



One System.  
Best Health.

# Radiation Therapy Overview

Updated November 2024



# Radiation Therapy Patient Pathway

Radiation Consult  
CT Simulation  
Booking Treatment  
Treatment Planning  
Radiation Treatment Delivery  
Radiation Review Clinic  
Follow up  
Other - Vaginal Dilators  
Other - IV Contrast  
Other – Bladder/Bowel Preparations  
Other –Special Eating Instructions  
Other – Patient Lodge  
Other – Continuous Glucose Monitoring Devices and Insulin Pumps

# Radiation Consult Appointment

- Referral received to new patient referrals – triaged and booked
- Consults offered in person at Oshawa, Peterborough, Lindsay, Cobourg and Scarborough hospitals
- Database/screening/nursing assessment
- Review of staging, test results and options for treatment with RO
- Goals of Care Discussion
- Signing consent for radiation
- Review next steps in care/appointments, including any preparation instructions for CT Sim
- Provide with contact information for healthcare team
- Provide with patient education
  - ✓ Standardized education sent to patient via in-basket message
  - ✓ Personalized education includes verbal and handouts as identified in the [radiation therapy patient education pathways](#)

# CT Simulation (aka 'Sim')

- Need to come to DRCC for this appointment
- Different from a diagnostic CT scan as this scan is used to plan for radiation treatment
- Education provided by radiation therapist (MRT) prior to CT sim. Site specific handouts provided to patient which include side effects and symptom management.
- Patients will be scanned in the position they will be in for treatment
- Use immobilization devices to help with patient positioning
- Give permanent tattoos (unless treatment is neck or head area then fabricate mask)
- RO can request IV/CVAD contrast with Sim. DRCC Nurses complete IV start/access CVAD. MRT inject/remove the IV post procedure
- Patient may be booked for a 15-30 min RAD CON (consent) appointment just prior to CT Sim (RO advises when entering orders in MOSAIQ) – i.e. First in person appointment OR patient did not sign consent at consult etc. etc.
- Sim appointment booked for 30-60 minutes depending on treatment complexity/number of anatomical treatment sites

# CT Simulation Patient Education

- Prior to CT Simulation MRT will review the following with the patient:

PATIENT	
Confirm Patient ID:	<input type="text"/>
Pt Pregnant:	<input type="text"/>
Laterality:	<input type="text"/>
Defibrillator or Pacemaker:	<input type="text"/>
Portacath:	<input type="text"/>
Risks Assessed:	<input type="text"/>
Psychosocial Supports Discussed:	<input type="text"/>
Smoking / Vaping Cessation Discussed:	<input type="text"/>
*S - RBI Introduced:	<input type="text"/>
Appts. / Vol Driver / Lodge:	<input type="text"/>
Consent Form Confirmed:	<input type="text"/>
SIMULATION	
CT Procedure Discussed:	<input type="text"/>
CT Prep Instructions Reviewed:	<input type="text"/>
SiteSpecificResources Provided:	<input type="text"/>
OTHER	
Hand Hygiene/IPAC Reviewed:	<input type="text"/>
Document Specific Needs:	<input type="text"/>

# Booking Treatment

- Booking completed by clerical in DRCC radiation
- Treatments booked in MOSAIQ but interface with Epic
- Patients are given their 1<sup>st</sup> treatment appointment before they leave their CT Simulation appointment (1<sup>st</sup> week given if Wheels of Hope)
- Treatment booked according to OH-CCO urgency guidelines:

Urgency 1 = 24 hrs from Sim to Treatment (life threatening) aka 'sim & tx'

Urgency 2 = 4 working days from Sim to Treatment (palliative)

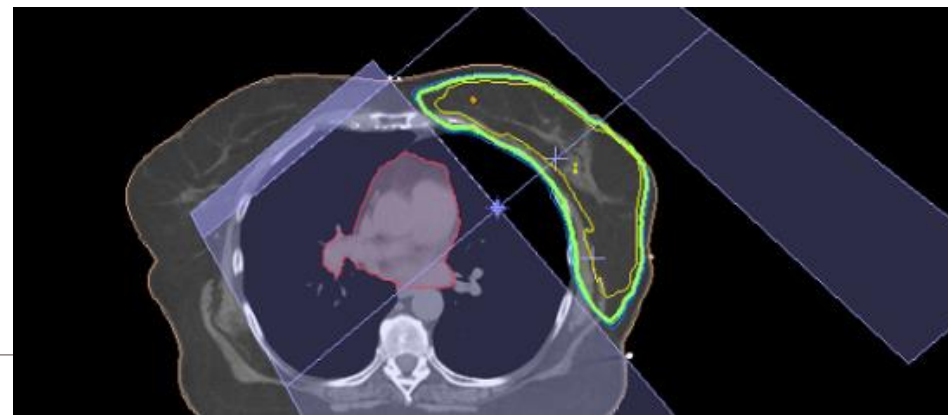
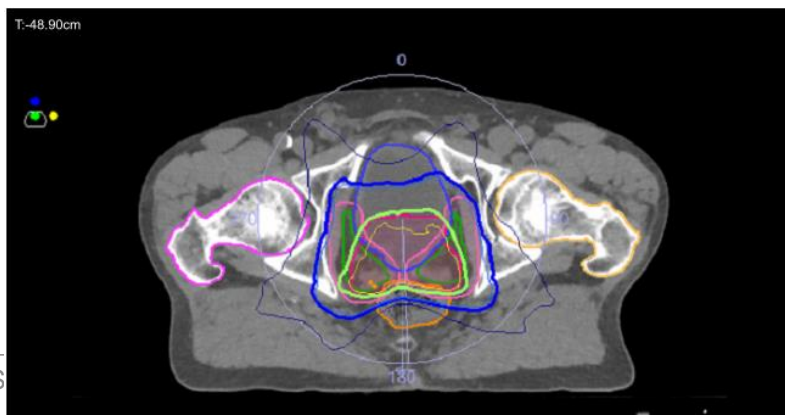
Urgency 3 = 8 working days from Sim to Treatment (curative/radical)

- Treatment booked at DRCC unless eligible for PRHC which includes Prostate, Breast and Palliative patients within range of postal codes allowed. Priority given to PRHC inpatients if treatment unit gets full.



# Radiation Treatment Planning (aka 'Dosimetry')

- Treatment Planning performed at DRCC only
- Patient not present for treatment planning
- MRT(with training in this area called Dosimetrist/Planner) develops treatment plan according to RO prescription in MOSAIQ/intent to treat and according to departmental guidelines. Plan checked by RO and Physics prior to treatment delivery
- Goal is to maximize dose to tumour and minimize dose to normal tissues
- Plan can take a few hours or several days (complexity can dictate)
- Rigorous QA process, interprofessional and many touch points



# Radiation Treatment Delivery Overview

- Radiation can be delivered by External beam (Linac) or High Dose Rate (HDR) brachytherapy \*Brachy = close distance to, or internal radiation
- DRCC: 6 Linacs (machine that delivers external beam radiation), 2 CT simulators and 1 HDR unit
- Peterborough: 1 Linac
- Linacs are all the same vendor (Elekta) so increases our flexibility to move patients across treatment units as needed
- External beam treatment in Oshawa: all anatomical disease sites except Paediatrics, primary Head and Neck and primary CNS (apart from GBM short course which was approved May 2023)
- External beam treatment in PRHC: prostate, breast and palliative
- Brachytherapy at DRCC: HDR Prostate, HDR Cervix, HDR Vaginal Vault and HDR Skin cases can be treated



# Treatment Delivery - Patient Education

- Prior to 1<sup>st</sup> Treatment and on last fraction a MRT will review the following with the patient:

Patient Id Confirmed:	<input type="text"/>
Patient Pregnant:	<input type="text"/>
Pacemaker or Defibrillator:	<input type="text"/>
Psychosocial Supports Follow Up:	<input type="text"/>
T- Smoking/Vaping Cessation F/U:	<input type="text"/>
Risk Assessments Completed:	<input type="text"/>
<b>TREATMENT</b>	
Pre-Tx Routine Discussed:	<input type="text"/>
Pt Aware-Concurrent SystemicTx:	<input type="text"/>
Prep Instructions Reviewed:	<input type="text"/>
Treatment Procedures Explained:	<input type="text"/>
Side Effects Reviewed:	<input type="text"/>
Relationships/BodyImg/Intimacy:	<input type="text"/>
<b>OTHER</b>	
IPAC/Hand Hygiene Reviewed:	<input type="text"/>
Specific Needs Documented:	<input type="text"/>
DAY 1 TX Education Will Be Added	

BRACHY: <input type="checkbox"/>	
Follow Up Appointment:	<input type="text"/>
Education&Community Resources:	<input type="text"/>
Your Voice Matters Survey Card:	<input type="text"/>
Hospital/Primary RN Contact #:	<input type="text"/>
<b>SIDE EFFECTS</b>	
Review S/E Management:	<input type="text"/>
Relat'ships/Body Img/Intimacy:	<input type="text"/>
Current RT Related Medications:	<input type="text"/>
LAST DAY Education Will Be Added	

# Radiation Review Clinic

- Booked weekly in ROs review clinic during treatment course, coordinated within 40 min of treatment appointment (typically booked after treatment)
- Exception=Breast patients not booked for review in 1<sup>st</sup> week of treatment
- Review appointment scheduled in Mosaiq for ease of booking coordination
- 10 min appt focused on radiation symptoms and management
- Patients can complete Your Symptoms Matter beforehand via My Chart
- Documentation performed in Epic by Nurse and RO. If do not have access to MOSAIQ you can view radiation dose history in Epic
- MRTs check review documentation in Epic as part of regular QA process
- If RO wants to hold or change treatment they need to document in MOSAIQ/follow communication process outlined as MRTs not checking Epic for this information

# Radiation Therapy Symptom Management

- MRT check in with patient daily and document in MOSAIQ patient care notes weekly at a minimum
- If MRT determines nursing assessment required and not review day, will request assessment (RROC for DRCC and PRHC nursing reach-out)
- Unrelated oncology patient issues direct to family Dr. or walk in clinic
- [Symptom Management Resources on LH Website](#)

## Managing Side Effects

- [After Hours Symptom Management Support](#)
- [How to Manage Your Symptoms and Side Effects \(Cancer Care Ontario\)](#)
- [How to Reduce Gas in Your Digestive System](#)
- [How to take Sucralfate Suspension Plus](#)
- [Managing Your Constipation](#)
- [Managing Your Diarrhea](#)
- [Managing Your Nausea and Vomiting](#)
- [Managing Your Shortness of Breath](#)
- [Managing Heartburn/Gastroesophageal Reflux \(GERD\)](#)
- [Mouth Care During Cancer Treatment](#)
- [Saline Soak Instructions for Home](#)
- [Sitz Bath Instructions for Home](#)
- [Using a Vaginal Dilator](#)

# Radiation Follow up Clinic

- 1<sup>st</sup> follow up typically booked 4-6 weeks after radiation treatment ends. RO to indicate timing and whether in person or phone call
- Palliative often seen sooner (1-2 weeks)
- DRCC Radiation Booking Clerk schedules all radiation follow ups
- Follow ups offered in Oshawa, Peterborough, Lindsay, Cobourg, Scarborough, or virtually (virtual currently a phone call with RO)
- Database/screening/nursing assessment
- Review any test results or plan for additional tests/scans etc.
- Symptom Management
- Patient should complete YSM prior to appointment
- Next steps in care reviewed
- Determine if further treatment recommended – especially for palliative. Follow up sometimes turns into a consult for new site

# Other - Vaginal Dilators

- Radiation can cause vaginal stenosis. Dilator may be recommended to reduce or prevent stenosis from occurring. Easier to examine vaginally/less painful intercourse.
- Applicable to ALL Gynae (external beam, brachytherapy and combined modality) and ALL Anal Canal patients.
- Bladder and Rectum at RO discretion based on treatment field location.
- Generally 4 weeks after radiation is complete, patients will be told to start using a vaginal dilator. At RO discretion. Some ROs may discuss sooner and others will wait until 1<sup>st</sup> follow up before discussing.
- Brachytherapy to the vaginal vault or cervix will be told about dilators and provided with dilator/education at end of these treatments. As per handout to start using 4 weeks after radiation treatment ends.
- We provide dilator (no need to purchase) to patient and education. Handout 'Using a Vaginal Dilator' also provided.



## Vaginal Dilator Information

Applicable to Gynae (external beam, brachytherapy and combined modality) and Anal Canal.

Bladder and Rectum are at RO discretion based on treatment field location.

Carry the following sizes. RO to indicate sizing based on physical examination/brachytherapy applicator selection.

Step 4 (Navy Blue) is most common size provided to patients. Step 3 (Purple) is also common.

	Step 2 Pale Blue	Diameter = 1.9 cm (¾ inch) Length=10.2 cm (4 inches)
	Step 3 Purple (common size)	Diameter = 2.5 cm (1 inch) Length=10.2 cm (4 inches)
	Step 4 Navy Blue (most common size)	Diameter = 3.2cm (1.25 inch) Length=13.3cm (5.25 inches)
	Step 5 Dark Purple	Diameter = 3.8 cm (1.5 inch) Length=14.6cm (5.75 inches)

# Other-IV Contrast with CT Sim

- Should be discussed by RO with patient at consult appointment/liaise with nursing to support patient education
- RO to indicate in Mosaik care plan if IV contrast requested at CT Sim
- RO to complete IV Contrast therapy plan in EPIC includes risk assessment for renal insufficiency, eGFR and any requests for hydration, labs, allergy prep as required
- Patient to be provided with the [Your CT Simulation with IV Contrast \(Dye\)](#) handout and preparation instructions reviewed with patient
- Sites can include Gynae, GI, Lung, Lymphoma, Stereotactic Liver and Kidney
- CT Sim MRT will call patient the day prior to CT Sim appointment to review prep and confirm understanding

# Other-Bladder/Bowel Preparations

- Bladder or bowel preparation can be required prior to CT Sim (and Treatment)
- Refer to [radiation therapy patient education pathways](#) for specific requirements
- Generally sites that will require are:
  - Prostate/Prostate Bed – Full Bladder AND Empty Rectum
  - Bladder – Empty Bladder
  - Gynae (Vaginal Vault and Cervix)– Full Bladder
  - Anal Canal – Full Bladder
- If enema required patient will need to purchase this in advance to be ready.
- Patients having Gold Seed Insertion or HDR Prostate provided with relevant handout which includes preparation instructions for these procedures. Preparation for CT Sim/MRI is provided by PACU staff.

# Other-Special Eating Instructions

- Patients having treatment to their Stomach will need to follow Special Eating Instructions before CT Simulation and Treatment.
- Different instructions if appointment in AM versus PM. We try to keep treatment appointments consistent with timing if possible to make it easier for the patient.
- SBRT Liver patients also follow eating instructions – these are in SBRT Liver Handout
- At consult provide ‘Special Eating Instructions Handout’ and review the information with the patient

**Before** your CT simulation and your radiation treatment appointments, you need to:

- ✓ Eat the same light meal before every appointment. This is to make sure you have the same amount of contents in your stomach before your appointment.

Choose the instructions that go with the time of your appointment.

☐ **If your appointment is in the morning**

- Do not eat your breakfast.
- At least 1 hour before your appointment have 1 cup of tea, coffee or other non-carbonated beverage, and 2 slices of bread or toast.

☐ **If your appointment is in the afternoon**

- Eat your regular breakfast at least 5 hours before your appointment.
- At least 1 hour before your appointment have 1 cup of tea, coffee or other non-carbonated beverage, and 2 slices of bread or toast.

**After** your CT simulation and radiation treatment appointments, you may eat your normal diet.

# Other-Patient Lodge

- Patients must live more than 50 Km away from DRCC and have consecutive daily appointments at DRCC to be eligible (most often radiation patients)
- Assessment form in Epic to be completed with patient to determine eligibility
- No supports provided at the lodge (hotel) so if patient has needs they must have an appropriate support person stay with them. If they do not have someone to stay with them then not eligible
- Completion of form prints at DRCC radiation reception for clerks to book patient at lodge once CT Sim appointment is completed and we know the treatment start date for patient
- Prefer lodge assessment gets completed at consult appointment, however this should not be completed if patient/family are just 'considering' their options etc.

The screenshot shows the 'Lodge Assessment' form within the 'ONCOLOGY ASSESSMENTS' section. The form includes a header with various assessment categories like Toxicity Assessment, YSM, YSM Reviewed, ECOG Performance, Pre-Chemo Checklist, Fall Risk, MST, Braden Scale, Violence Risk, Nursing Procedure Workflow, Opioid Risk Tool, Sexual Health Assessment, and Lodge Assessment. Below the header, there is a citation: 'Webster LR, Webster R. Predicting aberrant behaviors in Opioid-treated patients: preliminary validation of the Opioid risk tool. Pain Med. 2005;6(6):432'. The main section is titled 'ONC LODGE ASSESSMENT FORM' and contains several questions with 'Yes' and 'No' response options. The questions are: 'Do you need help with any of your daily activities?', 'Do you need help to get from your bed to the bathroom?', 'Do you need help to manage your medications?', 'If yes to any of the above, is there a family member or friend available to help you during your stay at the Patient Lodge?', 'Do you use any equipment to help with your daily activities?', 'If yes to above, do you agree to bring equipment to the Patient Lodge?', 'Do you use oxygen?', 'If yes to above, do you agree to contact your oxygen supplier to plan for delivery to the patient lodge?', 'The patient lives more than 50km away from the DRCC', 'Based on your clinical judgment this patient has an appropriate caregiver to support ADLs.', and 'Based on your clinical judgment this patient has an appropriate caregiver to support medication administration'. At the bottom, there is a 'Patient Eligible for Lodge?' section with 'Yes' and 'No' options, and a 'Close' button.

## Patient Lodge at Holiday Inn Express and Suites

This handout will give you information about the Patient Lodge the Durham Regional Cancer Centre (DRCC) has at Holiday Inn Express and Suites in downtown Oshawa.

You may be able to stay at the Patient Lodge if you:

- Are not able to travel to your daily radiation treatment appointments and
- Live more than 50 km away from DRCC

Please talk to your primary nurse or the radiation therapist at your CT simulation appointment about staying at the Patient Lodge.

### If you qualify to stay at the Patient Lodge

The reservation for your stay will be booked through the B1 level reception desk at the DRCC. You will receive information about your reservation at the Patient Lodge at this time.

Call the B1 level receptionist at 1-866-338-1778 / 905-576-8711 extension 33856 to cancel if plans change and you do not need to stay at the Patient Lodge.

### What is available at the Patient Lodge

The Patient Lodge rooms:

- Are free of charge if booked through the DRCC.



# Other-Continuous Glucose Monitoring Devices and Insulin Pumps

- Insulin Pumps or Continuous Glucose Monitors (CGM) may be damaged if they are worn during diagnostic imaging tests (examples: x-rays, CT scans, or MRIs) or during radiation therapy treatments due to exposure of electromagnetic fields as per the manufacturers warnings. This means that blood sugar readings may not be accurate.

## Patient

1. Will disclose to RO/Nurse at the radiation consult appointment that they are wearing an Insulin Pump or CGM. \*Note this may be determined prior to consult from patient's hospital chart and confirmed with the patient at the time of consult.

## RO/Nursing

1. RO/Nurse will discuss with patient removing the device(s) for CT Simulation and Radiation Treatments.
2. RO/Nurse will provide patient education handout: *'CT Simulation and Radiation Treatments when you Wear an Insulin Pump or Continuous Glucose Monitoring Device'*.
3. RO will indicate in MOSAIQ careplan presence of the device(s) via tick box option.
4. RO to enter Epic referral to LH Diabetes Education Program as required for patients who required additional support to initiate alternate monitoring methods (i.e. fingerstick testing). \*Note for type 2 diabetes only.

[Continuous Glucose Monitoring Devices and Insulin Pumps Patient Education Handout](#)

# Questions?

Contact:

Vanessa Hribar  
Clinical Practice Leader, Radiation Therapy

[vbarisic@lh.ca](mailto:vbarisic@lh.ca)

905-576-8711 x 36189