so students can access information quickly and easily. It also gives the program access to assessment data that is needed for JRCERT and GVSU accreditational reports.
* Improvement: Having all clinical sites participate in using Trajecsys for comps/profs and evaluations.

**Discuss planned curricular or program improvements for this year based on assessment of outcome:**

* From last year’s (2017) advisory board meeting it was discussed that the program will begin to work interprofessionally with Nursing and currently the Clinical Coordinator is working with multiple units from the College of Health Professions to discuss a case study of a simulated patient. Each modality discusses their role in the patient’s care plan. The advisory board suggested to incorporate non-routine setups and scenarios in laboratory courses.

**Learning Outcome 2:** Students will develop critical thinking and problem solving skills

**Is this outcome being reexamined? X** Yes No

**Assessment Activity**

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| **Outcome Measures**  *Explain how student learning will be measured and indicate whether it is direct or indirect.* | **Performance Standard** *Define and explain acceptable level of student performance.* | **Data Collection**  *Discuss the data collected and student population* | **Analysis**   1. *Describe the analysis process.* 2. *Present the findings of the analysis including the numbers participating and deemed acceptable.* |
| Student will compare current treatment images to treatment plan and determine accuracy of positioning. | Students will successfully pass >2 IGRT competencies during their clinical rotations throughout the program | Data will be collected following the last clinical rotation, 5th semester. | 1)Class of 2017-16/16 100% met the goal for this objective  2) Class of 2018-19/19; 100% met the goal for this objective as well. |
| Students will propose treatment plans for the treatment of breast cancer | Scores >90% on the breast problem based learning assignment (PBL) will indicate students use systematic reasoning to examine and evaluate information and ideas and then synthesize their conclusions to propose new  perspectives and solutions | Data will be collected following the Fall semester, RIT 430 course (class of 18). | 1) Class of 2018: 16/19=84% met the benchmark; however the program did not meet the benchmark. However, we do have data for the Class of 2019 and 16/17=94%  2) Class of 2017: The average score was 92.19% (n=16 students), 11/16 (68.8%) scored >90% |

**Interpretation of Results**

**Extent this learning outcome has been achieved by students:**

* Advisory board stated that the students do well with CBCT, but need more guidance/instruction with 2D images per the 2017 advisory meeting. The program will address this again at the meeting on 12/14/18. The advisory board stated that it is difficult to show 2D images because of the advances in technology now with treatment.

**Program strengths and opportunities for improvement relative to assessment of outcome:**

* Advisory board suggested to perhaps collect multiple years of data regarding the Breast PBL and also to have a defined number versus an average score which was presented in this assessment. This was the suggestion at the 2017 meeting and the program does have multiple years of data which was reported, this assessment incorporates multiple years.

**Discuss planned curricular or program improvements for this year based on assessment of outcome**:

* The program asked the instructor of the Image Guidance course to incorporate critical thinking evaluation of images to the course for the Winter 2018 semester and this was done. This will be done again for Winter 2019. The program suggests to use this as another performance standard and to remove the performance standard about IGRT images. The advisory board agreed with this suggestion and it will be incorporated in the 2018-19 assessment cycle. Curricular & program improvement to incorporate the VERT setup error recognition and problem solving. This was discussed even further and what functions the VERT has and how it can be incorporated.

**Learning Outcome 3:** Students will communicate effectively to patients and healthcare professionals

**Is this outcome being reexamined? X** Yes No

**Assessment Activity**

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| **Outcome Measures**  *Explain how student learning will be measured and indicate whether it is direct or indirect.* | **Performance Standard** *Define and explain acceptable level of student performance.* | **Data Collection**  *Discuss the data collected and student population* | **Analysis**   1. *Describe the analysis process.* 2. *Present the findings of the analysis including the numbers participating and deemed acceptable.* |
| Students will describe procedures to patients | 95% of clinical evaluations will score “fair” or better on student’s first clinical evaluation for “**COMMUNICATION SKILLS:** Interpersonal skill with **patients**”. Fair is considered our minimum acceptable score. | Collection will be in the 2nd semester after 1st clinical evaluation (class of 19). | 1) Class of 2019 64/65 (98.5%)  Class of 2018 57/57 (100%) |
| 95% of clinical evaluations will score “good” or better on student’s last clinical evaluation for “**COMMUNICATION SKILLS:** Interpersonal skill with **patients**”. | Collection will occur during the last clinical evaluation, completion of the 5th semester (class of 18). | 1)Class of 2018: 135/139=97.1% of evaluations reported “good” or better  2)Class of 2017: 56/57=98.2% of evaluations reported “good” or better. |
| Students will communicate effectively with healthcare staff | 95% of clinical evaluations will score “fair” or better on student’s first clinical evaluation for “**COMMUNICATION SKILLS:** Interpersonal skill with **staff**”. Fair is considered our minimum acceptable score. | Collection will be in the 2nd semester after 1st clinical evaluation (class of 19). | 1) Class of 2019: 63/65 (96.9%)  Class of 2018: 57/57 (100%) |
| 95% of clinical evaluations will score “good” or better on student’s last clinical evaluation for “**COMMUNICATION SKILLS:** Interpersonal skill with **staff**”. | Collection will occur during the last clinical evaluation, completion of the 5th semester (class of 18). | 1)Class of 2018: 131/139=95% of evaluations reported “good” or better.  2)Class of 2017: 55/57=96.5% of evaluations reported “good” or better. |
| Students will Demonstrate effective formal presentation skills. | 100% of students will make effective use of eye contact, voice projection, pacing and language choices that are appropriate for the assignment. | Collection will occur following in class presentations in RIT 432, 5th (final) semester | 1) The program previously used the presentation rubric for the Class of 2017 and the students were to achieve 85% or higher on presentation which 16/16=100% did meet that goal.  2) Class of 2018: The program used a different rubric that is more suited for this SLO which was provided by the GVSU General Education Committee which ranks the student as proficient, progressing, or baseline. The verbiage for this SLO is under the proficient category. 16/19=84% met the benchmark. As this was the first year the program used this rubric, this SLO will be re-evaluated with the Class of 2019 to determine if adjustments need to be made. |

**Interpretation of Results**

**Extent this learning outcome has been achieved by students:** One student’s evaluation was improperly completed by the RT evaluating the student. The RT misunderstood what a score of “poor” meant. This was addressed with the CI and was corrected.

**Program strengths and opportunities for improvement relative to assessment of outcome:** The program suggests to implement using standardized patients to help students further improve this area. These resources are available through the GVSU simulation center. It was suggested to possibly increase the communication to “good” and “excellent” and to move the semester to the 4th semester. The program will further evaluate this.

#### Discuss planned curricular or program improvements for this year based on assessment of outcome:

* As stated above for SLO 3, the program will re-evaluate with the Class of 2019 to determine if this needs to be adjusted.

**Learning Outcome 4:** Students will demonstrate professional behavior in clinical areas and the profession

**Is this outcome being reexamined? X** Yes No

**Assessment Activity**

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| **Outcome Measures**  *Explain how student learning will be measured and indicate whether it is direct or indirect.* | **Performance Standard** *Define and explain acceptable level of student performance.* | **Data Collection**  *Discuss the data collected and student population* | **Analysis**   1. *Describe the analysis process.* 2. *Present the findings of the analysis including the numbers participating and deemed acceptable.* |
| Students will demonstrate professional behavior | 95% of clinical evaluations will score “good” or better on student’s clinical evaluation for “**PROFESSIONAL CONDUCT:** Mannerisms, cleanliness, neatness”. | Collection will be in the 2nd semester after 1st clinical evaluation (class of 19). | 1) Using the Trajecsys student reporting system, a report of the class of 18 students was run from March –May (time of evaluation) with evaluation of the responses for “Professional conduct”.  2) Class of 2019: 59/65 (90.7%) 3 of the rankings were on the same student  2017:56/57 (98.2%) |
| 95% of clinical evaluations will score “excellent” on student’s clinical evaluation for “**PROFESSIONAL CONDUCT:** Mannerisms, cleanliness, neatness”. | Collection will be in the 3rd semester after 4th clinical evaluation (class of 18). | Class of 2018: 82/103=79.6% of evaluations reported “excellent” for professional conduct. Most of the rankings that were not “excellent” were ranked “good”. There were a few students that were ranked “fair” in this category. This class had various struggles both academically and clinically which may be indicative of this as well as the low ARRT first attempt exam pass rate.  Class of 2017:39/43=90.7% of evaluations reported “excellent” for professional conduct. The benchmark was not met. None of the students were scored less than “good” on this measure. |
| Students will integrate networking into program and profession. | All students (class of 18 and 19) will attend either a state or national professional conference. | Data will be collected at the end of Fall semester each year. | 1) The class of 18 had 100% attendance at the state MSRT and National RSNA conference.  2) Class of 2019: 19/19=100% of all students attended MSRT and RSNA conference. Students had to interact with vendors, listen to poster presentations, and be an attentive audience member in a lecture at RSNA. All students had to report all of this information in a project for RIT 401. |

**Interpretation of Results**

**Extent this learning outcome has been achieved by students** *(Use both direct and indirect measure results)***:** The program has not achieved the benchmarks set and will seek advisory input for suggestions for improvement.

**Program strengths and opportunities for improvement relative to assessment of outcome:** Program to ask advisory board what can be done to improve this. An initial solution is to perhaps incorporate a detailed checklist regarding professionalism that should be incorporated into the student orientation. Perhaps even have an area on the checklist when and where certain things are permitted to happen (ex. Cell phone, tablets, watches).

#### Discuss planned curricular or program improvements for this year based on assessment of outcome:

There have been instances of lack of engagement/interest in clinical activities reported at the 2017 advisory board meeting. The students were also required to attend specific lectures at the MSRT conference (2018) in addition to RSNA which they are required to attend various lectures and meet with vendors. They were expected to be attentive in the lectures and engaging with vendors. This year’s third year students (Class of 2020) have been more engaged than previous years in clinical and laboratory activities.