

**High Dose Rate Remote Brachytherapy
GYN Cylinder Application**

Policy:

To provide guidelines to ensure that the HDR procedure is performed accurately, efficiently, and in a timely manner.

1. HDR procedures are to be performed by radiation oncologist, within radiation regulations, according to policies and procedures.
2. The radiation oncology nurse will coordinate the procedure.

Procedure:

- A. Initial request and scheduling
 1. The radiation oncologist will:
 - a. Perform an appropriate examination and patient consultation.
 - b. Make decision regarding appropriateness of procedure for particular patient.
 - c. Obtain informed consent prior to sedation for HDR procedure.
 2. The nurse will:
 - a. Schedule the procedure with the radiation oncologist and physicist.
 - b. Enter it into the IMPAC appointment schedule.
 - c. Inform therapist and simulation technologist of patient and date and time of procedure.
 - d. Confirm the appointment time with patient
 - e. Ask radiation oncologist and physicist which implant applicators are needed.
 - f. Ensure that all necessary instruments and supplies have been sterilized or disinfected and ready for use.
 - g. Inform the patient what to expect the day of treatment.
 - h. Schedule any necessary bloodwork, obtain results, and have them verified.
- B. As soon as notified of the scheduled implant, physics will:
 1. Assign, notify, and post the schedule of assignments for the physics staff.
 2. Obtain chart from nurses and include the HDR Brachy-Radiotherapy Form which includes:
 - a. HDR Pre-treatment QA
 - b. HDR Treatment Prescription
 - c. HDR Treatment History and Radiation Survey
 - d. Physics/Dosimetry Plan

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- C. The physicist/dosimetrist will consult with the radiation oncologist on treatment planning and run any preplans as requested.
- D. The radiation oncologist will review the plans.
- E. Day of Procedure: Simulation and Treatment Process (Vaginal cylinder is a clean, non-sterile procedure)
 - 1. The radiation oncology nurse will:
 - a. Verify the patient's identity.
 - b. Verify the patient's bloodwork.
 - c. Have the patient void prior to the procedure.
 - d. In CT Simulation room, a sheet will be placed on the simulation table, the transfer board will be placed over the sheet, and another sheet will be placed over the transfer board.
 - e. Have the following equipment ready for procedure in CT Simulation room:
 - 1. sterilized segmented cylinder set
 - 2. sterile probe cover
 - 3. universal clamping device
 - 4. 320mm x-ray marker (Physicist will decide which one of these to use)
 - 5. sterile & non-sterile gloves
 - f. Prep vagina and perineum using Phisohex and sterile sponges.
 - 2. The radiation oncologist will:
 - a. Insert segmented cylinder applicator into vagina, using sterile gloves.
 - b. Immobilize the applicator with the universal clamping device or use set for attachment to the patient's body.
 - 3. To take radiographs:
 - a. Physicist, wearing clean, non-sterile gloves will insert the x-ray marker into the applicator probe.
 - b. Simulation Technologist will:
 - 1. center patient on to simulation table
 - 2. ensure the applicators are properly placed and still in proper alignment.
 - 3. CT pelvis.
 - 4. Physician and physicist/dosimetrist will approve images and once again check for placement of the applicators and proper alignment.
 - 5. Send CT to Brachyvision 1.
 - 6. Physics to remove x-ray marker with non-sterile gloves on.
 - c. Patient will be transferred to HDR stretcher, using transfer board being very careful not to disturb the instrument placement.

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4. In HDR Room:
 - a. Therapist will instruct patient on treatment and safety during procedures (do not try and get up, etc.).
 - b. Nurse will monitor patient on stretcher while treatment planning is being done.
 - c. Physicist, using non-sterile gloves will use 1300mm length gauge wire to verify length.
 - d. After physicist completes and reviews treatment plan with physician, physicist will connect the 320mm connector transfer or source guide tube to the corresponding channel of the indexer/turret according to the treatment plan, using clean non-sterile gloves.
 - e. Re-explain to patient the need to hold still during procedure, and that he/she will be monitored both visually and audibly during treatment.
 - f. Time out procedure is to be performed in treatment room before administering treatment.
 - g. Therapist will assure all personnel have exited.

5. Treatment of patient
 - a. Ensure patient is fully visible on the video monitor outside treatment room.
 - b. Radiation Oncologist, physicist, oncology nurse, and therapist will be present.
 - c. Therapist will turn machine on with approval of physician.
 - d. Physicist will survey the patient immediately upon completion of treatment and document survey.
 - e. Physicist will remove the transfer or source guide tube from the flexible probe, using clean, non-sterile gloves.
 - f. A cleaning cap is placed onto the flexible applicator probe.
 - g. Oncology nurse will assist physician in removing the applicator attachment (if used), wearing gloves.
 - h. Withdraw the complete applicator. Do not pull on the flexible applicator probe but on the cylinder or guiding tube (pulling on the flexible applicator probe can damage the probe beyond repair).
 - i. Examine the applicators with the physician to assure all were removed intact.
 - j. All documentation to be placed in patient's Radiation Oncology chart.
 - k. Nurse will help patient off the HDR table and assist patient in dressing.
 - l. Nurse will give the patient and family discharge instructions as directed by the physician, as well as the next appointment for treatment or follow-up. Patient is to receive 3 treatments/1 treatment per week.

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- m. HDR table and counters to be wiped down using hospital approved disinfectant. Environmental Services will be called to clean floor at the end of the day.
 - n. Therapists are responsible for gathering all markers, gauges, and transfer tubes, place in assigned packages they came out of and taken to the nurses to be cleaned and sterilized.
 - o. Therapist will enter all appropriate charges.
 - p. Nurses will maintain ongoing records of HDR patients with Brachytherapy to include number and dates of implant/patient, etc.
6. Cleaning Disinfecting, and Sterilization of equipment.
- a. Segmented cylinder set-
 - 1. Cleaning
 - a. Close the flexible applicator probe with a cleaning cap. While cleaning and disinfecting, make sure no liquid enters the probe.
 - b. Disassemble the cylinder. Using a small brush, clean the inside of the segments and the guiding tube.
 - c. Clean all applicator parts under running water.
 - 2. Disinfecting
 - a. Disinfect all parts with Cidex OPA. Do not leave applicator in disinfectant for more than 1 hour.
 - b. Rinse 3 times with sterile water. (**see hospital policy on Cidex for handling**)
 - 3. Sterilization
 - a. All parts of applicator can be steam sterilized according to manufacture directions.
 - b. During sterilization, cleaning cap has to be removed.
 - c. Set will be sterilized prior to each use in designated sterilization box.
 - d. All parts are reusable.
 - Applicator-** can be steam sterilized up to 100 times.
 - Flexible applicator probe-** can be steam sterilized up to 25 times.
 - b. X-ray markers

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1. Usage-Used to visualize the applicators/catheters for treatment planning purposes. Wire contains radiopaque seeds and is used for identifying applicator channels on CT images.
 2. Maintained aseptically.
 3. Cleaning: Clean the marker under running water if necessary.
 4. Disinfecting: Disinfect with Cidex OPA (do not leave in more than 1 hour). Rinse with sterile water 3 times.
(see hospital policy for usage of Gluteraldehyde (Cidex)).
 5. X-ray marker wires are reusable. They are to be cleaned and disinfected prior to each procedure. Total life span of markers-5 years.
- c. Source Guide Tube
1. Usage-Tube that connects the applicator set to the HDR unit.
 2. Maintained aseptically.
 3. Cleaning
 1. While cleaning, ensure no liquid enters into source guide tube. If this happens, dry inside of tube and connector with compressed air.
 2. Close both ends of tube with a cleaning cap (gray-for connector, and black- for device connector).
 3. Clean tube under running water.
 4. Tube should be wiped carefully. **DO NOT STRETCH.**
 4. Disinfection
 1. Only outside of tube can be wipe disinfected with Cidex OPA. Do not place whole tube in disinfectant.
 2. Remove cleaning caps during wipe disinfection.
 3. Rinse with sterile water 3 times.
(see hospital policy for usage of Gluteraldehyde (Cidex)).
 4. Store tubes freely suspended in storage rack. Close tube with cleaning caps to prevent contamination.
 5. Source guide tubes are designed for repeated use. Tubes to be disposed of after 5 years. Log will be maintained by nursing staff in Radiation Oncology.
 6. Source guide tube is reusable. They are to be cleaned and disinfected prior to each procedure.
- d. Length Gauge
1. Usage- Physicist, using gloves, will insert length gauge into the combined source guide tube plus applicator. This provides a constant length of 1300mm. This aids in the source positioning, and is used for quality checkup of this systems length.
 2. Maintained aseptically.
 3. Cleaning
Clean the length gauge under running water
 4. Disinfection

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- a. Disinfect with Cidex OPA. Do not leave the length gauge in disinfectant for more than 1 hour.
 - b. Rinse with sterile water 3 times.
(see hospital policy for usage of Gluteraldehyde (Cidex).
5. Sterilization
Length Gauge can be steam sterilized according to manufacturer's recommendations prior to each procedure.
 6. Length gauge is designed for multiple uses.

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