

CLINICAL EDUCATION
2009-2010

This section contains information pertaining to clinical education, including staff, examples of procedures and competencies, clinical rotations, grading and clinical forms.

CLINICAL REQUIREMENTS FOR GRADUATION

Requirements for graduation include successfully completing the following according to established criteria:

- ◆ Eleven (11) clinical rotations to various machines and CARTI locations (3 to 4 weeks each)
- ◆ A clinical rotation through dosimetry
- ◆ A clinical rotation through nursing, 3 days out of one rotation during the 1st
- ◆ Twenty-seven (27) treatment competencies in designated time frame
- ◆ Eleven (11) localization competencies in designated time frame
- ◆ Three (3) new patient treatments, where the student completes the simulation, calculation, treatment and documentation
- ◆ Conventional Simulation Workbook
- ◆ Dosimetry Task Competencies
 - Seven (7) calculations on specified set-ups
 - Three (3) constructions of custom blocks
 - Bolus construction
 - Stint construction
 - Aquaplast construction
 - Alphacradle construction
 - Five (5) chart checks on specified set-ups
- Two independent warm-up procedures completed for each rotation to accelerator, simulator and CT.
- ◆ General Patient Care
 - CPR
 - Vital Signs (BP, pulse, respiration, temperature)
 - O₂ Administration
 - Patient Transfer
- ◆ Brachytherapy
 - Observe prostate implant
 - Observe remote afterloading GYN implant (GammaMed)
- Observe stereotactic radiosurgery
- Observe TomoTherapy – available only at UAMS
- ◆ Three (3) Clinical Semester Final Exams

A full explanation of each of these requirements is contained on the following pages of the handbook. There are specific forms used to document performance in each area. Appropriate forms are listed below each description. Forms are available electronically and will review at orientation. It is the student's responsibility to keep up with these forms and maintain them in good standing. Any missing material will have to be made up. The Program Director and/or Student Clinical Coordinator will review completed forms with the student at the completion of each clinical rotation.

GENERAL CLINICAL INFORMATION

CARTI's clinical education is competency based. Therefore, the amount of clinical time may vary between students. While most students will complete all required clinical competencies within the specified time, some students may require additional clinical time.

First and second semester didactic classes introduce the student to basic radiation therapy. To assist in achieving clinical competency, CARTI's Principles and Practices I and II didactic classes and clinical labs run congruent with clinical education. Principles and Practices I and II classes give the student the background and didactic education needed to support their clinical education. This will include machines, energies, and basic operation and safety practices. The accompanying lab offered during the first and second semester instructs and allows student participation in actual machine controls and basic treatment set-ups. Clinical competencies are demonstrated during these labs. Labs are designed to support the clinical competencies required and provide students the opportunity to practice these set-ups on each other and with phantoms under the supervision of our clinical instructors.

After each clinical rotation, the student will meet with a program official to review progress and identify strengths and areas for improvement. Clinical performance evaluations and other clinical documentation will be collected and a Clinical Report Card compiled at this time. The student will receive a copy of this performance report, which compiles performance to date, after each meeting.

Class meetings will be held as required. At these meetings students are encouraged to discuss areas of concern and exchange information about the program with Program Officials. Class officers are elected during the first month of school. The president presides over the meeting, makes assignments for resolution of problems and is the class representative. Other officers are elected as needed or requested by the class.

At CARTI, we all participate as a team. Student function is an important part of the treatment team and as such will assist in keeping their assigned work areas neat and clean. They will assist in keeping the treatment rooms stocked and straightened in preparation for each new patient. This provides the proper environment for our patients.

It is recommended that the student carry a calculator and a pocket notebook to write down helpful hints he/she can refer to at a later date. It has been found that with the large quantity of information the student receives it is best to write it down for later and better utilization.

SEMESTER CLINICAL FINAL TESTS

Given at the completion of Semester 1 and 2, the student will perform clinical set-ups on treatment and simulation equipment. Student performance will be graded on each set-up using established objectives. The student must pass each competency with a minimum grade of 75% and the cumulative score must be 75%. A failing score requires the student to retest on that machine, completing a specified number of competencies. The evaluators will choose the number and type of make-up competencies to be completed based on length of time in program and type of errors made. In addition, failure of a Semester Clinical Final will invoke the progressive discipline policy.

Third semester clinical finals will consist of *Student Clinical Day*. Students will be separated into teams and will be responsible for the operation of one of the CARTI facilities for the day. The clinical staff will directly supervise the students at all times. Students will be evaluated throughout the day on specified objectives.

SEMESTER CLINICAL GRADE

At the end of each rotation, the student will receive a clinical grade. This grade is composed as follows:

60% = Accumulation of the rotation Professional Ethics and Conduct and Technical Evaluation
(PECT Eval)

30% = Rotation clinical competencies scores

10%= Rotation lab scores

**In the event that no competencies are achieved during a rotation, PECT scores will count as 80% and Labs as 20% of the clinical rotation score.*

**In the event that no lab grades are given during a rotation, PECT scores will count as 70% and competencies as 30% of the clinical rotation score.*

At the end of each semester, the overall clinical grade will be determined as follows:

75%= Rotation Scores

25% = Clinical Final Scores

This grade counts as six (6) credits towards the student's overall GPA in the first and second semester and five (5) credits during the summer semester. The 3 semesters combined account for 17 credits on the program official transcript.

CLINICAL STAFF

2009-10

*Denotes competency evaluators

Program Director	*Debbie Tomlinson, M.A., R.T.(R)(T)
Student Clinical Coordinator	*Sheila Randolph, BSRT(R)(T)
Student Clinical Supervisors	*Deanna Hutslar, BSRT(R)(T) <i>CARTI Baptist</i> *Gary Randolph, B.S., RT(R)(T), CMD(MDCB) <i>CARTI Searcy</i> *Gale Taylor, RT(R)(T) <i>CARTI Conway</i> *Gwen Spencer, BSRT(R)(T) <i>CARTI North Little Rock</i> *Steve Kimball, BSRT(T) <i>CARTI St Vincent</i> *Jennifer Lyons, BSRT (R)(T) <i>CARTI UAMS</i> * Dan Ryan, BSRT(T), CMD (MDCB) <i>CARTI Mountain Home</i>
CARTI Clinical Staff St Vincent	*Phyllis Wright, RT(R)(T) *Dean Dunn, BSRT(R)(T) *Stephanie Osberg BSRT (T) *Jeanette Tidwell BSRT (T) Nikki Davenport, BSRT, RT(T)
CARTI Clinical Staff Searcy	*Debbie Sheetrum, RT(R)(T) *Sarah Talley, BSRT(R)(T) *CJ Hamilton, BSRT [R] [T] *Brooke Hauk, BSRT [T]
CARTI Clinical Staff Conway	*Stacie Edwards, RT(R)(T) *Karen Horne, RT(R)(T) * Brian Williams, RT (R)(T)
CARTI Clinical Staff Baptist	*Annette Noble, BSRT(R)(T) *Gayle Graves, BA, RT(R)(T) *Angie Ellis, BSRT(R)(T) *Sarah Eubanks, BSRT (R)(T) *Leslie Clark, BSRT(R) (T) *Jackie Tanner, RT(R)(T)
CARTI Clinical Staff NORTH LITTLE ROCK	*Joanna Dennis, RT(R)(T) *Paige Sapp, RT(R)(T) *Ashley Sexton BSRT (R)(T)

CARTI Clinical Staff UAMS

*Michael Rabalais, RT(R)(T)
*Cynthia Cummings, BSRT (T)
*Jennifer Brooks, BSRT (R)(T)
*Cherie Cox, BSRT (R) (T)
*Amber Reed BSRT (R)(T)
*Greg May RT (R) (T)
*Amy Sherrill BSRT (R)(T)
Duward Martin, BSRT (R)(T)
Carlos Rodriquez RT (R)(T)
*Jaclyn Stewart, BSRT (R)(T)
Tara Webb, BSRT(R)(T)

Clinical Staff Mtn Home

Stacie Jones, BSRT (R)(T)
Stephanie Davis-Osborne RTT
Rachel Luther, RTT

Rotational Staff

Rena Pederson, BSRT(R)(T)
Kelly Lee, BSRT(R)(T)

PRN Staff

Sarah Cruse, BSRT(R)(T)
Dianne Howard, RT(R)(T)
Ashley O'Neal BSRT (R)(T)
Cindy Chappell, MA, R.T.

CLINICAL MACHINE ROTATIONS

Clinical rotations are three to four weeks in length. There are 11 clinical rotations divided into first, second, and third semesters. These rotations will be divided among the facilities and a dosimetry rotation. Students should take the time to become familiar with patient set ups, equipment, and routine of the facility to which they are assigned prior to attempting any practices or competency testing.

It is the CARTI/UAMS Radiation Therapy Program policy that students be monitored under direct supervision at all times. Direct supervision is defined as visual monitoring of the student, however when the patient is present, the radiation therapist must be in the room with the student before he/she is allowed to manipulate any equipment. Students may practice or perform treatment setups without a patient in the room, as long as there is a therapist at the console who may visually supervise them on the video monitor.

During the first semester, students are not allowed to operate the machine console with a patient in the room. Students will be taught how to set the console during clinical labs and should practice these procedures during break periods without a patient in the room. During the second semester, the student may begin to operate the console on a regular basis under the direct supervision of the clinical staff. Students may begin treatment chart documentation including charges, and operation of IMPAC Record and Verify System and IGRT after the successful completion of the program's computer and chart coding classes conducted in the 2nd semester. Program officials will notify staff when these requirements have been met. Students will be responsible for these tasks during competency testing in the 3rd semester.

CLINICAL CHECK LIST

During clinical rotations, the student will be required to maintain a clinical check list, complete an evaluation of the clinical staff on the assigned machine and have their performance and progress evaluated by that staff.

The Clinical Checklist is an accumulative list of treatment sites observed and/or assisted by the student during clinical rotations. It is the student's responsibility to keep this list up-to-date. This list will be reviewed during meeting with program official at the end of each clinical rotation.

Use clinical form - Clinical Checklist - for documentation.

PROFESSIONAL EVALUATION

As professionals in the field of radiation therapy, we are under constant scrutiny by patients and peers. Students are graded on their professional and technical skills as well as ethical behavior and conduct. At the beginning of each clinical rotation, the student will meet with therapists stationed at the facility to which they are assigned. The therapist will identify specific expectations and achievements required during the rotation. The goal of this practice is to minimize confusion and increase communication between the therapist and student. At the end of the rotation, therapist and student will meet again to review outcome of rotation. Therapist will evaluate student via electronic evaluation form, Professional Ethics, Conduct and Technical Evaluation (PECT).

The student will be evaluated on ten broader categories of clinical achievement. These categories are supported by more specific objectives, which indicate clinical progress. A compilation of PECT evaluations and competencies achieved during each clinical rotation will help determine the student's clinical grade for that rotation. If the student scores less than 75%, the Progressive Disciplinary Policy will be invoked. Program officials review these evaluations with the student after each rotation.

STUDENT EVALUATION OF CLINICAL STAFF AND FACILITIES:

The purpose of this evaluation is to provide a consistent and uniform approach for students to evaluate clinical education and overall clinical experience. Student should complete a Clinical Instructor evaluation at the end of each rotation for each therapist with whom they worked a minimum of 3 days. Student will also be asked to complete a Facility Evaluation during their last rotation through that facility for the program year. Both of these evaluation forms are available on CARTINet. A summary of these evaluations will be given to the clinical staff annually in the Spring.

Use electronic clinical form - Clinical Instructor Evaluation and Facility Evaluation - for performance documentation.

CLINICAL COMPETENCIES:

Clinical Competencies are divided into semesters for Treatment and Simulation. Student will be eligible to attempt competency after that topic has been covered in didactic coursework.

There are a variety of required competencies identified for the student that must be achieved. In addition, there are a number of treatment examinations that may be chosen by the student to achieve. These additional competencies are required but not specified by the program.

The Simulation\CT Competency List contains a variety of required and additional simulations much like the treatment list. In addition, there are other required competencies including task competencies and new patient set-ups that must be successfully completed in order to graduate. Explanations and criteria for Task Competencies and New Patient Set-ups will be discussed later in the handbook.

Each treatment competency must be practiced twice under direct supervision of a Clinical Staff member. Each competency for simulation or CT must be practiced once. The competency can then be performed for one of the Clinical Evaluators. The evaluator will use the Clinical Competency Treatment Objectives as a guideline to evaluate the student's performance and the Treatment or Simulation\CT Evaluation forms to document performance scores and overall grade.

A total of 60 points are possible on the exam (15 objectives at 4 points each). The student must score a minimum of 75% or 45/60 points to successfully complete the exam.

While the student may score in the "marginal but acceptable" range on a few items, overall the student must perform at the "very good" level or beyond in order to accumulate enough points to pass the exam. Any single item scored below a 1.0 or an overall score below 75% will result in failure of the exam.

Once a competency is failed, additional practice must be completed before the competency can be re-challenged. The student must perform with the same Clinical Evaluator until the competency is passed. Once a competency is failed, the highest grade a student can receive for that competency is 75%.

Clinical forms: Treatment Competencies, Simulation |CT Competencies, - for performance documentation.

SPOT CHECKS

Once the competency is achieved, the Student Clinical Coordinator or any clinical instructor/evaluator may periodically "spot check" the student on these competencies. The Spot Check is documented on the Competencies Form. A failure requires the student to start over with this competency and follow the same procedures as described earlier. Once a spot check is failed, the highest grade the student can make on that competency is 75%. Spot checks can be done at anytime throughout the year.

CLINICAL COMPETENCY OBJECTIVES

TREATMENT

The following are the objectives by which the clinical competency evaluation will be graded:

1. Patient Record Evaluation and Room Set-Up
 1. Examines treatment record including plan prior to treatment delivery.
 2. Reviews prescription and follows any special set up instructions. (i.e. full bladder, pacemaker, bolus)
 3. Determines appropriate immobilization, positioning and indexing aids.
 4. Sets up room correctly.
 5. Compares daily and accumulative doses in paper and electronic chart prior to and after treatment

2. Verifies Treatment Parameters
 1. Verifies MU, beam energy, gantry angle, wedge type, collimator settings, couch and collimator angles, SSD.
 2. Verifies that MLC segments in IMPAC match the segments printed in the patient record
 3. Positions treatment machine and accessory equipment to reproduce set-up
 4. Records ODI according to policy and takes appropriate action if ODI is not within tolerance.
 5. Utilizes lasers correctly

3. Patient Management/Care
 1. Verifies identity of patient.
 2. Verifies informed consent obtained prior to procedure.
 3. Recognizes the presence of any complications and side effects commonly associated with treatment procedure and takes appropriate action .
 4. Demonstrates sensitivity and compassion for patient's physical and emotional well being.
 5. Maintains the confidentiality of patient information.
 6. Assess' patient's status and condition and provides assistance as necessary.
 7. Monitors accessory medical equipment.
 8. Pays attention to patient following procedure – quickly enters treatment room, provides appropriate assistance.
 9. Observes or questions patient regarding nutritional status.
 10. Weighs patient when required.
 11. Demonstrates understanding of dose to critical structures in treatment field.
 12. Identifies and reports any abnormal laboratory results.
 13. Delivers patient for weekly treatment exam.

4. Imaging procedures for verification and localization
 1. Verifies treatment fields with port films when applicable.
 2. Properly places port film, graticule etc.
 3. Utilizes IGRT (dynamic targeting) when applicable
 4. Demonstrates understanding of repositioning as required.
 5. Demonstrates understanding of IGRT shift tolerance as set forth by policy.

5. Patient Monitoring
 1. Monitors patient visually and by intercommunication system during treatment
 2. Takes appropriate action if patient moves or calls for assistance.
 3. Recognizes emergency situation and activates appropriate response.

6. Equipment Operation and Monitoring
 1. Watches all movement of unit
 2. Knows control mechanisms response
 3. Demonstrates knowledge of machine components
 4. Reports any equipment malfunctions.
 5. Demonstrates troubleshooting capabilities

7. Patient Positioning
 1. Positions patient on treatment couch to reproduce set-up indicated in the patient record, appropriately utilizing:
 - a. indexing
 - b. positioning aids
 - c. field markings
 - d. immobilization devices

8. Patient Education
 1. Explains procedures appropriate to patient' level of understanding
 2. Informs patient what will be required during the procedure.
 3. Correctly answers patient's questions.
 4. Informs patient when treatment is beginning and ending.
 5. Instructs patient on maintenance of the treatment field markings.
 6. Instructs patients concerning proper skin care.
 7. Instructs patients regarding correct diet during course of treatment and refers to appropriate personnel as required.
 8. Schedules and reinforces future appointments

9. Treatment volume localization
 1. Demonstrates understanding of anatomy, physiology and pathology related to treatment procedure.
 2. Can describe alternative treatment procedures and explain how these procedures might apply in a given case.
 3. Uses appropriate marking procedure when required.

10. Communication
 1. Interacts with members of the treatment team in an appropriate and effective manner.
 2. Communicates relative patient information to appropriate members of the patient care team.
 3. Demonstrates appropriate interactions with patients, patient's family and friends.

11. Time Management
 1. Uses available time wisely
 2. Stays within allotted time slot
 3. Sets up treatment field efficiently while maintaining accuracy.

12. Radiation Safety and Protection
 1. Wears radiation monitoring device while in clinic.
 2. Performs required procedure in ways that minimize radiation exposure to personnel and patient.

13. Practice of Environmental Protection
 1. Follows environmental protection standards for handling and disposing of biohazardous materials.
 2. Follows appropriate universal blood and body fluid precautions.
 3. Cleans equipment and treatment area appropriately.

14. Operation of Console (Semester 3 only)
 1. Delivers treatment by setting and activating controls on machine console.
 2. Understands and responds correctly to faults.

15. Documentation (Semester 3 only)
 1. Documents and signs patient record appropriately for each treatment delivered.
 2. Documents changes in prescribed course of treatment
 3. Documents all charges related to daily treatment.
 4. Documents all aspects of patient care and management in the appropriate record.
 5. Documents and communicates errors and discrepancies in accordance with QA procedures.

CLINICAL COMPETENCY OBJECTIVES
SIMULATION/CT

The following are the objectives by which the clinical competency evaluation will be graded:

1. Patient Record Evaluation and Set-Up
 - a. Examines prescription and follows any special set-up instructions prior to simulation
 - b. Assures that all diagnostic studies are available prior to procedure
 - c. Prepares room and equipment correctly utilizing appropriate supplies and accessories

2. Treatment Field Delineation, Measuring and Marking
 - a. Determines potential treatment field from simulation films and diagnostic studies
 - b. Communicates with radiation oncologist to determine optimum fields to cover volume of interest
 - c. Performs CT scan for region of interest
 - d. Applies appropriate field , laser, fiducial and set up markings
 - e. Removes any unnecessary marks
 - f. Obtains treatment planning data as required (CT Data, contours, measurements, orthogonal films)
 - g. Measures and records information necessary to fabricate beam modifying devices

3. Patient Management/Care
 - a. Verifies identity of patient
 - b. Verifies informed consent obtained prior to procedure
 - c. Demonstrates sensitivity and compassion for patient's physical and emotional well being
 - d. Maintains the confidentiality of patient information
 - e. Assess' patient status and condition and provides assistance as necessary
 - f. Monitors accessory medical equipment
 - g. Pays attention to patient following procedure-quickly enters room, provides appropriate assistance
 - h. Demonstrates understanding of dose to critical structures in treatment field

4. Imaging and Processing Procedures
 - a. Performs scan for region of interest
 - b. Select proper protocol for scan
 - c. Appropriately selects image parameters – slice level, FOV
 - d. Captures and exports all image information to appropriate members of treatment team
 - e. Determines appropriate exposure factors for optimum image quality
 - f. Correctly indentifies and labels all films with correct patient information
 - g. Properly orients patient to couch/labels films r/l
 - h. Reviews films/scan with radiation oncologist fro approval/modification instructions
 - i. Processes exposed films when applicable

5. Patient Monitoring
 - a. Monitors patient visually during simulation procedure
 - b. Take appropriate action if patient moves or calls for assistance
 - c. Recognizes emergency situation and activates appropriate response

6. Equipment Operation and Monitoring
 - a. Watches all movement of unit
 - b. Understands control display
 - c. Knows control mechanisms response
 - d. Demonstrates knowledge of machine components
 - e. Detects and reports any equipment malfunctions and selects appropriate action
 - f. Demonstrates troubleshooting capabilities

7. Patient Positioning and Immobilization
 - a. Positions patient for optimally simulation using available tools and instrumentation as required
 - b. Utilizes optimum positioning, immobilization and indexing devices
 - c. Manufactures treatment aids if required
 - d. Demonstrates ability to straighten and level patient
 - e. Demonstrates understanding of importance of patient comfort and set up reproducibility

8. Patient Education
 - a. Explains procedure appropriate to patient's level of understanding
 - b. Informs patient what will be required during the procedure
 - c. Correctly answers patient's questions
 - d. Instructs patient on maintenance of markings
 - e. Instructs patient concerning proper skin care
 - f. Schedules and reinforces future appointments

9. Treatment Volume Localization
 - a. Demonstrates understanding of anatomy, physiology and pathology related to procedure
 - b. Uses appropriate marking procedure

10. Communication
 - a. Interacts with members of the treatment team in an appropriate and effective manner
 - b. Communicates relative patient information to appropriate members of the patient care team
 - c. Demonstrates appropriate interactions with patients, patient's family and friends

11. Time Management
 - a. Uses available time wisely
 - b. Stays within allotted time slot
 - c. Sets up patient efficiently while maintaining accuracy

12. Radiation Safety and Protection

- a. Wears radiation monitoring device while in clinic
- b. Performs required procedure in ways that minimize radiation exposure to personnel and patient (ALARA)
- c. Properly utilizes shielding

13. Practice of Environmental Protection

- a. Follows environmental protection standards for handling and disposing of bio hazardous materials
- b. Follows appropriate universal blood and body fluid precautions
- c. Cleans equipment and simulation area appropriately

14. Contrast Media Administration

- a. Obtains history and physical prior to contrast media administration
- b. Provides patient with preparation instructions
- c. Correctly administers contrast – oral, intravenous, intracavitary, other

15. Documentation (Sem 3 Only)

- a. Documents and signs patient record appropriately
- b. Records necessary parameters in patient record (e.g. ODI, gantry angles, collimator settings)
- c. Records patient positioning, immobilization and indexing instructions in patient record
- d. Documents all charges related to simulation
- e. Documents all aspects of patient care and management in the appropriate record
- f. Documents and communicates errors and discrepancies in accordance with QA procedures

NEW PATIENT SET-UPS

The student is required to completely set-up and start three (3) new patients from simulation through treatment. One patient must be an electron procedure with a clinical set-up simulation. The other 2 procedures may be chosen by the student, but treatment must include an original simulation, block check, if needed, and treatment including calculation and chart and charge documentation. The evaluator may assist the student much in the same way a new student would assist the therapist. These set-ups must be completed within the allotted time period (usually 30 minutes) and all aspects of simulation and treatment must be successfully completed in order for the student to pass the exercise. The evaluator must review the set-up, calculation, documentation and machine monitoring procedures before treatment is delivered. If an error is made, the student will fail the exam and be required to correct the error. They must then choose another patient and retest. Grading is done on a strict pass-fail basis. These exams may not be challenged until the 3rd semester.

Use clinical form – Simulation/CT Competencies for performance documentation

Conventional Simulation Workbook

The purpose of this workbook is to prepare the radiation therapy student to perform a variety of conventional simulation procedures commonly encountered in a typical radiation therapy department. Coupled with the simulation rotations, it will serve to further round the student's experience in the performance of conventional simulation. The workbook contains 8 sections each pertaining to specific body parts and treatment techniques. If the student performs conventional simulation on actual patient, that section of the workbook can be skipped.

NURSING ROTATION

Students are required to rotate through the Nursing Station for one week during the first semester. This rotation provides the opportunity to interact with new patients beginning their treatment, observe patient treatment exams and post-treatment evaluations. *Students must schedule this rotation with the nursing staff at the facility to which they are assigned.*

Students are required to maintain the Nursing Rotation Observation Checklist. Students will be evaluated by nursing personnel using the Nursing Rotation Evaluation form. During this rotation the student is required to complete vital sign, oxygen administration and patient transfer competency. These forms will be discussed during Orientation and reviewed during meeting with program official at the end of each clinical rotation.

NURSING ROTATION OBJECTIVES:

Upon completion of the nursing rotation, the student will be able to:

1. Identify and stock exam rooms with necessary nursing and radiation therapy examination supplies.
2. Properly position patients, observe, assist and have supplies ready for examinations: Head and neck, abdomen, pelvis (pelvic or GYN exam) and chest.
3. Assist physicians during the treatment exam process.
4. Recognize, organize and compile the correct documents for a radiation therapy treatment chart, if necessary utilizing hospital charts.
5. Record blood values; recognizing and reporting abnormal values.
6. Weigh and record on weight chart patient's correct weight.
7. Recognize and report adverse symptoms and signs of radiation therapy treatments.
8. Measure and record patient's vital signs: blood pressure, temperature, pulse and respiration.
9. Observe physician's examination of patient during the different types of exam, i.e., initial examination, treatment planning, weekly examination, finish examination and follow-up examination.
10. Move and lift patients, stretchers and equipment utilizing proper body mechanics.

11. Recall normal medications patients may be given or taking during radiation therapy treatments.
12. Make physical assessment of patient and make or recommend action decision.
13. Demonstrate understanding of basic CPR
14. Oxygen administration.

Use clinical forms - Nursing Observation Checklist, Nursing Rotation Evaluation Form, Oxygen Administration and Patient Transfer Competency, Vital Sign Assessment Competency for performance documentation

DOSIMETRY ROTATION

During the program year, the student will have a rotation through Dosimetry. This rotation will provide the student with a better understanding of the role that physics/dosimetry plays in the radiation therapy department. In many centers across the country, a staff therapist would be required to perform some of the duties that are currently being conducted by our physics department. Therefore, it is important that the student grasp the knowledge gained in this area during this rotation period.

The student will be required to complete calculations on specified treatments, obtain patient data for treatment planning, and complete specific treatment plans. The student will also be required to construct a variety of custom blocks and fabricate a variety of treatment aids and immobilization devices. The purpose of this requirement is to ensure that the student has been exposed to construction and utilization of these items. Students will also be required to perform weekly chart checks. Student will be introduced to Record and Verify System.

Forms used to document this achievement are included in this handbook and discussed during Orientation class.

OBJECTIVE:

To familiarize the student with the performance of monitor unit calculations gathering patient data for treatment planning purposes, computerized treatment planning, custom block construction, treatment aid and immobilization device construction. After the completion of the dosimetry rotation, the student will be able to:

1. Perform specified group of calculations.
2. Obtain patient data for treatment planning.
3. Successfully complete computer generated isodose plan.

4. Construct a minimum of one photon, one electron custom block and one MLC block configuration.

The student will be able to:

- o Set the correct SSD
- o Place and secure styrofoam for cutting
- o Cut the styrofoam mold using thin cuts and consistent wire speed.
- o Prepare the styrofoam mold
- o Check the mold
- o Pour the cerrobend into the styrofoam mold
- o Prepare the tray and block for mounting
- o Properly mount block
- o Check block on simulator for proper fit

Students will be able to review treatment charts for discrepancies in:

- o Accuracy of new MU calculations
- o Proper documentation of treatment fields
- o Proper addition of all accumulative doses
- o Agreement between prescribed and delivered dose
- o Current pathology report filed and documented in chart
- o Proper pictures taken and labeled correctly
- o Correct factors used in monitor unit calculations
- o Patient measurement verification form filled out when applicable
- o Current physics check done
- o Dictation completed by physician
- o Off cord or other upcoming changes written in by physician.

Use clinical form –Task Competencies - for performance documentation

MACHINE WARM UPS:

OBJECTIVE: To educate the student proper warm-up and QA procedures performed daily on all equipment utilized in patient treatment to include linear accelerators (including ExacTrac), simulators and CT scanners. Student will be able to conduct procedures utilizing the established standards for each machine. Student will be knowledgeable regarding minimum operating tolerances.

The student will perform two warm up procedures for each rotation assigned to treatment machine, simulator and CT.

The student will be able to **perform** the following tasks with limited supervision. Student will be able to discuss minimum acceptable tolerance. Student will be able to describe appropriate action to be taken if minimum tolerance is not met.

1. Start up procedures
2. Mechanical checks
 - a. table
 - b. lasers
 - c. ODI
 - d. Field size
 - e. MLC check
 - f. Collimator
 - g. Gantry
 - h. A/V equipment
 - i. Radiation monitor
 - j. Door interlock
 - k. Beam off button at console
3. Daily output procedure – Keithley Tracker
**Refer to Daily Warm-Up, Tracker and Shut Down of Linacs Policy and Procedure.*

Use clinical form – Machine/Start Up QA Procedures - for performance documentation.

SPECIAL TREATMENTS AND PROCEDURES

The student will be required to observe a variety of special radiation therapy treatments and procedures. These include Prostate Implant, Remote After Loading Procedure (GYN GammaMed), Stereotactic Radiosurgery and Tomotherapy. These procedures are performed routinely at several CARTI facilities. Students are responsible for arranging observations of these procedures with the physics/dosimetry staff.