

# Radiation Therapy for Skin Cancer

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20<sup>th</sup> January 2024



# Radiation Therapy for Skin Cancer

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- Non-melanoma skin cancer
- Radiotherapy case examples
  - As an alternative to surgery
  - After surgery
- Managing skin side effects after radiotherapy



# Non-Melanoma Skin Cancer - Rates

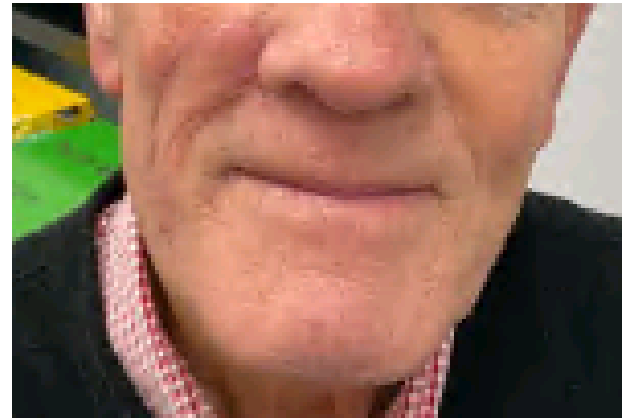
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- 11,400 cases of SCC and BCC (combined) per year
- Account for 26% of all cancers diagnosed 2018-2020
- Rates expected to double by 2040



# Non-Melanoma Skin Cancer - Surgery

- Surgery is the first line treatment option
- Most efficient and highly effective
- Must consider cosmetic and functional outcomes



# Non-melanoma Skin Cancer - Radiotherapy

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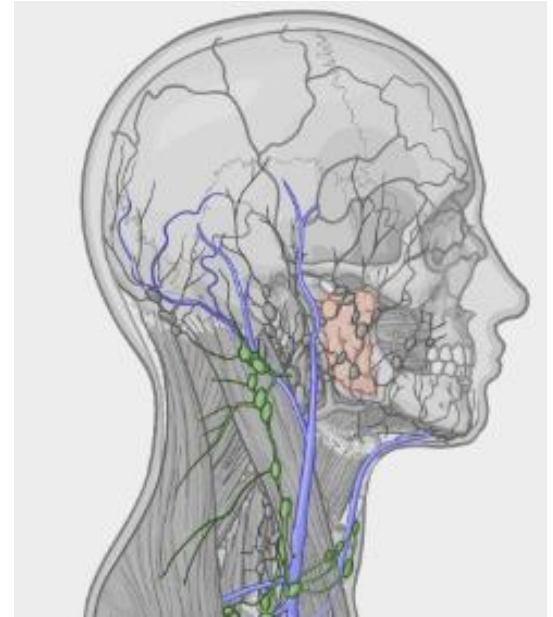
## As an alternative to surgery for:

- Cosmetically sensitive location
- Older patients
- Surgery fatigue
- Local control is excellent, especially <2cm diam lesion, but can treat all sizes



## **After surgery for lesions at high risk of recurrence:**

- Positive or close margins
- Perineural invasion  $>0.1$  mm
- T3 or T4 lesions
- Immunosuppressed patients (eg organ transplant, CLL)
- Node positive (parotid, or multiple neck, or extra-nodal extension)



## **Avoid radiotherapy if:**

- Site of previous radiotherapy
- Lower limb (below knee) -> risk of non-healing wound/ulcer
- Some genetic syndromes which result in significant hypersensitivity to radiation eg congenital BCC syndrome, ataxia telangiectasia.

# Non-Melanoma Skin Cancer - Radiotherapy



## Delivery:

- 5 to 30 treatments (“fractions”) for skin cancer treatment
- Lower dose per fraction = less long term toxicity
- Patients typically treated 3-5 days per week
- 15-30 mins (depending on case complexity)



## Delivery:

### 1) Superficial Unit (SRT-100)

- Low energy, superficial X-Rays
- Approx 2 mins treatment delivery time (up to 10 mins for patient set-up)



## Delivery:

### 2) Linear Accelerator

- High energy, deeply penetrating X-Rays
- For thicker tumors or complex targets
- Treatment time 20-30mins



# Case Examples: Definitive Radiotherapy

## Case 1 – BCC Forehead

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- 78yo
- Nodular BCC forehead
- Did not want WLE with flap reconstruction
- Met RCC on cabozantinib
- 10 Fractions superficial RT
- Given daily over 2 weeks



# Case 1 – BCC Forehead

## Superficial RT set-up



## Case 2 – BCC Nasal Tip and Columella

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- 90yo
- Excellent performance status
- Infiltrative BCC nasal tip and columella, 1.5cm diam.
- 17 fractions radiotherapy (3 ½ weeks)



## Case 2 – BCC Nasal Tip And Columella

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Before treatment



Final treatment



6 weeks later



## Case 3 – SCC Lip

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- 82yo, Ex-smoker
- Mod diff SCC lower lip
- Surgical option: wedge resection
- Elected for RTx as alternative
- 17 fractions (3 ½ weeks)





## Case 3 – SCC Lip

Radiotherapy planning CT scan

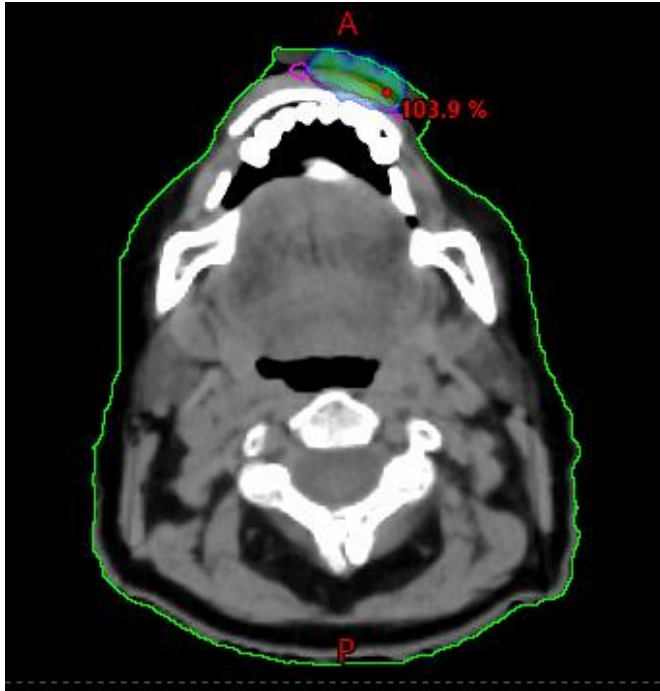


Custom-made mouth-bite:

- moving top lip away
- pulling bottom lip off gum/teeth
- pushing tongue back

## Case 3 – SCC Lip

Dose distribution



Follow up



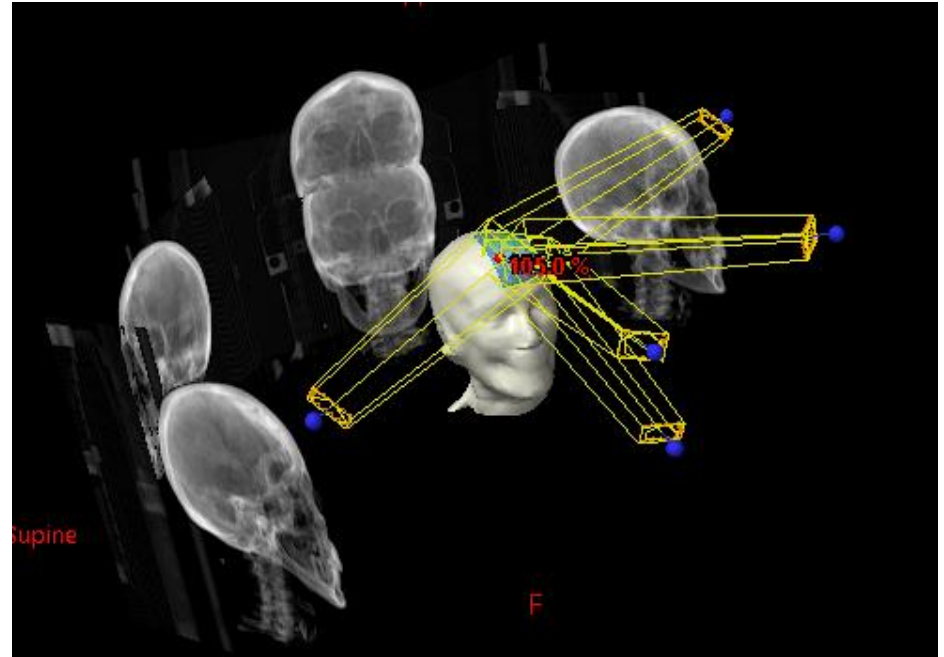
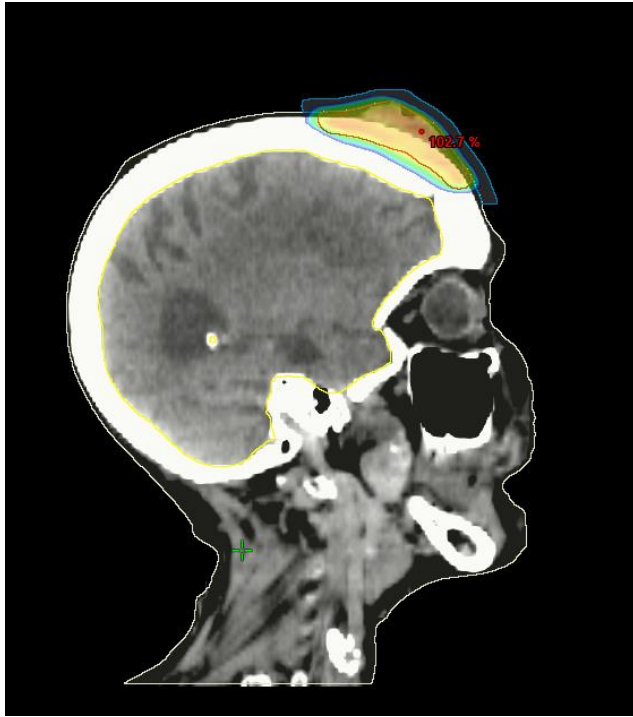
## Case 4 – Large SCC

- 97 yo
- Poorly diff SCC forehead
- Rapid growth and pain
- Dementia, living with family
- 2-3 treatments per week
- 10 fractions



## Case 4 – Large SCC

Intensive modulated radiotherapy (IMRT) – avoiding brain



## Case 4 – Large SCC

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Before



6 week follow up



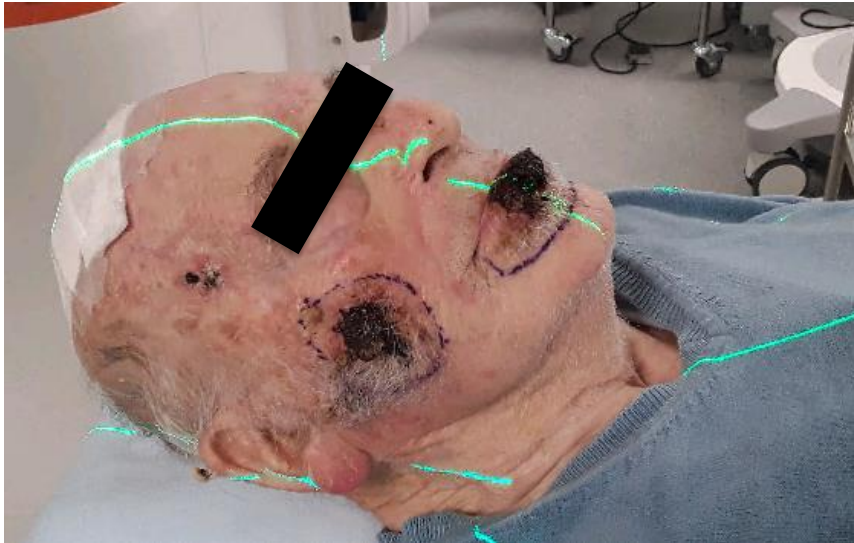
## Case 5 – Multiple Large SCC

- 91yo
- t/f to NH following fall at home few months prior
- Large SCCs R cheek and lip
- Beginning to cause functional impairment
- Feeling socially isolated because of appearance
- Co-morbidities: cardiac, prostate ca, anaemia



## Case 5 – multiple large SCC

Step 1: mark-up



Step 2: mouth-bite and bolus

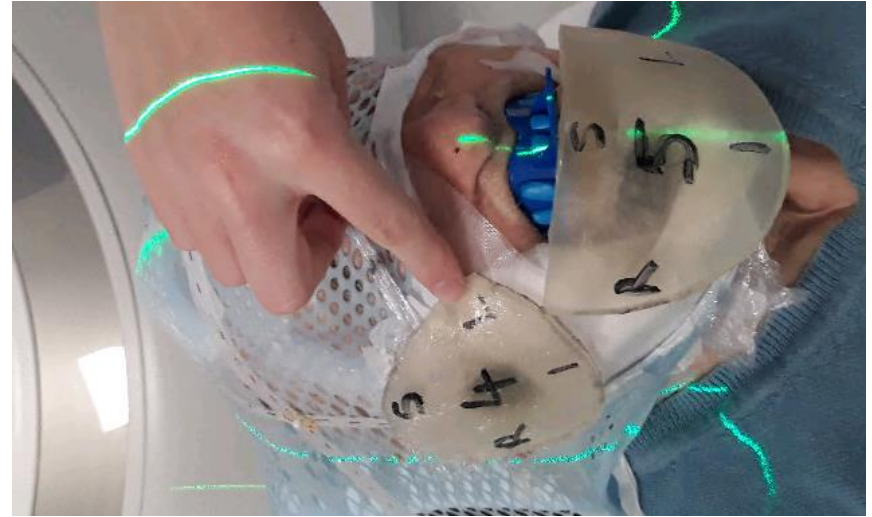


## Case 5 – Multiple Large SCC

Step 3: mask



Step 4: more bolus!





## Case 5 – Multiple SCC

Before



During

Admitted

Fatigue

Mucositis

Anaemia

After



# Case Example

## Post-operative Radiotherapy

## Case 6: Post-op Radiotherapy

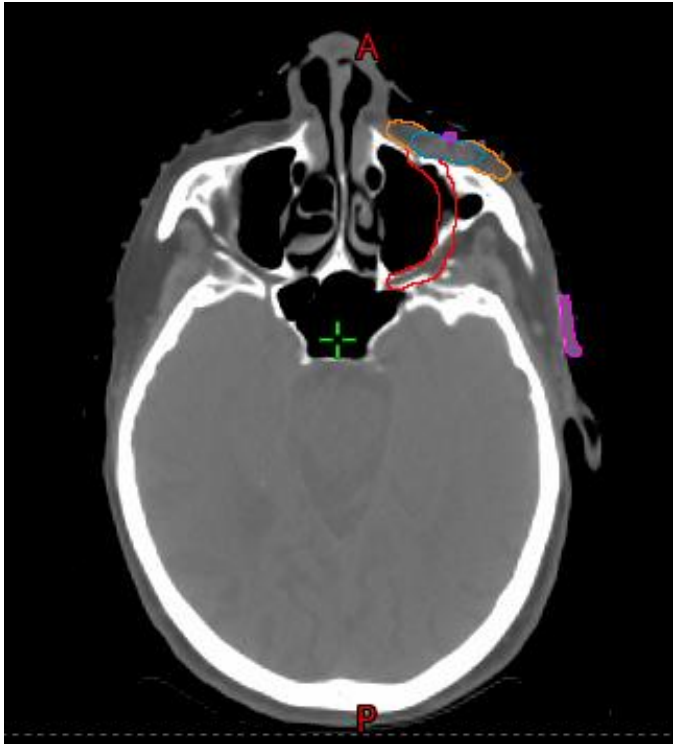
- 82 yo
- Poorly diff SCC left cheek
- Wide local excision and flap reconstruction
- Large fibre perineural invasion +
- 7-12o'clock periph margin +ve
- Deep margin 0.5mm

Surgical mark-up



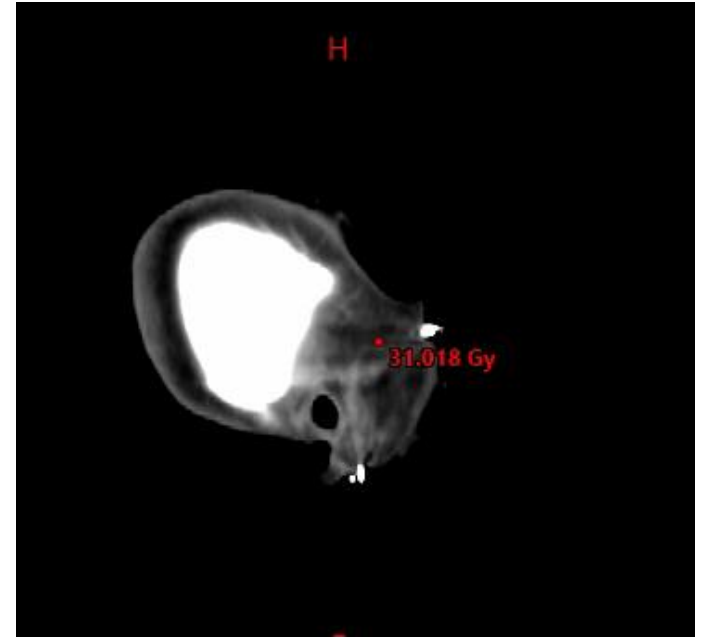
# Case 6: Post-op Radiotherapy

CT planning scan



Red contour:

Infra-orbital nerve  
to base of skull



## Case 6: Post-op Radiotherapy

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3 month follow up



# Skin Side Effects

# Acute Skin Toxicity from Radiotherapy

Erythema (G1)



Dry desquamation (G2)



Moist desquamation (G3)



Rare, often confined to skin folds

- Risk and severity depends on site, patient factors, and radiotherapy technique and dose .
- Builds up over 2-3 weeks after RT starts
- Can get worse in the first 1-2 weeks after treatment finishes
- With advanced radiotherapy treatments, there will often be no skin reaction at all (eg stereotactic treatment)

# Management Of Acute Skin Toxicity

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- **Prevention:**
- Use warm water (not hot), wash gently, don't scrub, pat dry
- Use gentle shampoos/shower gel eg E45
- Avoid cosmetics or harsh cleansers in the treatment area
- Do not wet shave, wax or use hair removal products. Can use electric razor instead.
- Can use topical emollients, eg E45, aqueous crème, pure aloe,
- For breast patients or treatment to the axilla, can use crystal deodorant (aluminium free)



# Management of Acute Skin Toxicity

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- **Dry desquamation:**
- Dry skin: emollient (eg E45, aqueous, StrataXRT)
- Itch: hydrocortisone 1% crème (avoid broken skin)
- **Moist desquamation:**
- StrataXRT
- Saline rinses over the area
- (if treating groin/perineum, can use salt baths twice a day)
- Allevyn non-adhesive dressing
- Leave skin exposed to air when at home
- Occasionally: flamazine (but NOT during radiotherapy treatment course)

# Potential Long Term Toxicity From Radiotherapy

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- Can develop months to years later:
- Telangiectasia
- Permanent hypopigmentation or alopecia
- Chronic dermatitis
- RT-induced malignancy (approx. 1/1000)



Resources for patients:

- [www.beaconhospital.ie/department-service/cancer-care](http://www.beaconhospital.ie/department-service/cancer-care)
- Irish Cancer Society website: Cancer booklets and factsheets
- [www.cancercareontario.ca/en/symptom-management](http://www.cancercareontario.ca/en/symptom-management)

# Summary

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Skin cancer incidence is rising and you will be seeing more in practice in the future



Radiotherapy is an alternative to surgery for non-melanoma skin cancers



Excellent MDT set-up at Beacon:  
dermatology, plastics, ENT, RTx and Med onc.



Referral via healthmail to dermatology or plastics  
(Radiotherapy is embedded with these services)



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# Thank you