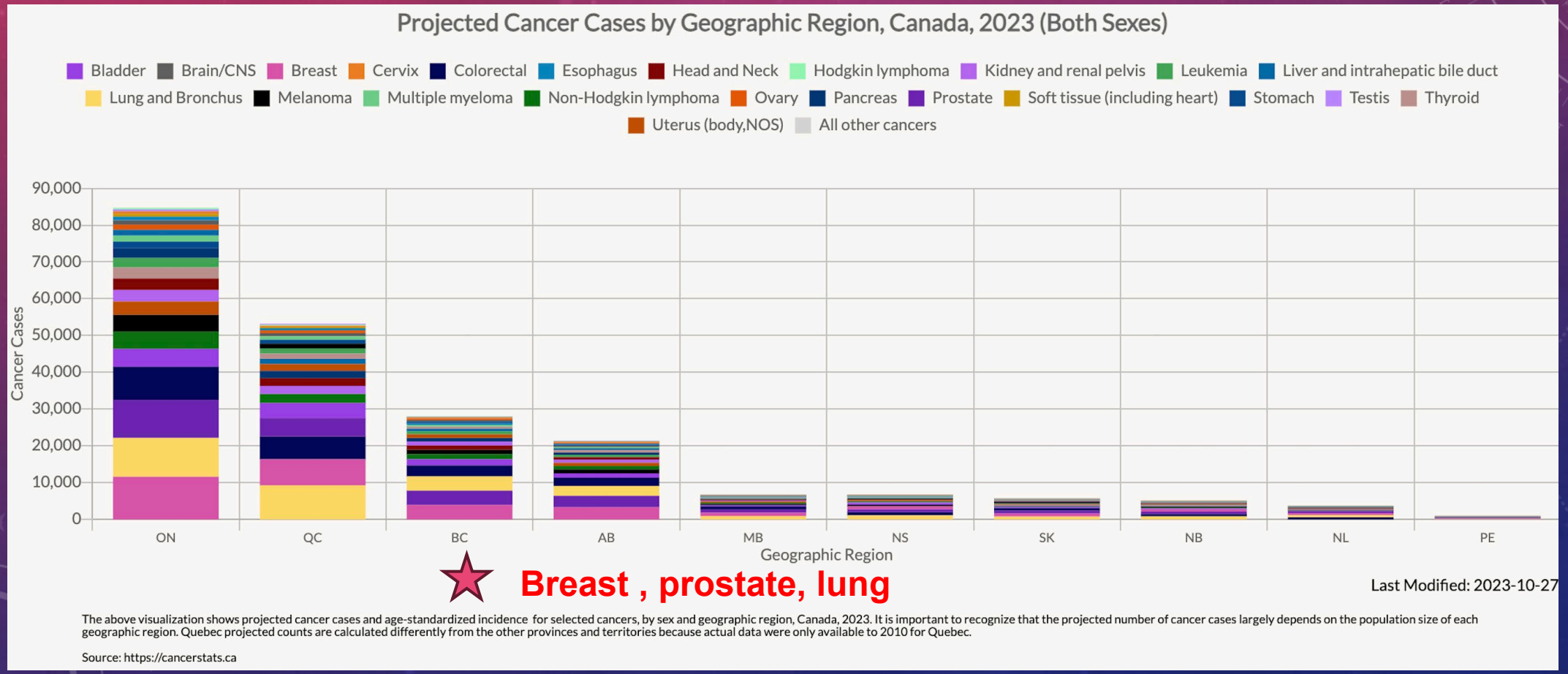
RADIATION 101: WHAT'S AVAILABLE AND SIDE EFFECTS

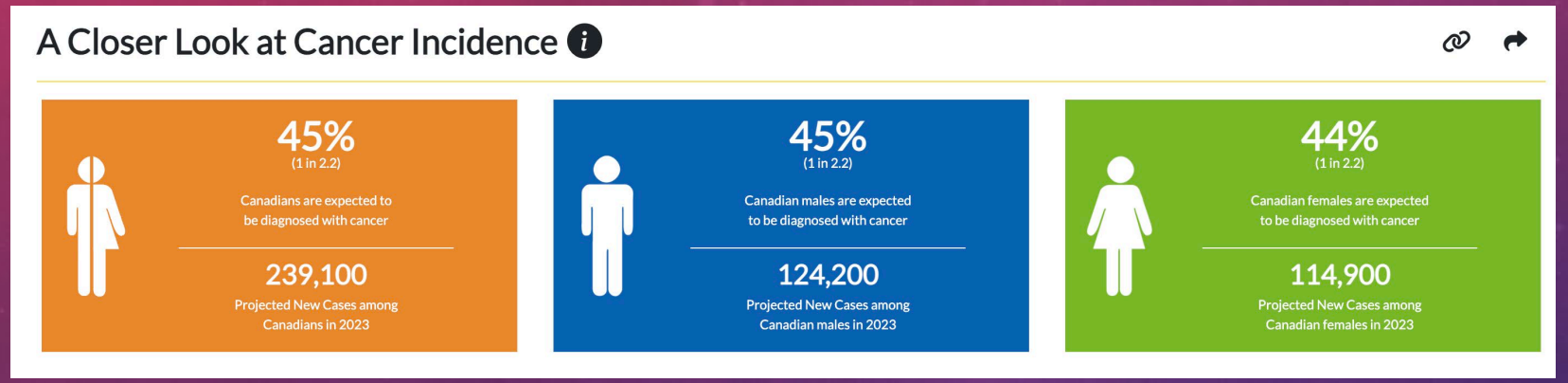
DR. DYLAN NARINESINGH – RADIATION ONCOLOGIST- BC CANCER SURREY

A QUICK OVERVIEW: STATS TO KEEP IN MIND

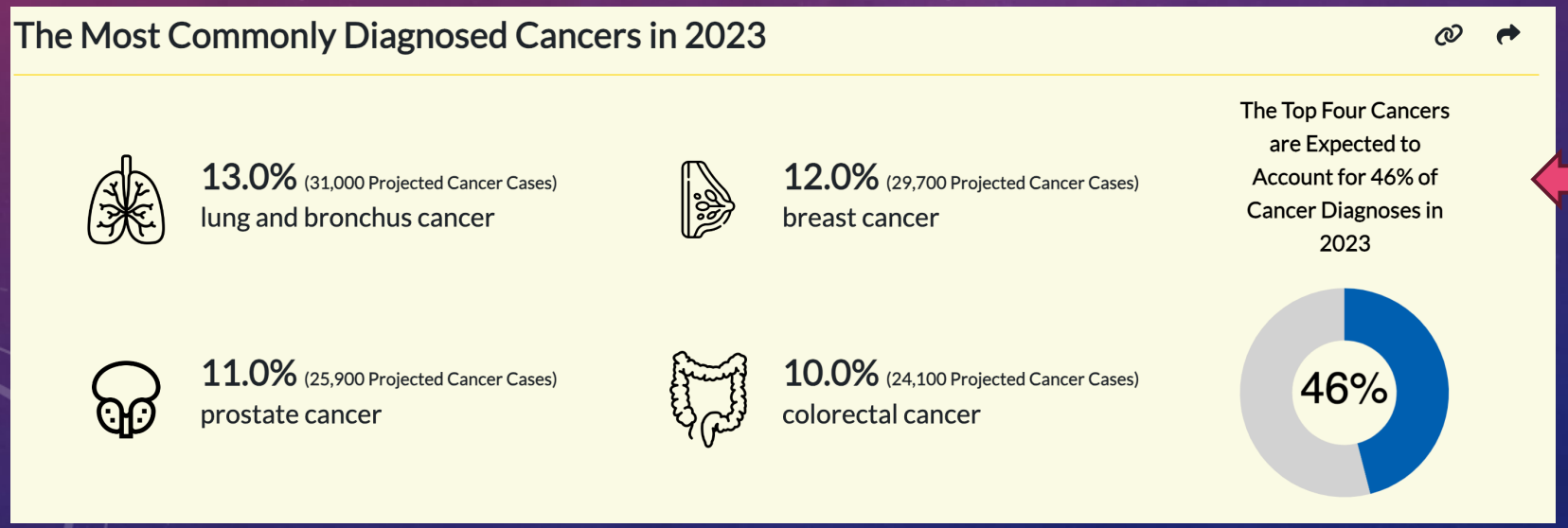
CANADIAN CANCER STATISTICS DASHBOARD



CANADIAN CANCER STATISTICS DASHBOARD



45%- easy stat to remember



The Big 4

WHAT'S AVAILABLE IN BC

BC CANCER-TRIAGE (RADIATION REFERRALS)

BCCA CATCHMENT AREAS

PG(CNCC) Catchment	AC Catchment	FVC Catchment	CCSI Catchment	VCC Catchment	VICC Catchment
Fort Nelson	Abbotsford	Anmore	Quesnel	Central Coast	Cowichan
Fort St. John	Agassiz	Belcarra	100 Mile House	City Centre	Campbell River
Hudson's Hope	Aldergrove	Coquitlam	Armstong-Spallumcheen	Downtown Eastside	Comox
Dawson Creek	Boston Bar	Delta	Arrow Lakes	Howe Sound	Courtenay
Pouce Coupe	Chilliwack	Ladner	Cariboo-Chilcotin	Midtown	Duncan
Tumbler Ridge	Clayburn	New Westminster	Castlegar	North East	Greater Victoria
Chetwynd	Clearbrook	Port Coquitlam	Central Okanagan	South Vancouver	Gulf Islands
Mackenzie	Cultus Lake	Port Moody	Cranbrook	Sunshine Coast	Ladysmith
Prince George	Deroche	Surrey	Creston	West Side	Lake Cowichan
Quesnel	Dewdney	Tsawwassen	Enderby	Bella Coola	Nanaimo
McBride	Fort Langley	White Rock	Fernie	Bowen Island	Port Alberni
Valemount	Harrison Hot Springs		Golden	North Vancouver	Qualicum
Vanderhoof	Harrison Mills	*Does not see skin lymphoma, mycosis fungoides*	Grand Forks	Powell River	Saanich
Fort St. James	Haney		Kamloops	Richmond	Sooke
Fort Fraser	Hope		Keremeos	West Vancouver	Vancouver Island North
Fraser Lake	Kent		Kettle Valley	Whistler	Vancouver Island West
Burns Lake	Laidlaw		Kimberley	Whitehorse	Bowser
Topley	Langley		Kootenay Lake	Saskatchewan	Parksville
Granisle	Lindell Beach		Lillooet	Sechelt	Port Hardy
Houston	Maple Ridge		Merritt	Squamish	Port MacNeill
Telkwa	Matsqui		Nelson	Vancouver	Sayward
Smithers	Milner		North Thompson	Burnaby	
Hazelton	Mission		Penticton		
New Hazelton	Pitt Meadows		Princeton		
Stewart	Rosedale		Revelstoke		
Dease Lake	Sardis		Salmon Arm		
Atlin	Vedder Crossing		South Cariboo		
Terrace	Yale		Southern Okanagan		
Kitimat	Yarrow		Summerland		
Prince Rupert			Trail		
Masset	***Does not see sarcoma & lymphoma R.O.***		Vernon		
Port Clements			Windermere		
Skidegate					
Queen Charlotte					
Haida Gwaii					

Referral is by catchment area to the appropriate cancer agency.
If there is a reason why an out of catchment referral is sent – let us know so that the case can be reviewed and approval if appropriate can be sought.

TYPES OF RADIATION:

- Types of particle:

Photons (most common)

Electrons

Neutrons

Protons

Available in BC

DELIVERY OF RADIATION

External beam radiation:

Linear accelerator

Orthovoltage Machine

Brachytherapy:

Low dose rate (seeds)

High dose rate

LINEAR ACCELERATOR

Photo: BC Cancer- EBRT website

A linear accelerator:

- Uses electricity to generate photons (Megavoltage) and electrons to deliver external beam radiotherapy
- The “back bone” of the radiation department
- Different techniques: IMRT, WMAT, SBRT
- SBRT delivers ”very high doses” of radiation in a single treatment
- Victoria has 6 LINACS, Kelowna has 5 LINACS and Abbotsford has 4 LINACS

EXAMPLES OF CANCERS TREATED WITH LINEAR ACCELERATOR

- Breast
- Prostate
- Lung
- Rectal
- Laryngeal

and many many more ……

BRACHYTHERAPY (INTERNAL RADIATION)

BRACHYTHERAPY

- **May involve permanent implants (seeds/LDR) or temporary catheters (HDR)**
- **Abbotsford (services FVCC also), Kelowna, Vancouver and Victoria**

EXAMPLES OF CANCERS TREATED WITH BRACHYTHERAPY

- Prostate
- Cervical
- Endometrial
- Breast
- Skin
- Prostate
- Uveal

Where there is a cavity or surface or organ can be implanted

CONCURRENT RADIATION:

- Radiation may be given concurrently with:

1. Chemotherapy e.g. cervical cancer, certain head and neck squamous cell cancers, rectal adenocarcinomas, anal cancers, GBMs , small cell cancers
2. ADT e.g. prostate cancer

and some patients may be on hormonal therapy e.g. breast cancer

REMEMBER SIDE EFFECTS FROM THESE SYSTEMIC THERAPIES

TERMINOLOGY

DOSE AND FRACTIONATION

1. (Dose) Fraction- each radiation treatment
2. Dose- amount of radiation received prescribed in Gray (Gy)
3. Dose per fraction- the amount of radiation received in a fraction
4. Total dose- dose per fraction x number of fractions

You will usually see this in our correspondence particularly discharge summary and radiation completion form

DOSE AND FRACTIONATION

- EXAMPLES:

➢ Breast: 40 Gy in 15 fractions

15 daily treatments (no weekends or public holidays)

Total dose 40Gy

➢ Breast: 26Gy in 5 fractions

5 daily treatments (no weekends or public holidays)

Total dose 26 Gy

Only 5 days

Fewer treatments but higher dose per fraction (treatment)

DOSE AND FRACTIONATION

Diagnosis: C50.412 - Malignant neoplasm of upper-outer quadrant of left female breast, Diagnosed 6/27/2023 (Active)

Treatment Technique: 3D

Treatment Dates: 7/10/2023 - 7/14/2023

CURRENT DOSE:
Course: C1
Treatment Site: 1 L Breast
Ref. ID: PTV Breast_L
Energy: 10X
Dose/Fx (cGy): 520
#Fx: 5 / 5
Dose Correction (cGy): 0
Total Dose (cGy): 2,600
Start Date: 7/10/2023
End Date: 7/14/2023
Elapsed Days: 4

Course Completed: Yes **Total Delivered Dose:** 2600 cGy

Radiation Parameters: Opposed Tangents with Subfields with RGSG Gated DIBH

Dates for radiation

Where was treated

Number of treatments

Dose of radiation (total)

DOSE AND FRACTIONATION

- EXAMPLES:

➢ Prostate: 60Gy in 20 fractions

20 daily treatments (no weekends or public holidays)

Total dose 60 Gy

➢ Prostate: 36.25Gy in 5 fractions

5 treatments, each given once or twice a week (no weekends or public holidays)

Total dose 36.25 Gy

Fewer treatments but higher dose per fraction, SABR doses so not given daily

DOSE AND FRACTIONATION

- EXAMPLES:

➢ Bone metastasis (pain): 8Gy in 1 fraction

1 treatment

Total dose 8Gy

➢ Bone metastasis (pain): 30 Gy in 10 fractions

10 daily treatments (no weekends or public holidays)

Total dose 30 Gy

A LITTLE RADIOBIOLOGY AND TERMINOLOGY

RADIOBIOLOGY

Table 1: Variables That Can Impact Normal Tissue Tolerance

I.	Host	Age Comorbid conditions Host response to radiation Smoking KPS	
II	Organ	Pre-radiation organ condition (Poor PFTs; LFTs; COPD) Regional variation of radiosensitivity with the organ Impact of other organs Hierarchal organization of the organ: Serial: dose effect: spinal cord Parallel: volume effect: lung, liver Both: kidney	
III	Natural history of tumor		
IV	Treatment	A—Radiation Dose (max, min, mean) Fractionation (fractional dose): BED Dose rate Overall treatment time Treatment energy Volume (V dose: absolute or relative)	
IV	Treatment	B—Nonradiation Chemotherapy (drug type, dose, schedule) Radiation modifiers (type, dose, schedule) Surgery (interval)	
V	End points ACUTE	Type: Clinical Radiographical: anatomical, functional Biochemical (blood test, functional test) Degree of severity Degree of frequency Impact on quality of life (QOL)	LATE
VI	Issues on reporting of toxicity		

Emami B, Reports of Radiation Oncology, Spring 2013

RADIOBIOLOGY

Organ	Endpoint	Rate (%)	Dose-volume parameter	D_{max} (Gy)	D_{mean} (Gy)
Brain	Symptomatic necrosis	<3 <5		<60 <65	
Brainstem	Necrosis or cranial neuropathy	<5 <5	D100 <54 Gy D1–10 cc ≤59 Gy	<64 Point	
Spinal cord	Grade ≥2 myelopathy	<1		50	
Optic nerve & chiasm	Optic neuropathy	<3 3–7		<55 55–60	<50
Retina	Blindness	<1		<50	
Cochlea	Hearing loss	<15			≤45
Parotid 1	Grade 4 xerostomia	<20			<20
Parotid 2		<20			<25
Mandible	ORN	<5		<70 Point	
Pharyngeal constrictors	PEG tube dependent Aspiration	<5 <5			<50 <60
Larynx	Grade ≥2 edema	<20	V50 <27%		<44
Brachial plexus	Clinically apparent nerve damage	<5		<60	
Lung	Symptomatic pneumonitis	5 10 20 30 40	V5 <42%, V20 <22% V20 <31% V20 <40%		7 13 20 24 27
Esophagus	Grade ≥2 esophagitis Grade ≥3 esophagitis	<30 ≤10	V35 <50% V50 <40% V70 <20% V60 <30%	<74 Point	 <34
Heart	Pericarditis Long-term cardiac mortality	<15 <1	V30 <46% V25 <10%		<26
Liver	RILD, normal liver RILD, liver disease	<5 <5			≤30 ≤28
Kidney 1	Renal dysfunction	<5	Equivalent of 1 kidney <18 Gy		
Kidney 2	Renal dysfunction	<5			<18
Stomach	Ulceration		D100 <50 Gy		
Small Bowel	Acute grade ≥3 toxicity Late obstruction/perforation	<10 <5	V15 <120 cc V50 <5%		
Rectum	Grade ≥2/≥3 late toxicity Grade ≥2/≥3 late toxicity Grade ≥2/≥3 late toxicity Grade ≥2/≥3 late toxicity Grade ≥2/≥3 late toxicity	<10/<15 <10/<15 <10/<15 <10/<15 <10/<15	V50 <50% V60 <35% V65 <25% V70 <20% V75 <15%		
Bladder	Grade ≥3 late toxicity	<6 ?	D100 <65 Gy V65 ≤50% V70 ≤35% V75 ≤25%		

It's dose to and the volume of the irritated organ (organ at risk) that determines the risk of potential side effects

Emami B, Reports of Radiation Oncology, Spring 2013

SIDE EFFECTS

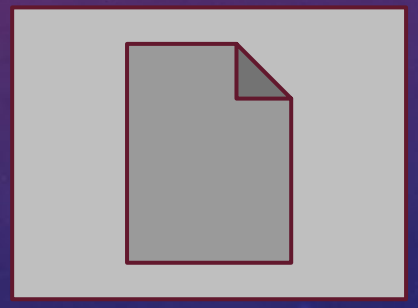
- Reactions:

Acute: Occurs during and immediately after treatment and involves damage predominantly to rapidly proliferating cells

Late: Occurs more than 3 months after treatment and involves cell damage to tissues with slow proliferation rate

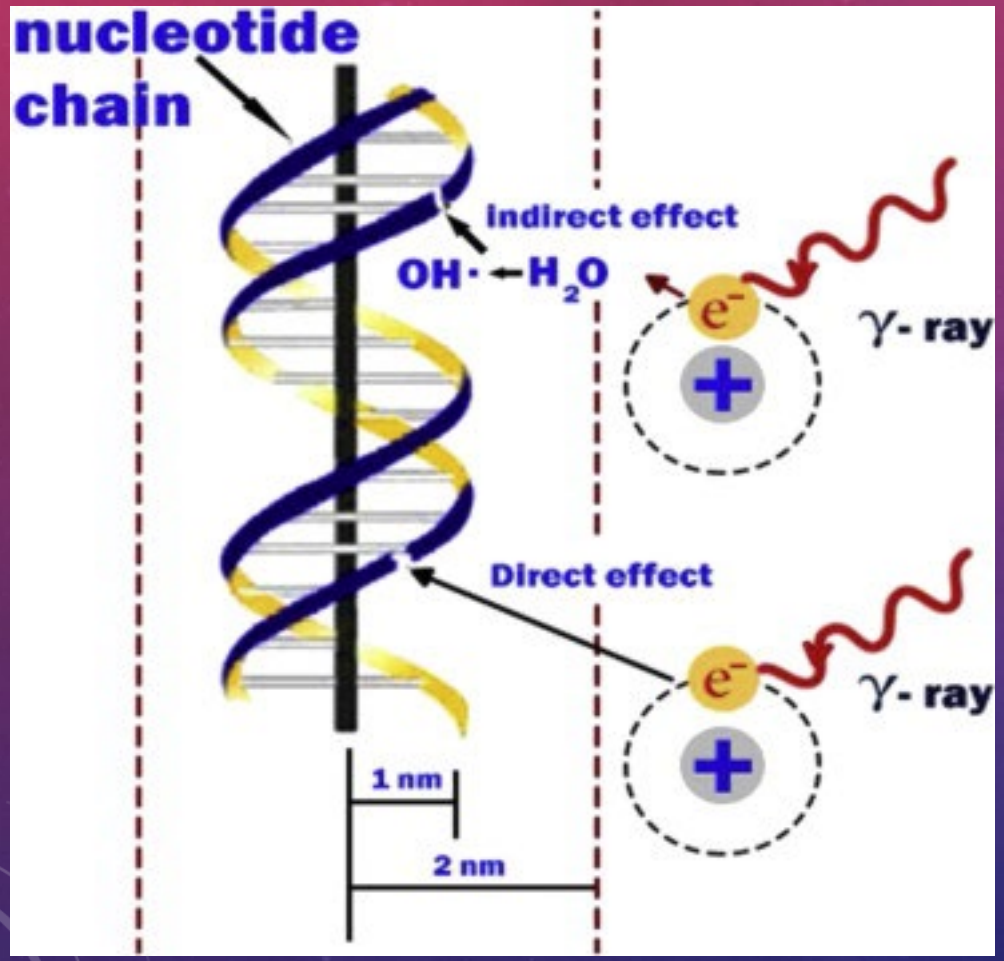
“6” WEEK FOLLOW UP

- Radiation Oncologists would usually (may vary) see the patient for their first routine visit about 6 weeks after radiation. This visit would assess the acute side effects from radiation and check the response as appropriate to treatment.



Usually the first note from us after radiation letting you know how the patient is doing, what radiation treatment the patient had and follow up/discharge recommendations/instructions

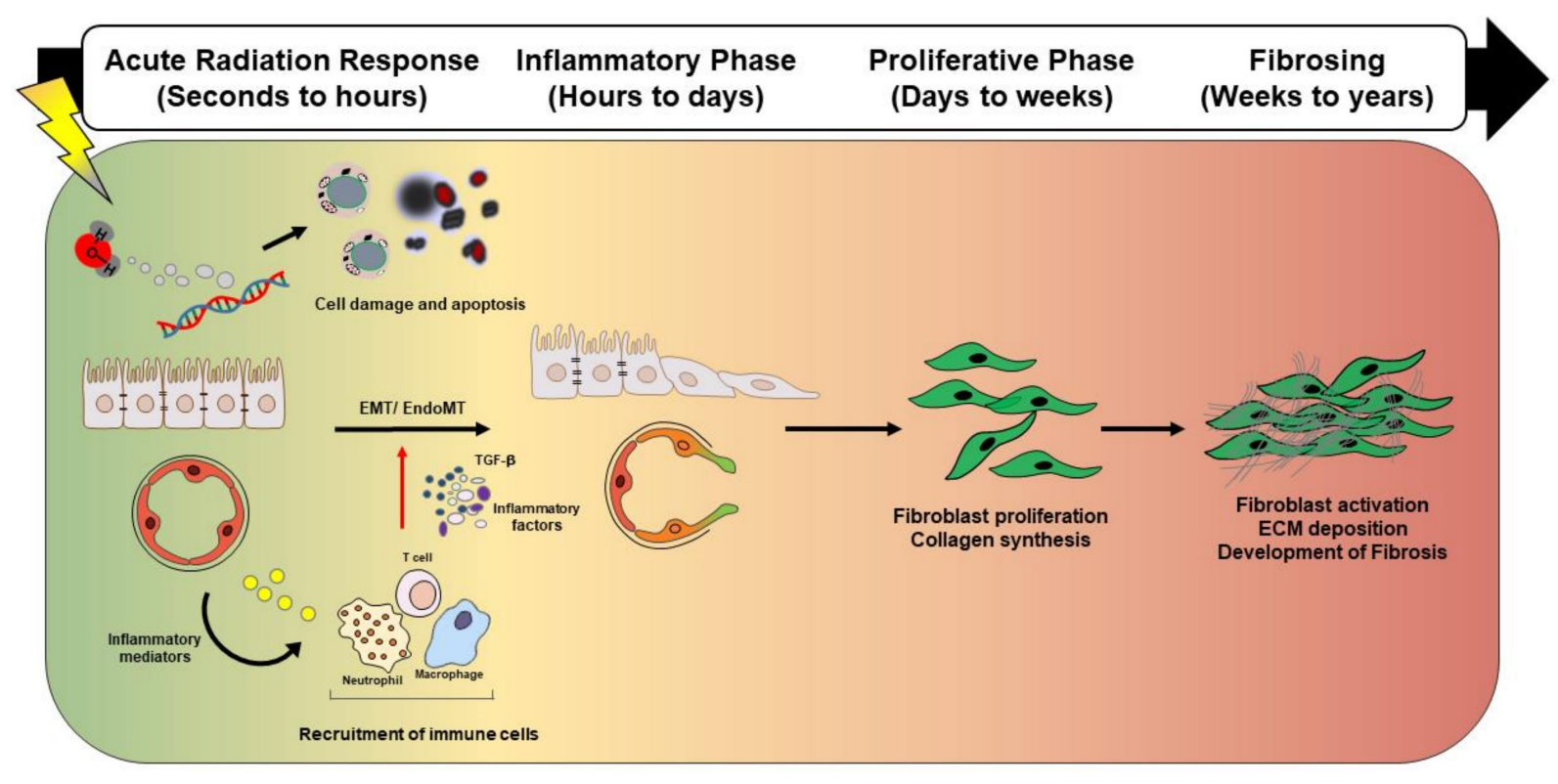
HOW DOES RADIATION WORK ?



DNA damage

E.J. Hall, A.J. Giaccia
Radiobiology for the radiologist
(7th ed.), Lippincott Williams & Wilkins, Philadelphia (2011)

USING THE LUNG AS AN EXAMPLE OF THE PATHOGENESIS OF RADIATION DAMAGE



Jin H, Yoo Y, Kim Y, Kim Y, Cho J, Lee Y-S. Radiation-Induced Lung Fibrosis: Preclinical Animal Models and Therapeutic Strategies. *Cancers*. 2020; 12(6):1561. https://doi.org/10.3390/cancers12061561

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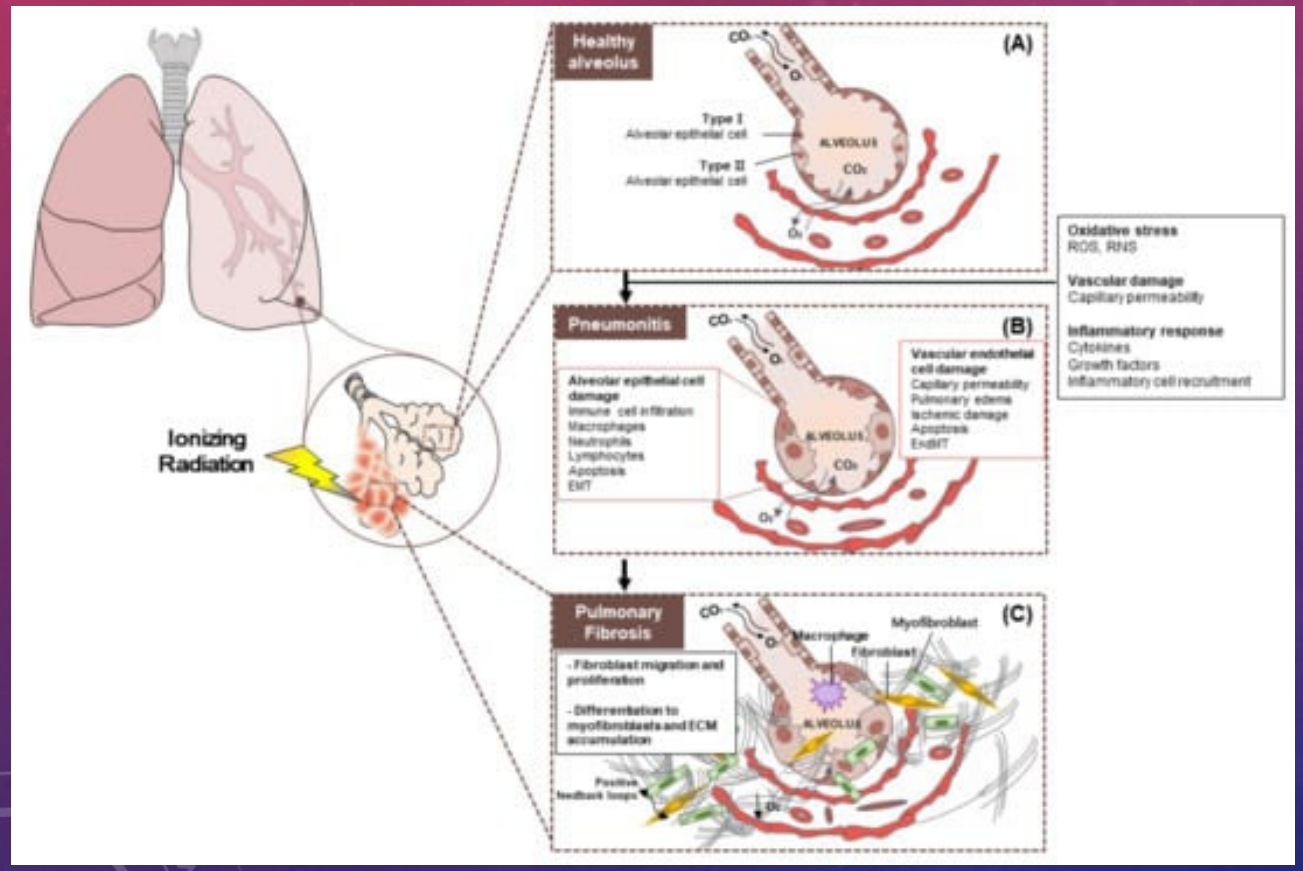

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SIDE EFFECTS: DIFFERENT COMMON SITES AND WHAT TO EXPECT

QUESTION:1

Robert sees you in office with multiple complaints. He completed radiation to the prostate only about 8 weeks ago.What is a a potential side effect from radiation to the prostate only:

a. Shortness of breast
b. Loss of hair on the scalp
c. Rash on the trunk and extremities
d. Urinary frequency

QUESTION:2

Karina completed radiation about two months ago to the left breast and regional nodes. She complains of resolving fatigue but does have new onset of an intermittent cough and mild shortness of breath on exertion. She has few crackles over the left upper chest. She is on letrozole. Would you be concerned that this may be related to her radiation

a. Yes
b. No

GENERAL EXAMPLES

Table 1: Examples of Early and Late RT related toxicities		
Site/system	**Early Toxicity**	**Late Toxicity**
Blood vessels	Vascular stenosis	Vascular wall calcifications, Vascular occlusion, Pseudoaneurysms
Bones	Bone edema and Osteopenia	Pathologic bone fractures, Osteochondromas, Osteoradionecrosis, Bone malignancy
Breast	Diffuse skin thickening	Fibrosis, Fat necrosis, Dystrophic calcifications, Skin retraction, Breast cancer
Gastrointestinal	Diarrhea, Enteritis, Hemorrhoids, Ulceration, Dismotility, Perforation	Stricture, Ulceration, Perforation, Fistulas
Genitourinary	Acute radiation cystitis, Increased urinary frequency and urgency	Hematuria, Bladder/ Ulceraction, Stone formation, Infertility
Heart	Pericardial effusion	Coronary artery disease, Chronic pericarditis, Cardiomyopathy
Liver	Focal hepatitis	Atrophic liver changes
Lungs	Infection, Radiation-induced organizing pneumonia	Tumour Recurrence
Lymph nodes	n/a	Calcified lymph nodes, fibrotic mass
Pleura	Pleural effusion	n/a
Skin	Pruritis, Dermatitis, Desquamation	Atrophy, Scarring, Telangiectasias

A good reference guide

http://www.bccancer.bc.ca/pharmacy-site/Documents/Clinical_Pharmacy_Guide/cpg6-RT1.pdf

FATIGUE: A COMMON SIDE EFFECT. USING BREAST RADIATION AS AN EXAMPLE FOR MANAGEMENT.

BC CANCER GUIDANCE AND RESOURCES ARE USED IN THE FOLLOWING SLIDES.

QUESTION:3

Kumar sees you in office feeling quite down about his diagnosis of prostate cancer. He completed radiation to the prostate and regional nodes about 3 weeks ago. He complains bitterly about lack of energy. He also got started with Goserilin along with his radiation. What do you think **might** be contributing to his fatigue:

a. Goserilin
b. Radiation
c. Depression
d. All of the above

BREAST CANCER: SIDE EFFECTS- FATIGUE (BC CANCER)

- Fatigue is a feeling of tiredness or lack of energy.
- It is the most common symptom for people with cancer.
- Chronic cancer-related fatigue may not get better with rest. It can affect the ability to function.
- Cancer-related fatigue can be caused by (or made worse by): • Cancer and cancer treatments • Medical problems related to cancer or treatment such as dehydration (lack of water), infection, nausea (feeling queasy), or pain. • Some medications • Not enough sleep or exercise • Depression or sadness • Being an older adult

http://www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects/fatigue-(tiredness)

BREAST CANCER: SIDE EFFECTS- FATIGUE (BC CANCER)

- Food and drink • three or four larger meals each day or small snacks every 1-2 hours. Eat whenever you start to feel hungry. • Soft or liquid foods need less energy to eat• Stock up on ready-to-eat, nutrient dense foods such as nuts, seeds, fresh or dried fruit, and yogurt. • Dehydration can make fatigue seem worse.
- Resting too much can actually make chronic fatigue worse. Exercise can boost energy levels, elevate mood, and lessen the feeling of fatigue • Do regular, mild to moderate exercise. Do not do infrequent, intense workouts.

http://www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects/fatigue-(tiredness)

BREAST CANCER: SIDE EFFECTS- FATIGUE (BC CANCER)

- Emotional Stress Cancer is stressful. • Ask for an appointment with BC Cancer Patient & Family Counselling, or join a BC Cancer support group: www.bccancer.bc.ca/healthinfo/coping-with-cancer/emotional-support • Learn about meditation, deep breathing, or relaxation techniques.

http://www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects/fatigue-(tiredness)

SKIN REACTION: A COMMON SIDE EFFECT. USING BREAST RADIATION AS AN EXAMPLE FOR MANAGEMENT.

BC CANCER GUIDANCE AND RESOURCES ARE USED IN THE FOLLOWING SLIDES.

QUESTION 4:

- Baljit is a 52 year old lady who has completed a course of adjuvant radiation to the right approximately 1 week ago. Baljit has come in to see you for an uanrelated problem. Her skin over the radiated area is red, mild discomfort and no desquamation. There is no itching. What would you recommend:

a. Saline compresses and OTC analgesics as needed
b. 1% hydrocortisone cream
c. Polysporin
d. Urgent review by radiation oncology

BREAST CANCER: SIDE EFFECTS- DERMATITS (BC CANCER)

- Radiation dermatitis is a common side effect of radical ionizing radiation treatment. The pathophysiology of a radiation skin reaction is a combination of radiation injury and the subsequent inflammatory response and can occur at both the entrance and exit site of the irradiation. Ionizing radiation damages the mitotic ability of stem cells within the basal layer preventing the process of repopulation and weakening the integrity of the skin. Reactions are evident one to four weeks after beginning treatment and can persist for several weeks post treatment.

http://www.bccancer.bc.ca/nursingsite/Documents/Symptom%20Management%20Guidelines/14RadiationDermatitis.pdf

THE FOLLOWING SLIDES ARE BUSY AND ARE FROM BC CANCER AND ARE BEST FOR YOU TO KEEP AS REFERENCE. I WILL WALK YOU THROUGH THESE SLIDES.

BREAST CANCER: SIDE EFFECTS- DERMATITS (BC CANCER)

DERMATITIS RADIATION Adapted NCI CTCAE (Version 4.03)				
Normal	**GRADE 1 (Mild)**	**GRADE 2 (Moderate)**	**GRADE 3 (Severe)**	**GRADE 4 (Life–threatening)**
No changes in skin	Faint erythema or dry desquamation	Moderate to brisk erythema; patchy moist desquamation, mostly confined to skin folds and creases; moderate edema	Moist desquamation in areas other than skin folds and creases; bleeding induced by minor trauma or abrasion	Life-threatening consequences; skin necrosis or ulceration of full thickness dermis; spontaneous bleeding from involved site; skin graft indicated

http://www.bccancer.bc.ca/nursingsite/Documents/Symptom%20Management%20Guidelines/14RadiationDermatitis.pdf

BREAST CANCER: SIDE EFFECTS- DERMATITS (BC CANCER)

	GENERAL SKIN CARE RECOMMENDATIONS
Washing	Encourage patients to wash the irradiated skin daily using warm water and non perfumed soap. The use of wash cloths may cause friction and are therefore discouraged. The use of a soft towel to pat dry is recommended.
Use of Deodorants	Patients may continue to use deodorants during radiation therapy.
Other Skin Products	Patients are discouraged from using any perfumed products which may possess chemical irritants and induce discomfort. Products such as gels or creams should be applied at room temperature. Encourage patients to use products advocated by the radiation department.
Hair Removal	The use of an electric shaver is recommended; wax or other depilatory creams are discouraged. Patients are asked not to shave the axilla if it is within the treatment field.
Swimming	Patients may continue to swim in chlorinated pools but should rinse afterwards and apply a moisturizing lotion. Patients experiencing radiation dermatitis which has progressed beyond dry desquamation should avoid swimming.
Heat and Cold	Encourage patients to avoid direct application of heat or cold to the irradiated area i.e. ice or electric heating pads.
Band-Aids, Tape and Clothing	Rubbing, scratching and massaging the skin within the treatment area causes friction and should be discouraged. The use of Band-Aids or tape on the skin should also be avoided. Wearing loose fitting cotton clothing may avoid traumatic shearing and friction injuries. The use of a mild detergent to wash clothing is also recommended.
Sun Exposure	The skin in the treated area may be more sensitive to the sun. Avoiding too much sun is part of a healthy lifestyle. Instruct patients to keep the area covered with clothing or use sunscreen with a minimum SPF 30. Sunscreen should be reapplied every 2 hours and after swimming.

General care that usually come up in conversation. Things have changed over the years

http://www.bccancer.bc.ca/nursingsite/Documents/Symptom%20Management%20Guidelines/14RadiationDermatitis.pdf

BREAST CANCER: SIDE EFFECTS- DERMATITS (BC CANCER)

Application of Topical Products	
Moisturizing Products	• Instruct patient to gently apply a thin layer of water soluble moisturizing ointment or cream using their clean hand 2 to 4 times daily to the skin in the treatment area
Corticosteroid Creams	• A prescription for hydrocortisone cream is required • Do not use hydrocortisone if a skin infection is suspected as it may mask signs of infection and increase severity of the radiation dermatitis • Do not use hydrocortisone on a long-term basis as it may cause problems resulting from reduced blood flow to the skin • Instruct patient to gently apply a very thin layer of hydrocortisone cream using their clean hand as prescribed by the physician • Instruct patient to apply to skin in the treatment area until discomfort decreases and to wash hands after application • Discontinue use of hydrocortisone if there is any exudate from the affected area
Barrier Creams	• Instruct patient to apply a thin layer of (water soluble) barrier cream to the treatment area • Non-adhesive dressings may be applied, depending on the location of the dermatitis

Normal Saline Compresses	
Indications	• To reduce discomfort due to inflammation or skin irritation • To cleanse open areas • To loosen dressings
Contraindication	• Increased discomfort during procedure
Procedure	• Moisten gauze with warm or room temperature saline solution • Wring out excess moisture (ensure that gauze will not dry out and adhere to open area) • Apply moist gauze to open areas for 10-15 minutes. Cover compress with abdominal pad or disposable under-pad to retain warmth and moisture • Remove gauze and gently irrigate wound with normal saline if required to remove any debris • Gently dry surrounding skin • Apply dressing/other treatments as indicated • Repeat up to 4 times daily or as required
Note	• Continuous moist saline compresses may be indicated for short term use (24-48hrs) for a necrotic would or a wound with heavy exudate. It is critical that the compress is replaced frequently enough that it does not dry out and adhere to the area. Moist gauze is applied only to the wound area to avoid maceration of intact skin

Sitz Baths	
Purpose	• Perineal hygiene is the primary reason for using a sitz bath during/post RT when the area is tender and inflamed
Indications	• Use at onset of treatment for comfort and cleanliness • Use at any time for any dermatitis in the perineal/peri-rectal area • Discomfort with defecation • Continuous discomfort due to perineal inflammation, hemorrhoids, radiation-induced diarrhea
Contraindication	• Discomfort during procedure
Procedure	• Water should be warm (40-43°C) • Hot water can cause increased drying of skin • Warm water will increase vasoconstriction and may decrease the itching • Do not add bath oils or other products to water • A hand held shower with a gentle spray or bathtub may be appropriate alternatives • Maximum 10-15 minutes, repeat up to 4 times daily and/or after each bowel movement • Gently pat area dry with a soft towel or expose area to room air

Good “ole” moisturizer and saline soaks !

http://www.bccancer.bc.ca/nursingsite/Documents/Symptom%20Management%20Guidelines/14RadiationDermatitis.pdf

BREAST CANCER: SIDE EFFECTS- DERMATITS (BC CANCER)

NORMAL– GRADE 1

↓

NON – URGENT

Prevention, support, teaching, & follow-up as clinically indicated

Clinical Presentation	**Erythema** • Pink to dusky colouration • May be accompanied by mild edema • Burning, itching and mild discomfort **Dry desquamation** • Partial loss of the epidermal basal cells • Dryness, itching, scaling, flaking and peeling • Hyperpigmentation *Brisk Erythema*  *Dry Desquamation* 
Patient Assessment	Assessment to include: • Location • Size of area • Colour • Discomfort (burning, itching, pulling, tenderness) *erythema* • Discomfort (dryness, itching, scaling, flaking, peeling) *dry desquamation*
Hygiene	• Use non-perfumed soap • Bathe using warm water and palm of hand to gently wash affected skin. Rinse well and pat dry with a soft towel • Wash hair using warm water and mild, non-medicated shampoo such as baby shampoo • Patients receiving RT for perineal/rectal cancer should use a sitz bath daily once RT begins
Promote Comfort	• Apply hydrophilic (water based) body lotions or creams on affected area. Gently apply with clean hand twice a day. Do not rub skin • Avoid petroleum jelly based products • Avoid irritant products containing alcohol, perfumes, or additives and products containing Alpha Hydroxy Acids (AHA) • Normal saline compresses up to 4 times daily
Reduce Inflammation	• Alleviate pruritus and inflammation. Corticosteroid creams may be used sparingly as ordered by the physician
Prevent Trauma to the Treatment Area	• For facial and underarm shaving, use an electric razor • Recommend loose, non-binding, breathable clothing such as cotton • Protect skin from direct sunlight and wind exposure by wearing a wide brimmed hat and protective clothing • Remove wet swimwear, shower and apply moisturizer after swimming in pools and lakes • Avoid extremes of heat and cold, including hot tubs, heating pads and ice packs • Avoid adhesive tape. Extend dressing out of treatment area and adhere to intact skin with paper tape. Secure dressing with cling gauze, net tubing or under clothing
Treatment Procedures	• ***See Appendix A*** for specific directions for the use of: Topical products, normal saline compresses, sitz bath, antibacterial cream, hydrogels and hydrocolloid dressings as appropriate.

What you are most likely to see in practice

http://www.bccancer.bc.ca/nursingsite/Documents/Symptom%20Management%20Guidelines/14RadiationDermatitis.pdf

BREAST CANCER: SIDE EFFECTS- DERMATITS (BC CANCER)

GRADE 2 – GRADE 3

URGENT: Requires medical attention within 24 hours	
Clinical Presentation	**Moist Desquamation** • Sloughing of the epidermis and exposure of the dermal layer • Blister or vesicle formation • Serous drainage • Pain *Moist Desquamation* 
Patient Assessment	Assessment to include: • Location of moist and dry areas • Size of area • Wound base: Granular tissue, eschar or necrotic tissue • Exudate: Type, amount, odour • Discomfort (burning, itching, pulling, tenderness) • Signs of clinical infection – fever – foul odour – purulent drainage – pain and swelling extending outside the treatment area
Hygiene	• Cleanse with warm or room temperature normal saline • Apply normal saline compresses up to 4 times daily • Patients receiving RT for perineal/rectal cancer should use a sitz bath daily once RT begins
Maintain Principles of Moist Healing	• Can use a moisture retentive protective barrier ointment after each saline soak • Consider the use of hydrogels • Use a non-adherent dressing • Use absorbent dressings over non-adherent dressings. Change as drainage warrants • Control drainage. Consider using hydrocolloid dressings ***See Appendix B: Principles of Moist Healing***
Manage Pain	• Prevent trauma to the treatment area • Cover open areas to protect nerve endings • To decrease burning and tenderness use non-adherent or low adherent dressings • Administer analgesics as ordered by the physician
Prevention of Infection	• Regularly assess for signs of infection. Culture wound if infection suspected. • Apply antibacterial/antifungal products as ordered by the physician
Treatment Procedures	***See Appendix A*** for specific directions for the use of: Topical products, normal saline compresses, sitz bath, antibacterial cream, hydrogels and hydrocolloid dressings as appropriate
Follow-Up	• Patients to be assessed at each visit. If symptoms are not resolved, provide further information regarding recommended strategies - Instruct patient/family to call back if radiation dermatitis worsens - Arrange for nurse initiated telephone follow–up

You may see these patients as first contact. Best to ensure that we are aware.

http://www.bccancer.bc.ca/nursingsite/Documents/Symptom%20Management%20Guidelines/14RadiationDermatitis.pdf

BREAST CANCER: SIDE EFFECTS- DERMATITS (BC CANCER)

GRADE 4

↓

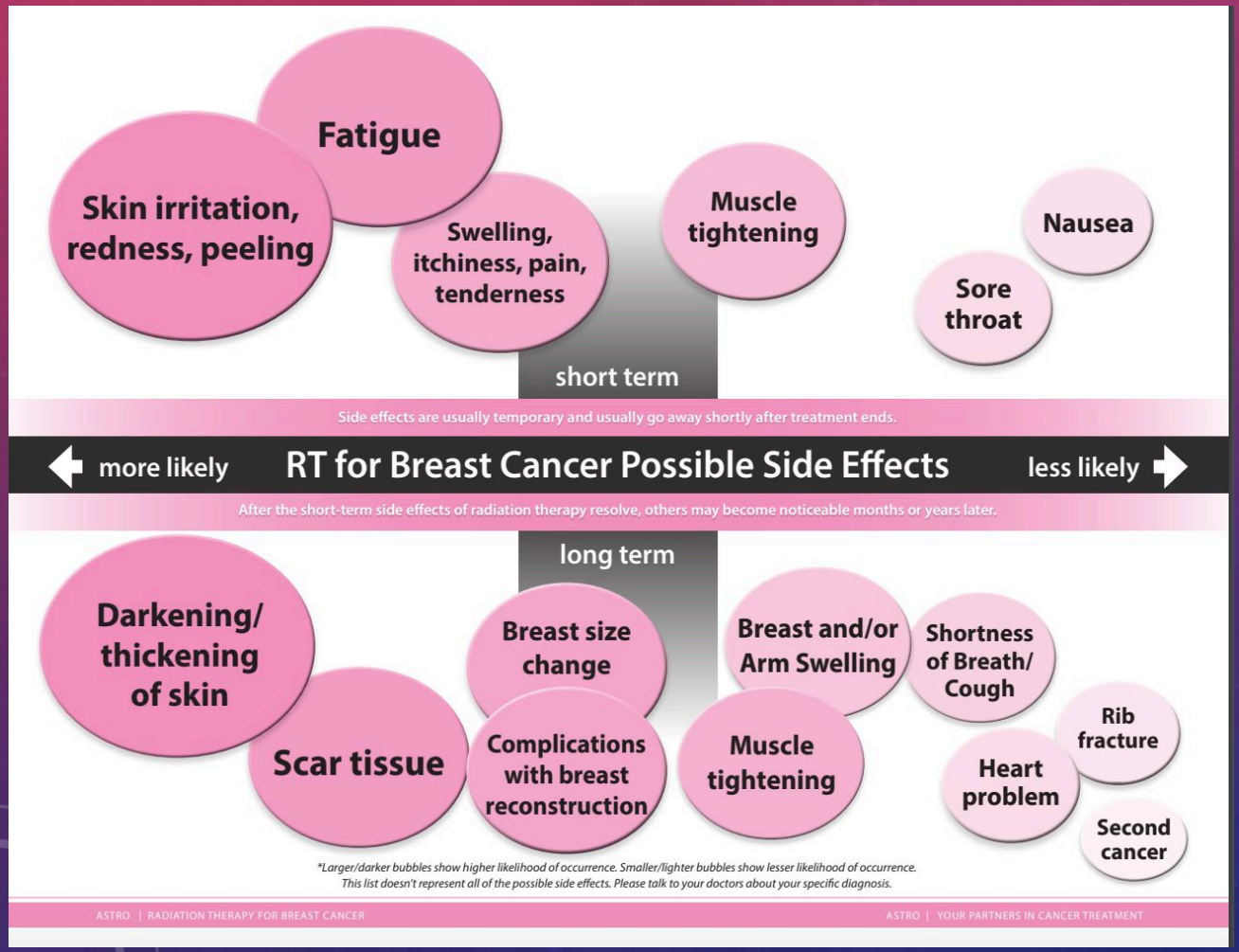
EMERGENT: Requires IMMEDIATE medical attention	
Clinical Presentation	• Rarely occurs • Skin necrosis or ulceration of full thickness dermis • May have spontaneous bleeding from the site • Pain
Patient Assessment	Assessment to include: • Location of moist and dry areas • Size of area • Wound base: Granular tissue, eschar or necrotic tissue • Exudate: Type, Amount, Odor • Discomfort (burning, itching, pulling, tenderness) • Signs of clinical infection (fever, foul odour, purulent drainage, pain and inflammation extending outside the radiated area)
Management	• Collaborate with physician as patient may require debridement or skin graft • Maintain Principles of moist healing ***(See Appendix B)*** • Promote hygiene • Prevent trauma • Manage pain • Prevent/treat infection as per physicians order
Follow-Up	• Patients to be re-assessed at each visit • Instruct patient/family to contact the Health Care Professional if the dermatitis worsens

Contact Radiation Oncology (MRP or On call)

http://www.bccancer.bc.ca/nursingsite/Documents/Symptom%20Management%20Guidelines/14RadiationDermatitis.pdf

REVIEW OF BREAST CANCER RADIATION SIDE EFFECTS

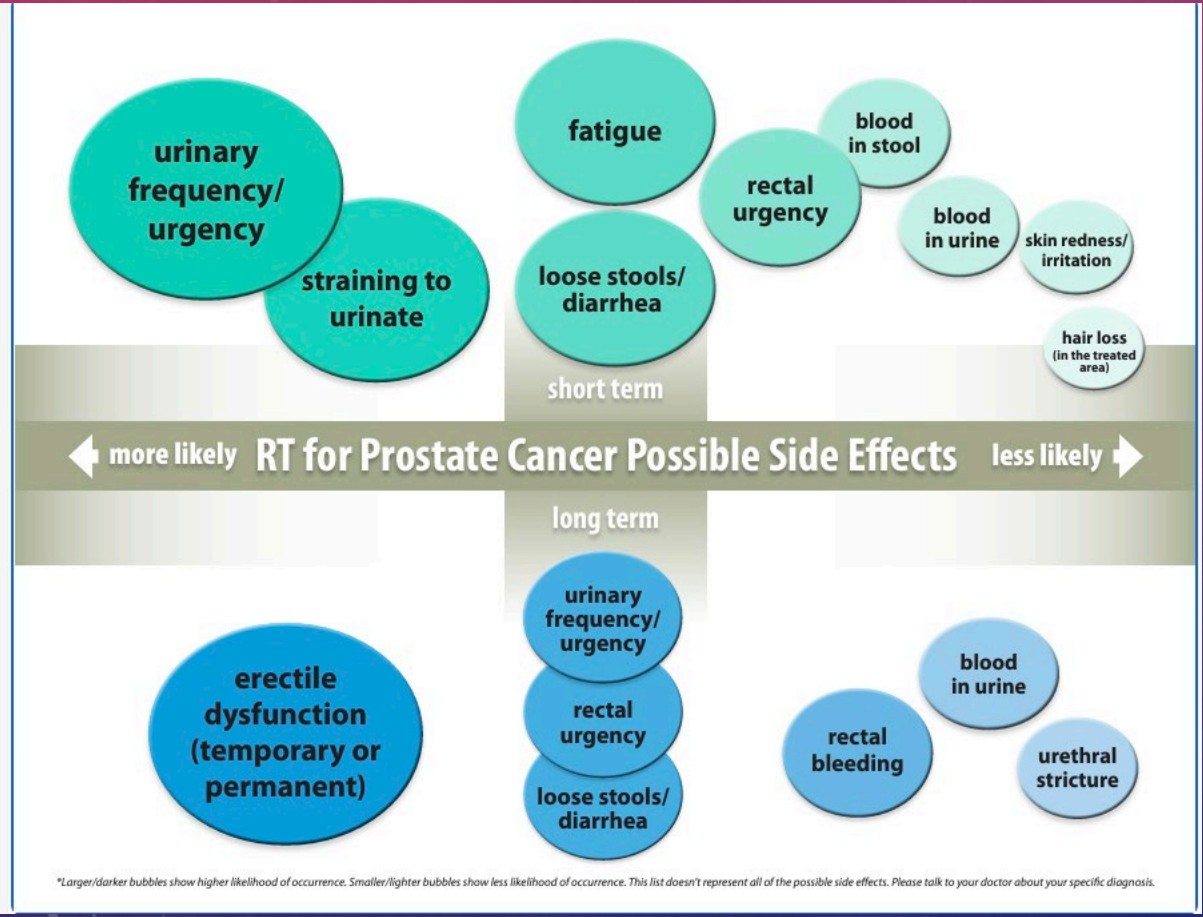
BREAST CANCER: SIDE EFFECTS



https://www.astro.org/Patient-Care-and-Research/Provider-Resources/Patient-Brochures

PROSTATE CANCER SIDE EFFECTS

PROSTATE CANCER: SIDE EFFECTS



https://www.astro.org/Patient-Care-and-Research/Provider-Resources/Patient-Brochures

PROSTATE CANCER RADIATION FOLLOW UP AND MANAGEMENT.

GOVERNMENT OF BC GUIDANCE AND RESOURCES ARE USED IN THE FOLLOWING SLIDES.

PROSTATE CANCER:

Table 1 – Prostate Cancer Follow-up Care Surveillance for Patients who have Undergone Curative-Intent Treatment[2]

Prostate Cancer Follow-up Care Surveillance¥			
Recommendations	**Year 1**	**Year 2**	**Year 3**
Medical follow-up care appointments:¥ a. **Medical history and physical examination where indicated** b. **Any new and persistent or worsening signs/symptoms to watch for, especially:** ○ Severe and progressive axioskeletal bone pain ○ Hematuria ○ New urinary symptoms ▪ Significant incontinence requiring changing of undergarments, pads, or diapers ▪ Urgency ○ Obstructive symptoms ▪ Voiding discomfort ▪ Nocturia ○ New bowel symptoms ▪ Rectal bleeding ▪ Rectal pain ▪ Urgency ▪ Change in bowel movement ○ Vague constitutional symptoms such as: ▪ Fatigue ▪ Unexplained weight loss	After first 3 months; then every 6 months	Every 6 months	Every 12 months

GUIDANCE ON FOLLOW UP SCHEDULE AND WHAT SYMPTOMS TO LOOK OUT FOR

https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/prostate-cancer-part-2

PROSTATE CANCER:

Table 3 – Common Long-term and Late Effects of Prostate Cancer Treatment

Common Long-term and Late Effects¥

Physical:
• Sexual dysfunction (for all treatments)
  ○ Erectile dysfunction
  ○ Loss of libido
  ○ Anorgasmia
  ○ Dry ejaculate
  ○ Climacturia
  ○ Penile shortening or curvature
  ○ Infertility
• Urinary dysfunction (for those treated with surgery or RT)
  ○ Obstructive symptoms
  ○ Urgency symptoms
  ○ Hematuria
  ○ Incontinence
• Bowel dysfunction (for those treated with RT)
  ○ Rectal bleeding
  ○ Urgency and frequency sysmptoms
• Other (mostly for those treated with ADT)
  ○ Anemia
  ○ Body composition alterations
  ○ Fatique (for all treatments)
  ○ Gynecomastia/mastodynia
  ○ Hot flashes
  ○ Bone health

GUIDANCE ON FOLLOW UP SCHEDULE AND WHAT SYMPTOMS TO LOOK OUT FOR

https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/prostate-cancer-part-2

PROSTATE CANCER:

Side Effect	Management Options*
Sexual Dysfunction *Patients with primary treatment of surgery, radiation therapy, or androgen deprivation therapy*	
Erectile dysfunction	• Men may be prescribed phosphodiesterase type 5 (PDE5) inhibitors as first line treatment.* • Men who do not respond to PDE5 inhibitors will need more advanced treatments and should be referred to a urologist or sexual health expert.* • Men may be referred to penile rehabilitation programs, which include PDE5 inhibitors, vacuum constriction devices, intracorporal or intraurethral therapy, or placement of penile prostheses.*
Loss of libido	• Men and their partners should be referred to a healthcare professional with training in sexual health counselling, when available. • Testosterone therapy can be considered in men with signs and symptoms of testosterone deficiency and documented low serum testosterone levels, provided their cancer is treated and without evidence of persistent or recurrent disease, and if prescribed by the treating oncologist/urologist after extensive review of the potential risks.*
Anorgasmia	• Men and their partners should be referred to a healthcare professional with training in sexual health counselling, when available.*
Dry ejaculate	• Men should be educated on dry ejaculate.*
Climacturia	• Men should be provided education on self-management strategies, such as emptying the bladder before sexual relations, use of a condom, use of a penile constriction band, and Kegel exercises.*
Penile shortening or curvature	• Regular sexual stimulation may prevent penile shortening. • If there is significant penile curvature impairing sexual function, refer patient to a urologist.

Infertility	• Men and their partner should be informed that:
	  • men treated with radical prostatectomy ***will become*** infertile, and
	  • some men treated with radiation therapy ***may remain*** fertile, even when experiencing sexual dysfunction symptoms.*

https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/prostate-cancer-part-2

PROSTATE CANCER:

Side Effect	Management Options*
Urinary Dysfunction *(Patients with primary treatment of surgery and/or radiation therapy)*	
Obstructive symptoms	• Selective alpha-antagonists may be prescribed for patients who ***have not*** undergone radical prostatectomy. • Refer to a urologist to evaluate for bladder neck contracture or urethral stricture.
Urgency symptoms	• If the patient is able to completely empty his bladder (i.e., post-void residual of <200cc), bladder antispasmodic medications (anticholinergics or beta-3 agonists) may be appropriate. • All refractory symptoms should result in a referral to a urologist for evaluation and escalation of therapy if appropriate*
Hematuria	• Men with hematuria should be referred to a urologist for evaluation*
Incontinence requiring urinary pads	• Men with persistent leakage impacting quality of life should be referred to a urologist to evaluate the cause of incontinence.* • Exercise intervention such as Kegel exercises may improve continence. Specialized physiotherapists and nurse continence advisors may help patients with stress incontinence following radical prostatectomy. • In men with post-prostatectomy incontinence >1 year, consider referral back to treating urologist for assessment for urethral slings or artificial urinary sphincters.

https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/prostate-cancer-part-2

PROSTATE CANCER:

Bowel Dysfunction *Patients with primary treatment of radiation therapy*	

Rectal bleeding	• All men with rectal bleeding should be referred for a colonoscopy.*
	• For men with rectal bleeding post-radiation therapy, referral to a gastroenterologist who has experience in managing radiation therapy proctitis is recommended. ***The anterior rectum should not be biopsied due to the risk of a fistula of the rectum****
	• For men with bleeding secondary to radiation proctitis, the following strategies may be considered: *
	  • Dietary changes to bulk stool.
	  • Hydration education.
	  • Referral for assessment for other medical treatments, if primary management strategies are unsuccessful.

Urgency and frequency symptoms	For men with urgency and frequency symptoms, the following options may be considered:*
	  • Dietary changes to bulk stool.
	  • Hydration education.
	  • Medical treatments (antidiarrheals, anticholinergics).
	  • Pelvic floor muscle therapy.

https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/prostate-cancer-part-2

RADIATION CYSTITIS

- Varying practices in the pharmacological management of radiation cystitis
- Drugs to consider:
  - a urine alkaliser
  - non steroidal anti-inflammatory drug (if not contraindicated)
  - use of alpha-1 blocker
- Ensure adequate hydration
- Avoid bladder irritants such as alcohol and caffeine
- If there is hematuria refer to urologist

MUCOSITIS: CASE

QUESTION 5:

Which of the following would you least expect oral mucositis:

a. Adjuvant radiation to the parotid bed
b. Adjuvant radiation for a squamous cell carcinoma of the lip
c. Definitive treatment for a lower lobe squamous cell carcinoma of the lung
d. Concurrent chemoradiation of a tonsillar squamous cell carcinoma

MUCOSITIS: A COMMON SIDE EFFECT.

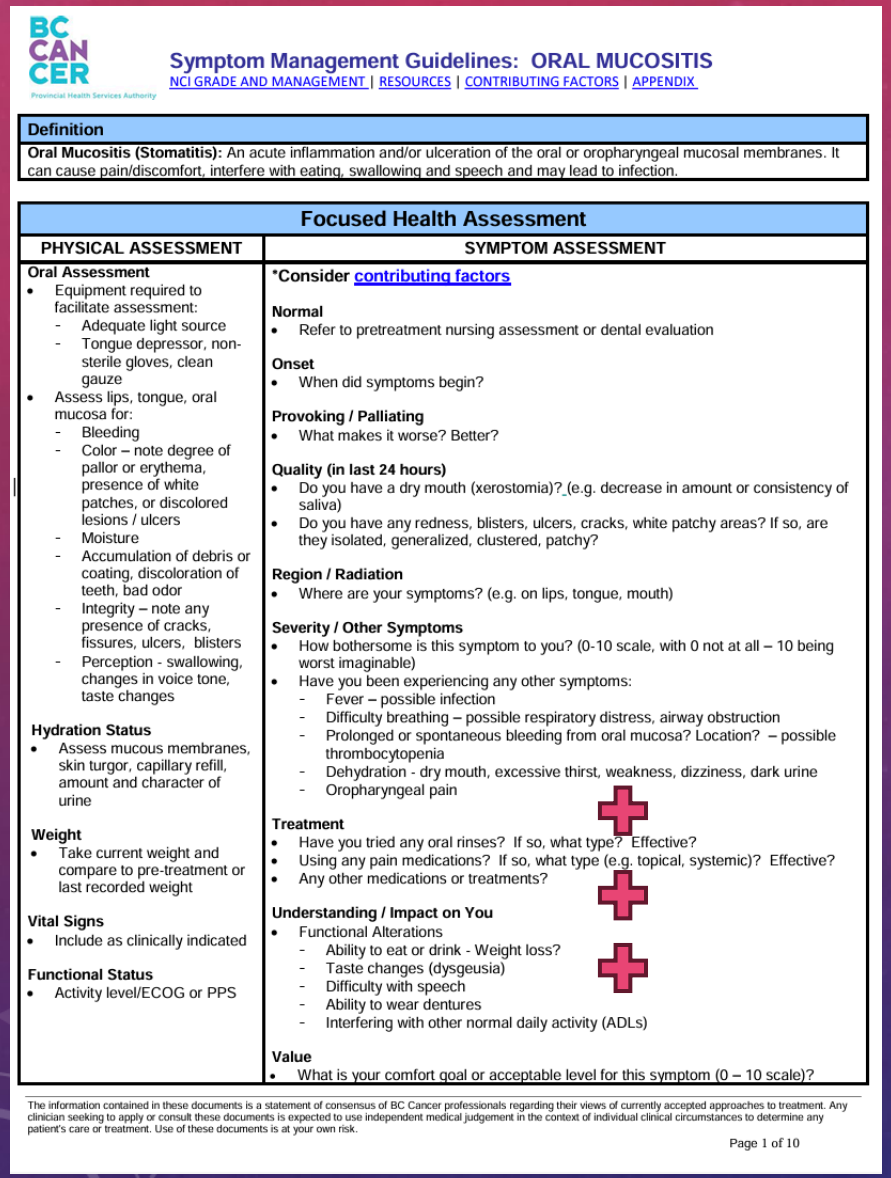
BC CANCER GUIDANCE AND RESOURCES ARE USED IN THE FOLLOWING SLIDES.

MUCOSITIS

ORAL MUCOSITIS GRADING SCALE Adapted NCI CTCAE (Version 4.03)				
GRADE 1 (Mild)	GRADE 2 (Moderate)	GRADE 3 (Severe)	GRADE 4 (Life - threatening)	GRADE 5
Asymptomatic or mild symptoms; intervention not indicated	Moderate pain; not interfering with oral intake; modified diet indicated	Severe pain; interfering with oral intake	Life-threatening consequences; urgent intervention indicated	Death

http://www.bccancer.bc.ca/nursing-site/Documents/12.%20Oral%20Mucositis

MUCOSITIS



BC CANCER
Provincial Health Services Authority

Symptom Management Guidelines: ORAL MUCOSITIS

NCI GRADE AND MANAGEMENT | RESOURCES | CONTRIBUTING FACTORS | APPENDIX

Definition

Oral Mucositis (Stomatitis): An acute inflammation and/or ulceration of the oral or oropharyngeal mucosal membranes. It can cause pain/discomfort, interfere with eating, swallowing and speech and may lead to infection.

Focused Health Assessment

PHYSICAL ASSESSMENT	SYMPTOM ASSESSMENT
Oral Assessment • Equipment required to facilitate assessment: - Adequate light source - Tongue depressor, non-sterile gloves, clean gauze • Assess lips, tongue, oral mucosa for: - Bleeding - Color – note degree of pallor or erythema, presence of white patches, or discolored lesions / ulcers - Moisture - Accumulation of debris or coating, discoloration of teeth, bad odor - Integrity – note any presence of cracks, fissures, ulcers, blisters - Perception - swallowing, changes in voice tone, taste changes **Hydration Status** • Assess mucous membranes, skin turgor, capillary refill, amount and character of urine **Weight** • Take current weight and compare to pre-treatment or last recorded weight **Vital Signs** • Include as clinically indicated **Functional Status** • Activity level/ECOG or PPS	*Consider contributing factors **Normal** • Refer to pretreatment nursing assessment or dental evaluation **Onset** • When did symptoms begin? **Provoking / Palliating** • What makes it worse? Better? **Quality (in last 24 hours)** • Do you have a dry mouth (xerostomia)? (e.g. decrease in amount or consistency of saliva) • Do you have any redness, blisters, ulcers, cracks, white patchy areas? If so, are they isolated, generalized, clustered, patchy? **Region / Radiation** • Where are your symptoms? (e.g. on lips, tongue, mouth) **Severity / Other Symptoms** • How bothersome is this symptom to you? (0-10 scale, with 0 not at all – 10 being worst imaginable) • Have you been experiencing any other symptoms: - Fever – possible infection - Difficulty breathing – possible respiratory distress, airway obstruction - Prolonged or spontaneous bleeding from oral mucosa? Location? – possible thrombocytopenia - Dehydration - dry mouth, excessive thirst, weakness, dizziness, dark urine - Oropharyngeal pain **Treatment** • Have you tried any oral rinses? If so, what type? Effective? • Using any pain medications? If so, what type (e.g. topical, systemic)? Effective? • Any other medications or treatments? **Understanding / Impact on You** • Functional Alterations - Ability to eat or drink - Weight loss? - Taste changes (dysgeusia) - Difficulty with speech - Ability to wear dentures - Interfering with other normal daily activity (ADLs) **Value** • What is your comfort goal or acceptable level for this symptom (0 – 10 scale)?

The information contained in these documents is a statement of consensus of BC Cancer professionals regarding their views of currently accepted approaches to treatment. Any clinician seeking to apply or consult these documents is expected to use independent medical judgement in the context of individual clinical circumstances to determine any patient's care or treatment. Use of these documents is at your own risk.

Page 1 of 10

REMEMBER CHECKING IN ON HYDRATION, WEIGHT, VITALS …..

http://www.bccancer.bc.ca/nursing-site/Documents/12.%20Oral%20Mucositis

MUCOSITIS

Grade 1

↓

GENERAL RECOMMENDATIONS FOR prevention, support, teaching & follow-up care as required	
Patient Care and Assessment- Including Dental Care	• New patient baseline assessment • Nurses to screen for oral complications. Once detected, assess at each patient visit • Provide verbal and written information on maintaining oral hygiene at onset of treatment • Maintaining oral health throughout the treatment phase is necessary to: - help ensure adequate hydration and nutrition - reduce the incidence, severity and duration of oral mucositis - prevent or minimize the effects of oral complications • A dental exam and any interventions should be performed by a dentist (or oral oncology specialist) as early as possible before starting radiation or chemotherapy • Smoking cessation resources
Oral Hygiene	**Flossing:** • Floss at least once daily • Do not floss if: – Causes pain or bleeding gums which does not stop after 2 minutes – Platelet count below 50, 000 mm^3 or unless otherwise advised by physician – Not a routine practice prior to treatment, do not initiate flossing unless recommended by a dentist **NOTE:** Patients with certain head and neck cancers may not be able to floss **Brushing:** • Use small, extra soft nylon bristled manual tooth brush – To soften bristles, rinse toothbrush under warm water for 30 seconds • Use non-abrasive, fluoride toothpaste with a neutral taste- flavoring agents may irritate gums • Brush two to four times daily – Brush all tooth surfaces using a short circular motion or horizontal strokes – Brush tongue back to front • Brushing should be done within 30 minutes of eating and for at least 2 minutes • Rinse toothbrush well with hot water after each use; allow to air dry • Replace toothbrush when bristles are no longer standing up straight **Oral Rinses:** • Oral rinses help keep mouth moist and clean by removing debris • Frequency and Use: – After brushing, rinse mouth a minimum of four times daily

WHO YOU PROBABLY MIGHT SEE

http://www.bccancer.bc.ca/nursing-site/Documents/12.%20Oral%20Mucositis

MUCOSITIS

	– Use 1 tablespoon (15 ml) of oral rinse, swish in oral cavity for 30 seconds, then spit out – Prepare mouth rinse solution daily to avoid risk of contamination • Recommended Bland Oral Rinses: – **Recipe #1**: Normal saline (NS) - ½ teaspoon (2.5 ml) of salt in 8 oz (240 ml) of water – **Recipe #2**: NS/sodium bicarbonate mixture – ¼ teaspoon (1.25 ml) of salt and ¼ teaspoon (1.25 ml) baking soda in 8 oz (240 ml) of water – **Recipe #3**: Sodium bicarbonate – ¼ to ½ teaspoon (1.25-2.5 ml) baking soda in 8 oz (240 ml) of water – Multi-agent rinses – " **Magic Mouthwash**" (may include a topical analgesic, a steroid, an antifungal agent, an antibacterial agent and/ or a mucosal coating agent) may be prescribed to help palliate pain; however, limited evidence to suggest superior over bland rinses • Not Recommended: – commercial mouthwashes which contain alcohol – chlorhexidine – povidone iodine – hydrogen peroxide – sucralfate – club soda – lemon glycerin swabs **Lip Care:** • Use water-soluble, lanolin or oil-based lubricants to protect the lips and keep moist • Apply after oral care, at bedtime or as often as required • Water based lubricants may be used during oxygen therapy and can be applied inside the mouth **NOTE**: Oil based lubricants (e.g. petroleum jelly) generally not recommended due to increased risk of aspiration and occlusive nature may increase growth of pathogens. **Do not** use inside mouth or if patient on oxygen therapy. **Dentures:** • Remove dentures, plates, and/or prostheses before oral hygiene performed • Brush and rinse dentures after every meal and at bedtime • Soak dentures in oral rinse solution, rinse before placing in mouth • Do not wear tight or loose fitting dentures • Allow long periods without wearing dentures, at least 8 hours daily (e.g. overnight) • If mouth sensitive, wear only during mealtime
Radiation Therapy	**Benzydamine Hydrochloride** 0.15% (Tantum®) is an anti- inflammatory mouth rinse that is recommended for use to prevent and/or relieve the pain and inflammation associated with oral mucositis in patients who are receiving moderate doses of radiation therapy for head and neck cancer. **Amifostine** is a cytoprotectant agent that may help to reduce the incidence and severity of chronic or acute xerostomia in patients who are receiving radiation therapy for head and neck cancer. **Not Recommended:** • Chlorhexidine • Sucralfate • antimicrobial lozenges
Head & Neck Cancers	• Brushing may not be appropriate in the area of tumor involvement • Patients should be assessed for the use of daily Fluoride tray • Consult with a dentist
Cryotherapy	• May decrease the incidence and severity of oral mucositis • Patients should be instructed to hold ice chips in mouth five minutes prior, during, and for 30 minutes after the bolus infusion of fluorouracil (5FU) **NOT** used for: • Infusional fluorouracil • Regimens which include **Oxaliplatin** due to potential exacerbation of cold-induced pharyngolaryngeal dysthesias
Hematopoietic Stem Cell Transplantation (HSCT)	**Recommended for prevention/reduced severity of Oral Mucositis:** • Palifermin (keratinocyte growth factor-1) for patients with hematological malignancies receiving high dose chemotherapy with or without radiation therapy followed by HSCT

http://www.bccancer.bc.ca/nursing-site/Documents/12.%20Oral%20Mucositis

MUCOSITIS

	• Oral cryotherapy to prevent oral mucositis in patients receiving high dose melphalan **Not Recommended:** • Pentoxifylline/Granulocyte-Macrophage Colony Stimulating Factor (GM- CSF) mouthwashes
Dietary Management	**Promote:** • Daily fluid intake of 8-12 cups (2-3 litres), unless contraindicated, to help keep oral mucosa moist (e.g. water, sugar-free popsicles, non-acidic juices, ice cubes, sports drinks, broth) • Well-balanced diet that is high in protein, vitamins B and C • The use of soft, moist, bland foods as symptoms develop – Add sauces, gravy, salad dressings, butter/margarine, broth or another liquid to help moisten and thin foods **Avoid:** • Dry or coarse foods (e.g. toast, crackers, chips) • Spicy or hot temperature foods • Highly acidic fluids and foods (e.g. lemon glycerin swabs, vitamin C lozenges) • Fluid or foods high in sugar (e.g. pop, some fruit juices) • Caffeine, alcohol, tobacco
Patient Education and Follow-Up	• Prior to the commencement of cancer therapy, review oral care and hygiene recommendations with patient/ family • Demonstrate/assess understanding of how to perform daily oral assessment at home • Provide verbal and written information on maintaining oral hygiene at onset of treatment • Provide contact information and reinforce with patient/ family when to seek immediate medical attention if the following emergent conditions develop; - Temperature greater than or equal to 38° C, presence of white patches, redness, foul odour – possible infection - Difficulty breathing– respiratory distress - Bleeding lasting longer than 2 minutes– possible thrombocytopenia - Unable to eat or drink fluids for more than 24 hours– risk for dehydration - Difficulty swallowing– reflective of severity of symptoms - Uncontrolled pain- reflective of deteriorating patient status and severity of symptoms • Instruct patient/family to call back if mucositis worsening, not improving or other complications develop

http://www.bccancer.bc.ca/nursing-site/Documents/12.%20Oral%20Mucositis

MUCOSITIS

GRADE 2 – GRADE 3
OR
Not able to tolerate adequate daily fluid intake and/or presence of white patches in oral mucosa

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URGENT: *Requires medical attention within 24 hours*	
Patient Care and Assessment	Collaborate with physician if patient: • On active chemotherapy treatment and concern re: treatment delay or reduction required. ***See Chemotherapy Protocols for specific instructions*** • Requires new or change in prescription • Requires further evaluation and assessment in an ambulatory setting • Lab and diagnostic testing that may be needed: - Culture of oral mucosa - Complete blood count, electrolyte profile, blood cultures
Oral Hygiene	**Flossing:** • Discontinue flossing if: - Causes pain - Bleeding gums which do not stop after 2 minutes - Low platelet count (below 50, 000 mm^3) **Brushing:** • Brushing more gently with toothbrush if:

WE SHOULD KNOW ABOUT THESE PATIENTS. IN SURREY THE H&N NP SHOULD BE AWARE

http://www.bccancer.bc.ca/nursing-site/Documents/12.%20Oral%20Mucositis

MUCOSITIS

	- brushing causes discomfort - some bleeding occurs but stops within 2 minutes • **Do not** use a toothbrush if: - Brushing is too painful even with pain medication - Bleeding in oral mucosa does not stop after 2 minutes • If **unable to brush**, clean teeth with clean, moist gauze or foam swab accompanied with vigorous rinsing using recommended oral rinse solution • If there has been an oral infection, use a new toothbrush after infection has resolved **Oral rinses:** • **Increase use** of mouth rinses to: – Every 1-2 hours while awake – Every 4 hours overnight (if awake) – Increase frequency as needed for symptom severity increases **Lip care:** • Continue to apply water based lubricant to protect and moisten lips **Dentures:** • Keep dentures out of mouth as much as possible until symptoms resolve
Dietary Management	• Change food texture, consistency, and temperature according to individual tolerance (e.g. puree diet) • If only liquids are tolerated, choose high calorie, high protein supplement fluids • May require oral supplementation or IV hydration if unable to maintain adequate fluid intake
Management of Oral Complications – *See Appendix A*	**Oral pain:** • For pain from moderate to severe oral mucositis, systemic analgesics are indicated • A topical anesthetic or analgesic may be prescribed in addition to systemic analgesia **Local infection:** • Review recent lab reports, culture any suspect areas, check temperature • Review prescribed medications with patient **Minor bleeding with trauma (stops after 2 minutes):** • Assess complete blood count, particularly platelet function, and hemoglobin • Rinse mouth with ice water and apply pressure to control bleeding- suggest using frozen tea bag/wet gauze **Dry mouth (xerostomia):** • Use sugarless gum or candy to help stimulate saliva • Keep bottle of water present at all times, encourage frequent sips

http://www.bccancer.bc.ca/nursing-site/Documents/12.%20Oral%20Mucositis

THANK YOU – QUESTION TIME