

# Kent Oncology Centre Electron Mark-Up Simulation Training

Fred Swaminathan: Practice Educator  
Jenny Filmer: Practice Development Radiographer

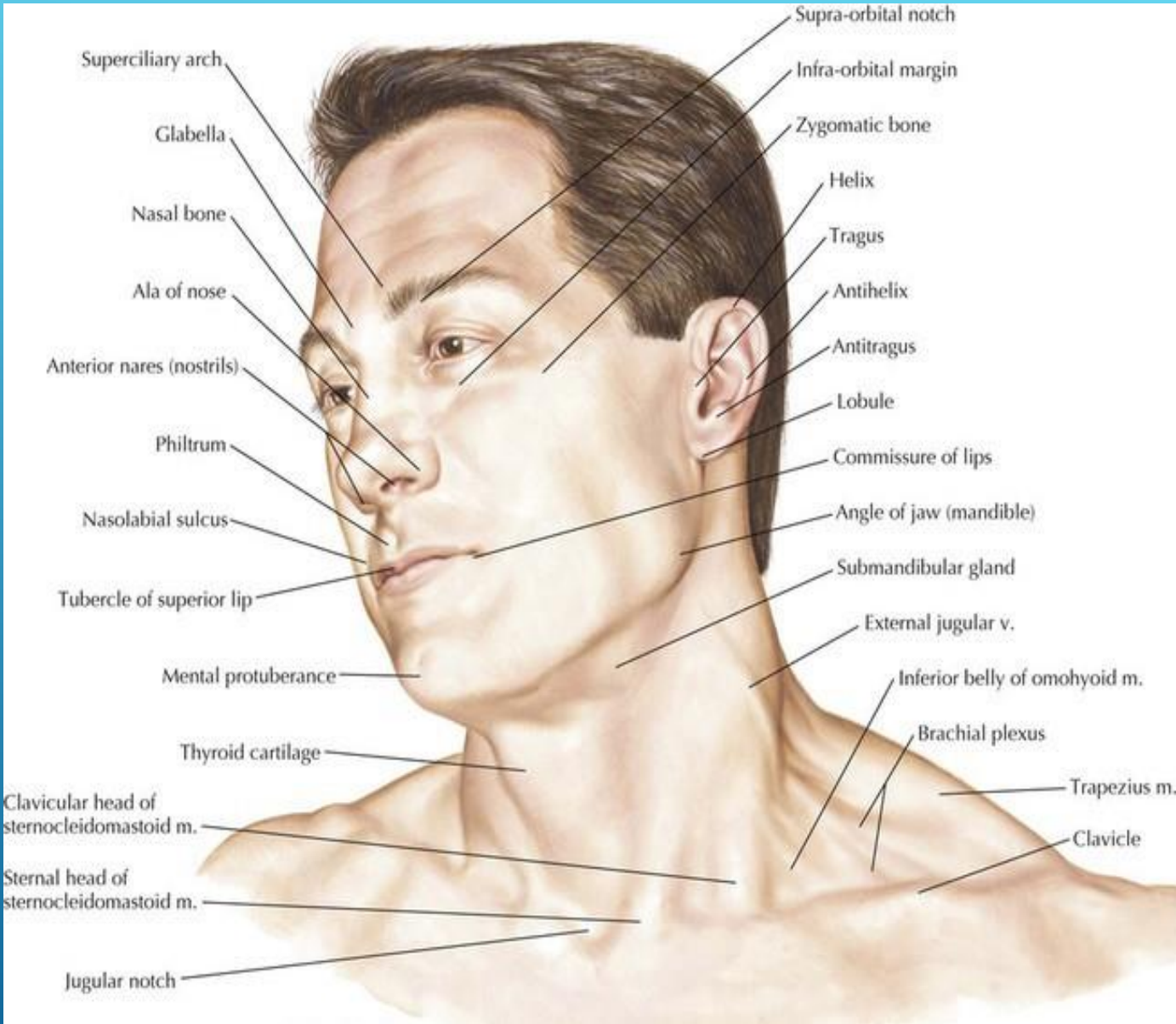
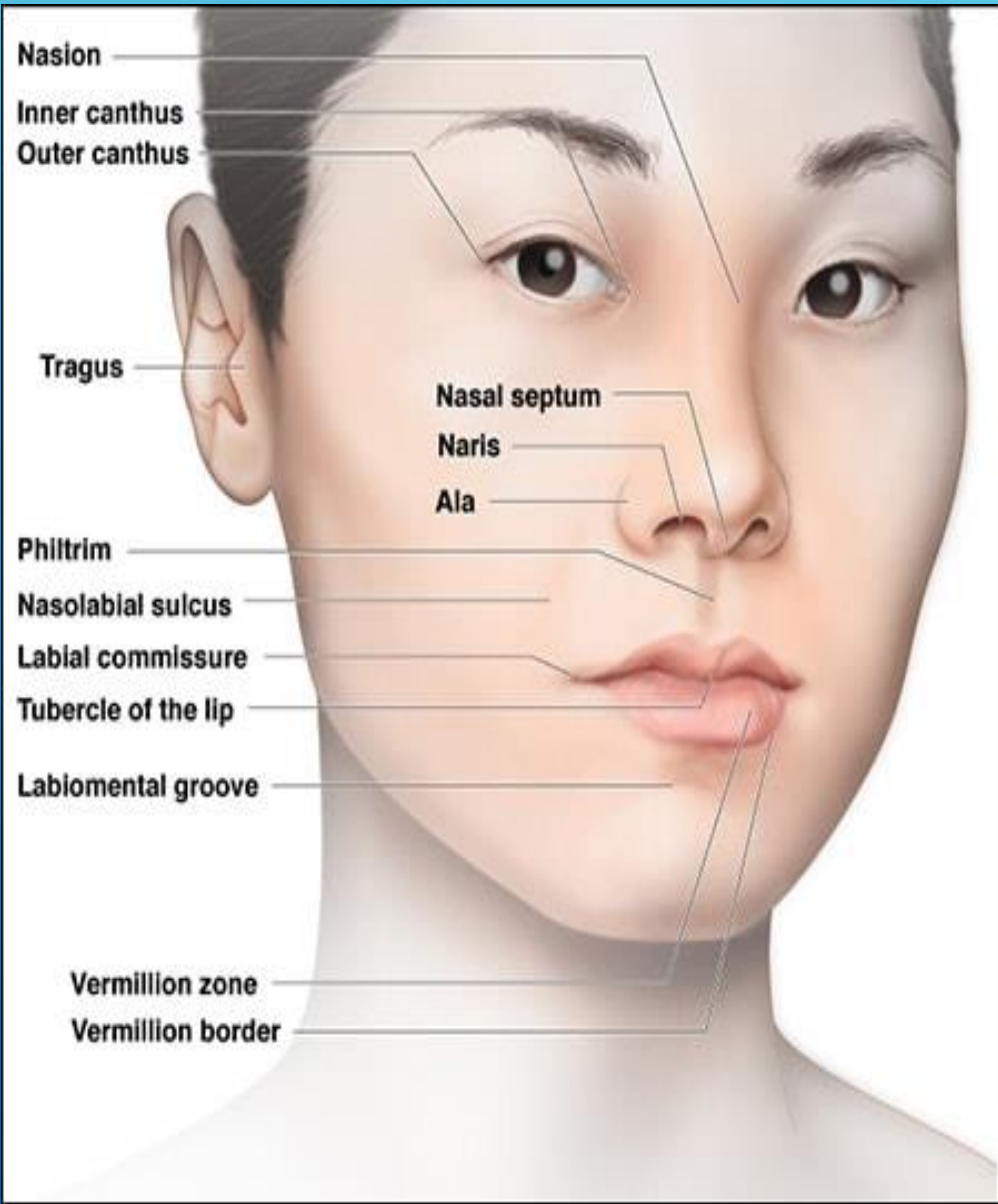


# 5P CONCEPT.

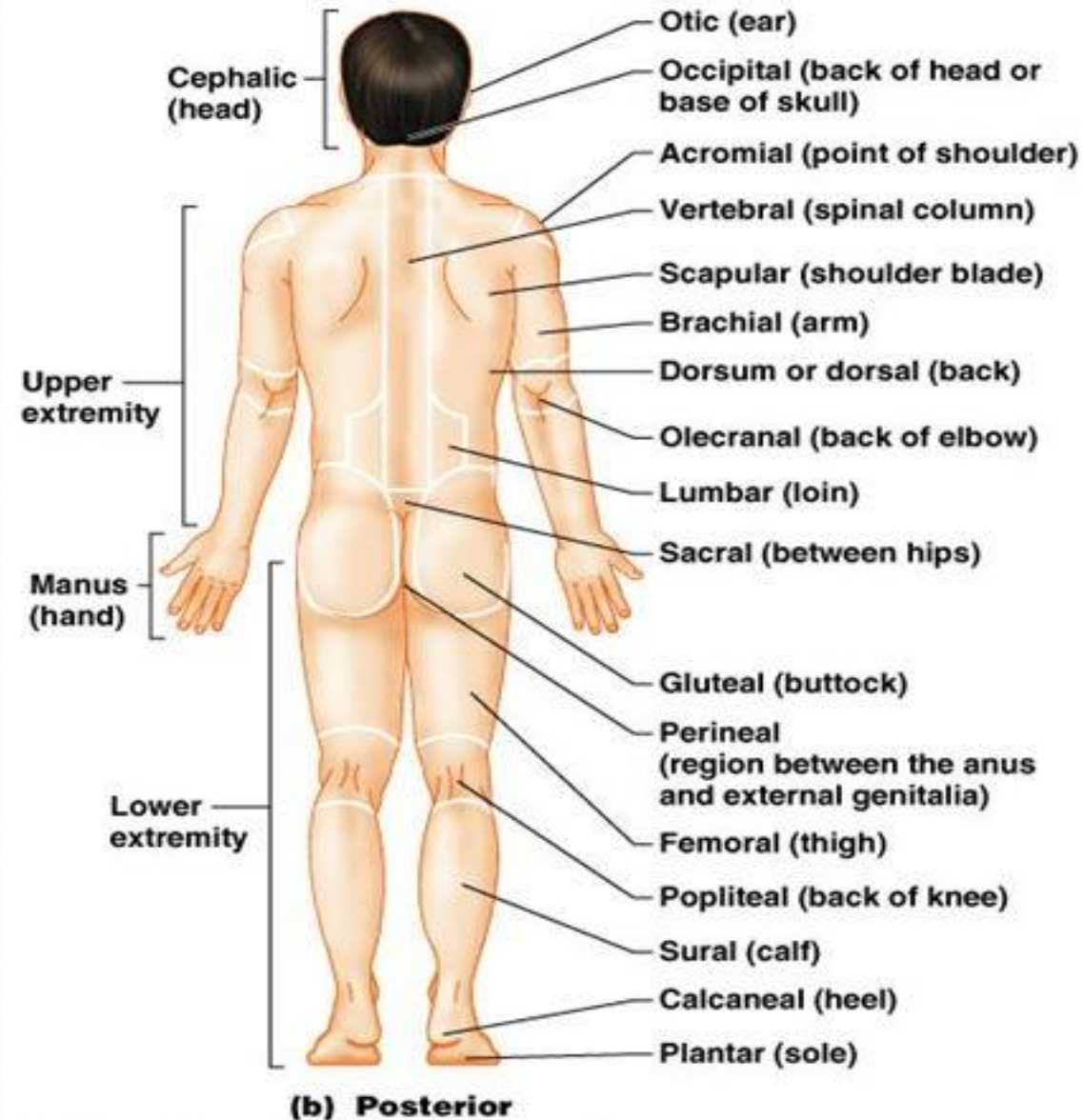
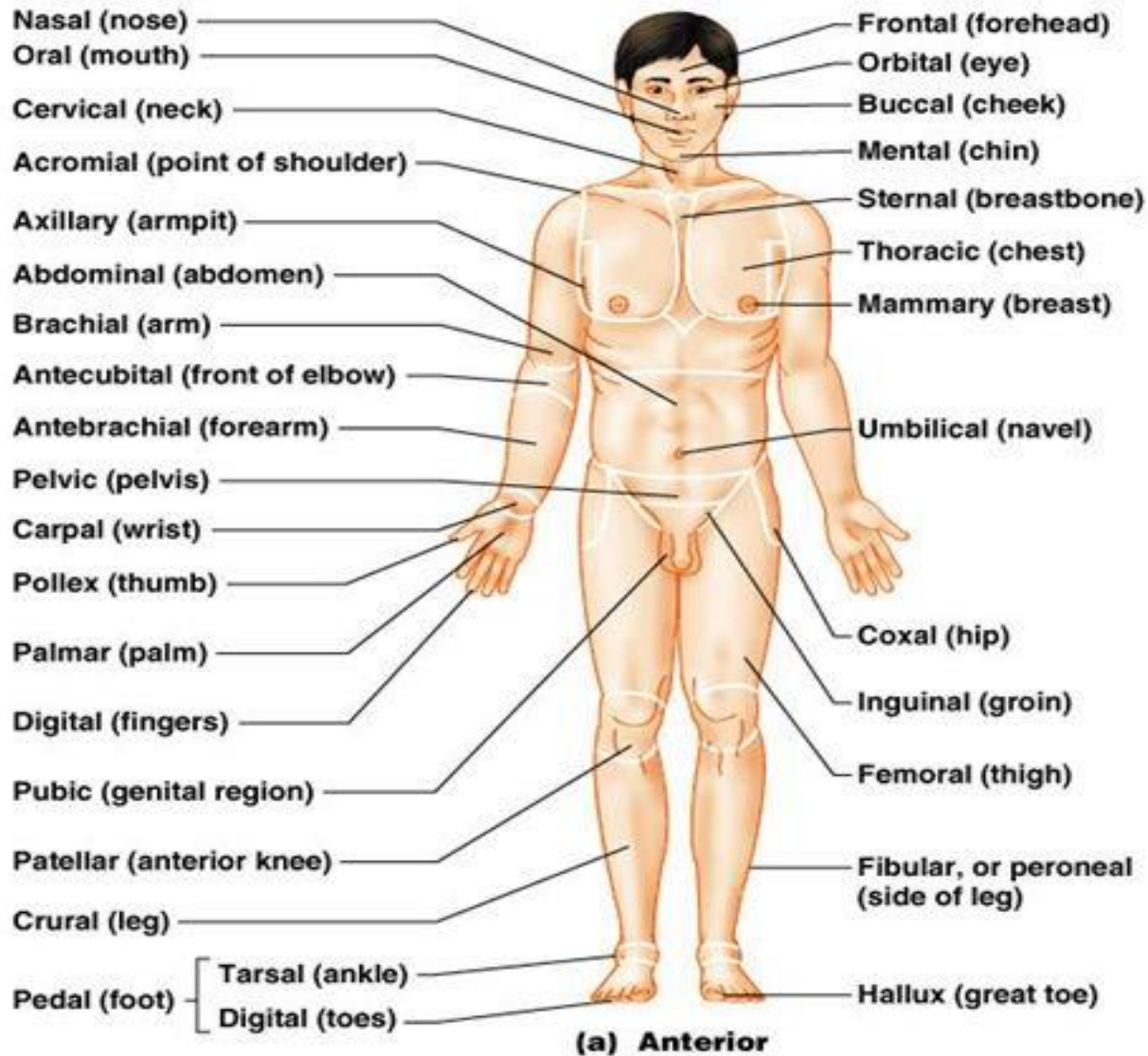
- ▶ **PLAN.**
- ▶ **PREPARE.**
- ▶ **PRESENT.**
- ▶ **PRACTICE.**
- ▶ **PERFORM.**



# SURFACE ANATOMY



# Anatomical Regions

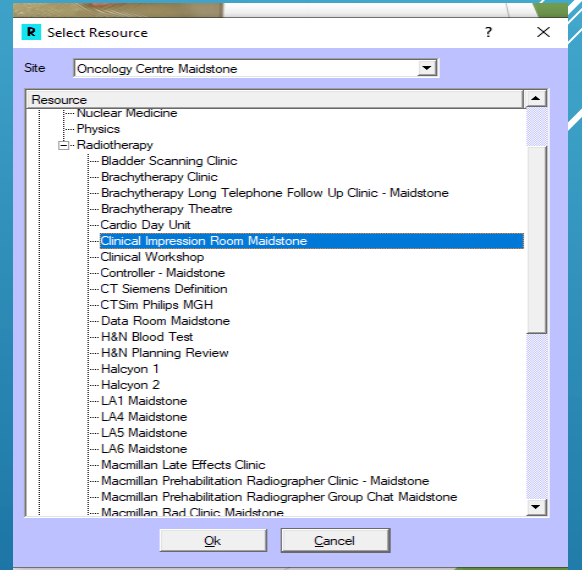
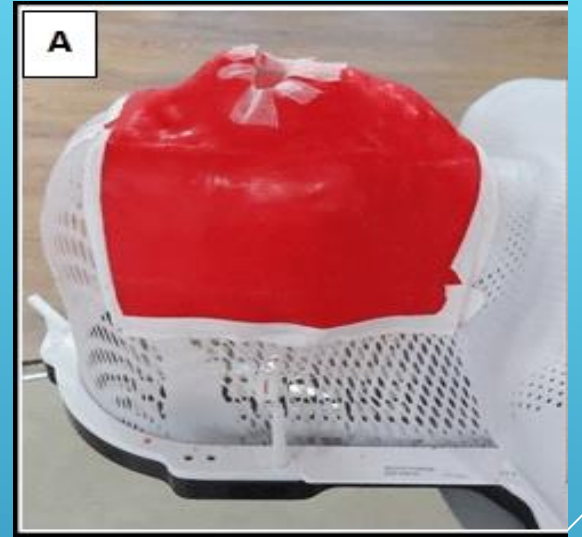


# PRESENTATION



# PREPARATION

- ▶ 1) SCHEDULE 2) THE TEAM  
CONSULTANT, MOULD  
ROOM TECH, PHYSICIST.  
ACETATE, BASE PLATE
- ▶ SUPERFLAB, WAX  
BOLUS
- ▶ PARANET BOLUS



# PRESCRIPTION SHEET

REV4

Kent Oncology Centre

RWF-RPTF619

## ELECTRON CALCULATIONS

NAME: [REDACTED]

Total Dose 55 Gy Number of Fractions 20 Truebeam \*

ENERGY [MeV]	9	
APPLICATOR SIZE [cm]	6 x 6	
GANTRY ANGLE [°]		
FLOOR ANGLE [°]		
COLLIMATOR ANGLE [°]		
JAW SETTINGS [cm]	20 x 20	
FSD TO CENTRE [cm]	to PLATE 101.3 to bolus 100.0	
LIGHT SIZE (at 100 cm) [cm]	4.0 Circle	
INSERT APERTURE [cm]	3.8 Circle	
BUILD-UP [cm]	Water equivalent Set-up plate 0.1 Wax 1.3	

### DOSE CALCULATION

APPLICATOR FACTOR	0.980	
SQ. RT. OF INSERT APERTURE AREA [cm]	3.37	
INSERT FACTOR	0.948	
STAND-OFF FACTOR	-	
OUTPUT [Gy/100MU]	0.929	
DAILY TARGET DOSE [Gy]	2.75	
PRESCRIPTION FACTOR	1.11	
DAILY DOSE [Gy]	3.056	
<b>SET MU</b>	<b>329</b>	
SIGNATURE & DATE	[REDACTED]	
SIGNATURE & DATE	[REDACTED]	

\* Please ensure calculation data for correct type of linear accelerator

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## KENT ONCOLOGY CENTRE - RADIOTHERAPY TREATMENT SHEET

COURSE NUMBER:

makeup @ 10:40  
14/11/23 15:25

NAME	[REDACTED]	CONS	AZ
ADDRESS	[REDACTED]	IP WARD	
DOB	[REDACTED]	TRIAL	
RT NUMBER	[REDACTED]	EAS	420663
FUNDING	[REDACTED]		
DIAGNOSIS	[REDACTED]	Head & Neck, Skin) bcc	
Chemo	[N/A]		

TREATMENT AREA	Nose
COMMENT	
TECHNIQUE	direct
LATERALITY	Right
PHASE	1
TOTAL DOSE (Gy)	55
NO. OF #	20
DOSE / # (Gy)	2.75
DURATION (WKS)	4
RCR CAT	Two (RAD)
# PER WEEK	5
ENERGY/MODALITY	6MV / 10MV / <u>9 MeV</u>
ICRU REFERENCE POINT	<u>90%</u> / Mid-separation / D max / Depth cm / Median PTV / 100% covers 95% of PTV 4 cm CIRCLE 1.3 cm Bolus treating to 1.5 cm depth
PRESCRIBE SIGNATURE	[REDACTED] 7037119
DATE	26/07/2023
OFF-PROT. SIGNATURE	
ANY OTHER COMMENTS	

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# CALCULATIONS.

10BY 10 APPLICATOR, 7 CM DIAMETER CIRCLE, 9 MEV, 4 GY

▶ **Prescription Factor** = 
$$\frac{100}{\text{Prescription Isodose (\%)}}$$

▶ **Daily Ref Point Dose** = 
$$\text{Daily Target Dose} \times \text{Prescription Factor}$$

▶ **Set MU** = 
$$\frac{100 \times \text{Daily Ref Point Dose}}{\text{Applicator Factor} \times \text{Insert Factor} \times \text{SO Factor}}$$

▶ **Step 1) Prescription Factor** = 
$$\frac{100}{90(\%)} = 1.111111$$

▶ **Step 2)** 
$$\times 400 \times 1.111 = 444.4$$

▶ **Step 3)** 
$$\times \frac{444.4}{1 \times .993 \times \text{SO Factor}}$$

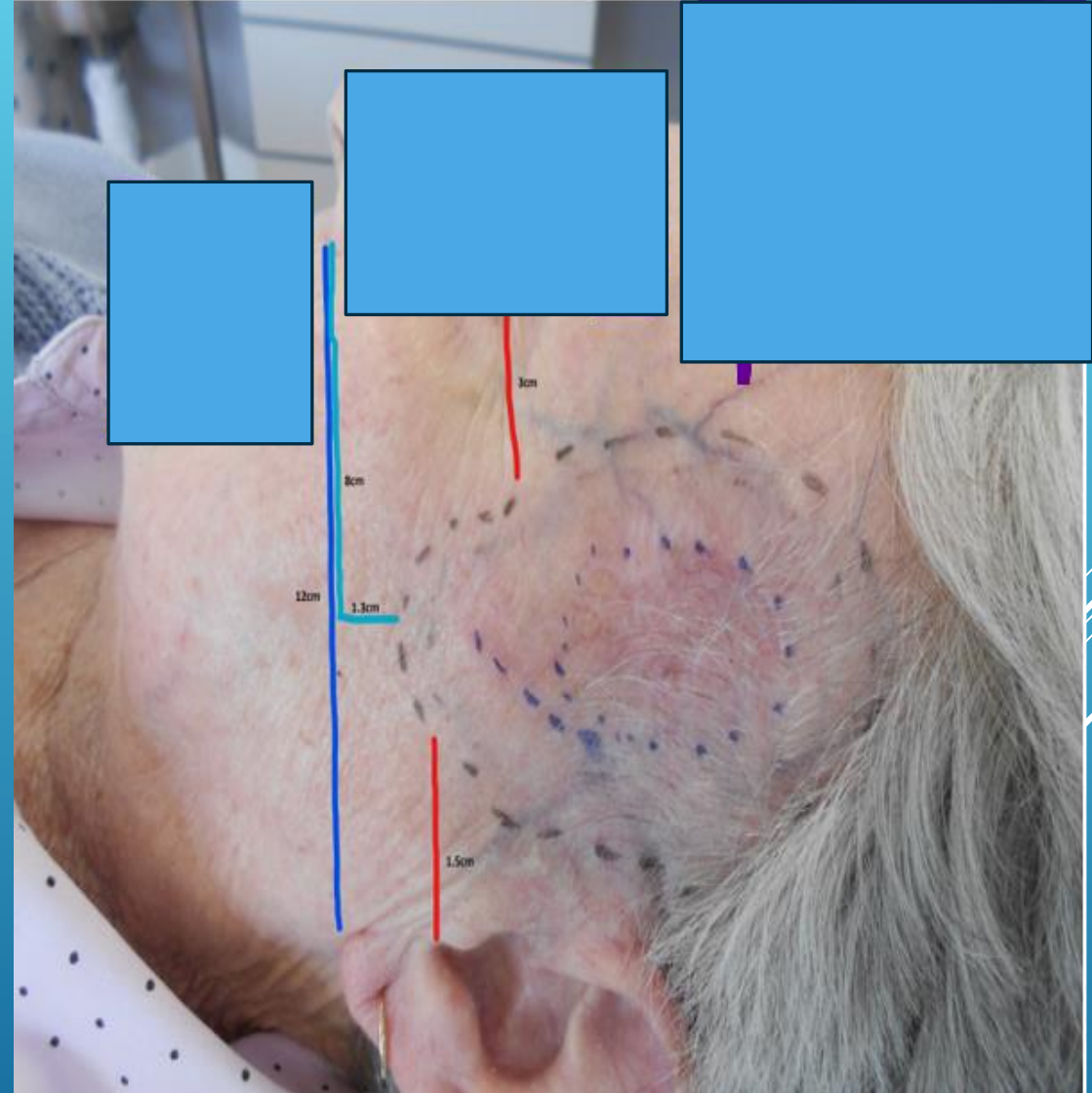
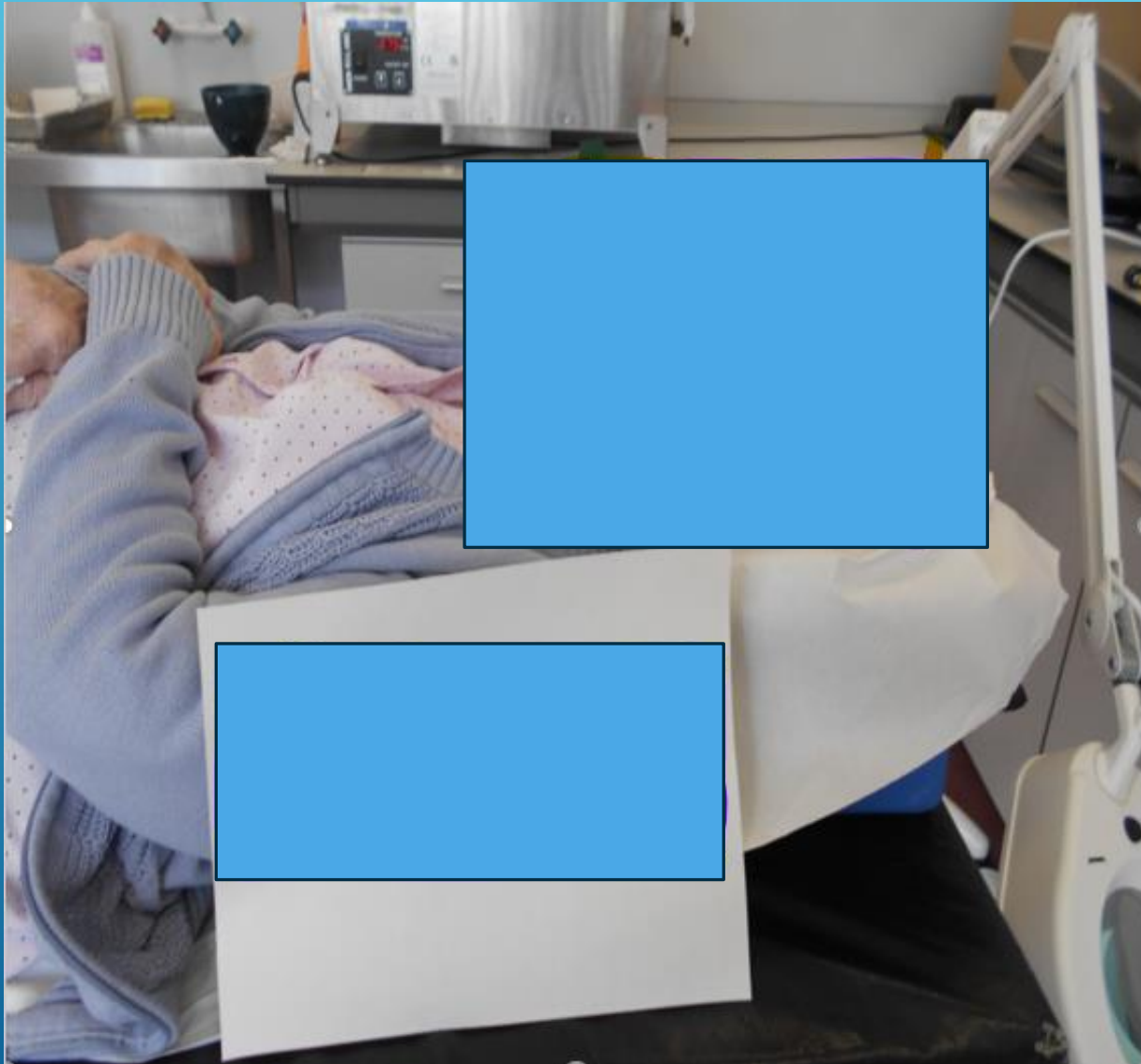
▶ **Set Mu** = 
$$447.5327$$



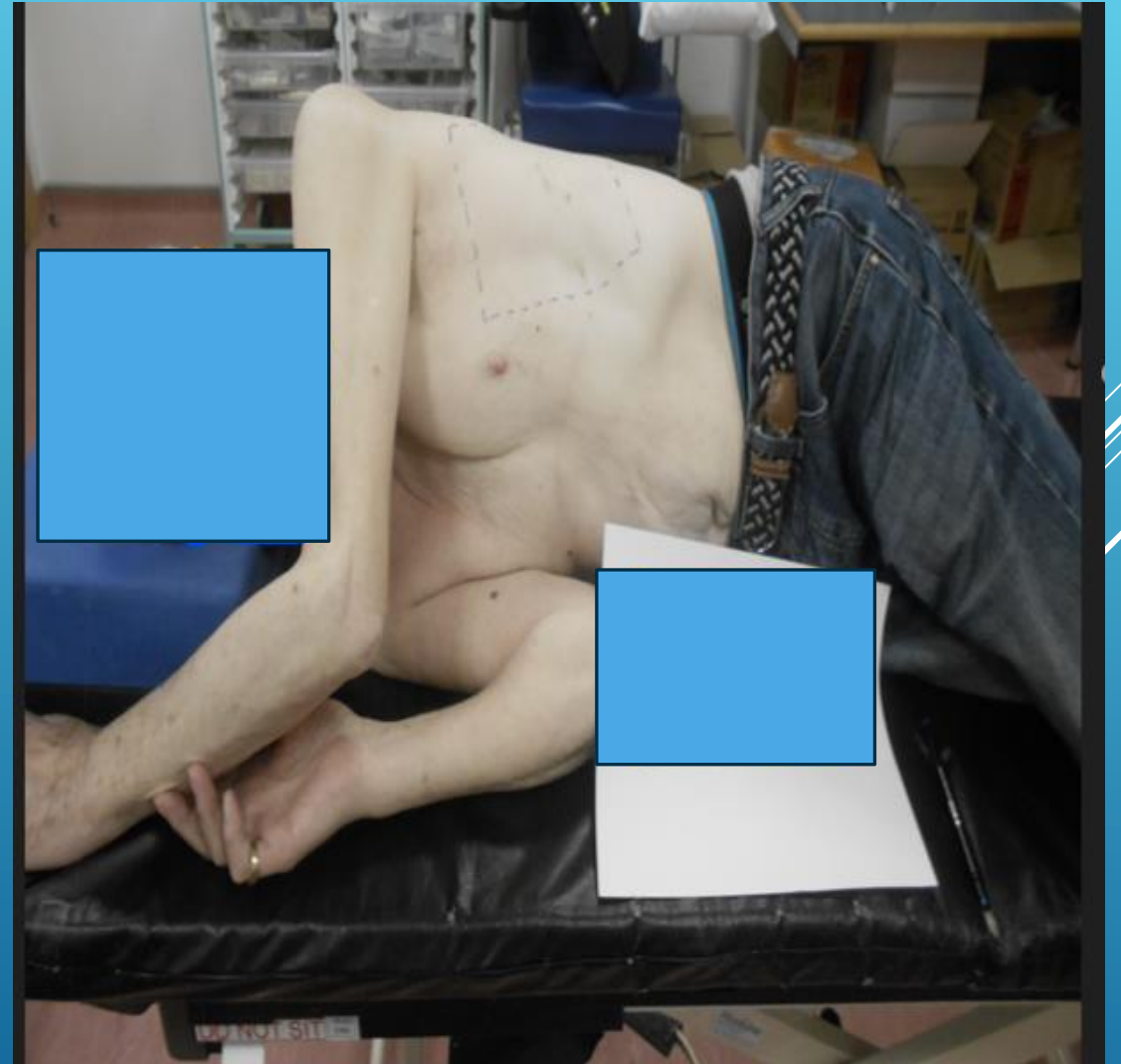
# SITE 1 SKULL.



# SITE 2 & 3 NOSE AND FACE



# SITE 4 RIBBS



# RARE CASES

## GENETILE AREA. SITE 5



▶ **ADVANCED**

▶ **CATHETERIZATION**

▶ **TRAINER SET**

# MAKE SURE

▶ **REPRODUCEABLE.**

▶ **PRECISE ANATOMICAL LAND MARKS.**

▶ **SUITABLE & AVAILABLE IMMOBILISATION.**

▶ **MAKE SOME HOLES IN THE ACETATE.**

**RELEVANT DOCUMENTATION.**

**PRESENCE OF PHYSICIST IF THERE IS ANY CONCERN OVER CLEARANCE .**

**REQUIRING STANDOFF.**

**UNEVEN OR OBLIQUE SURFACES.**

**ANY CUSTOM INSERTS ARE REQUIRED.**







**NHS**

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## Scenario 1 - Back

**Diagnosis:** Follicular Lymphoma, **DOB:** 20<sup>th</sup> Feb 1947, **Sex:** Male

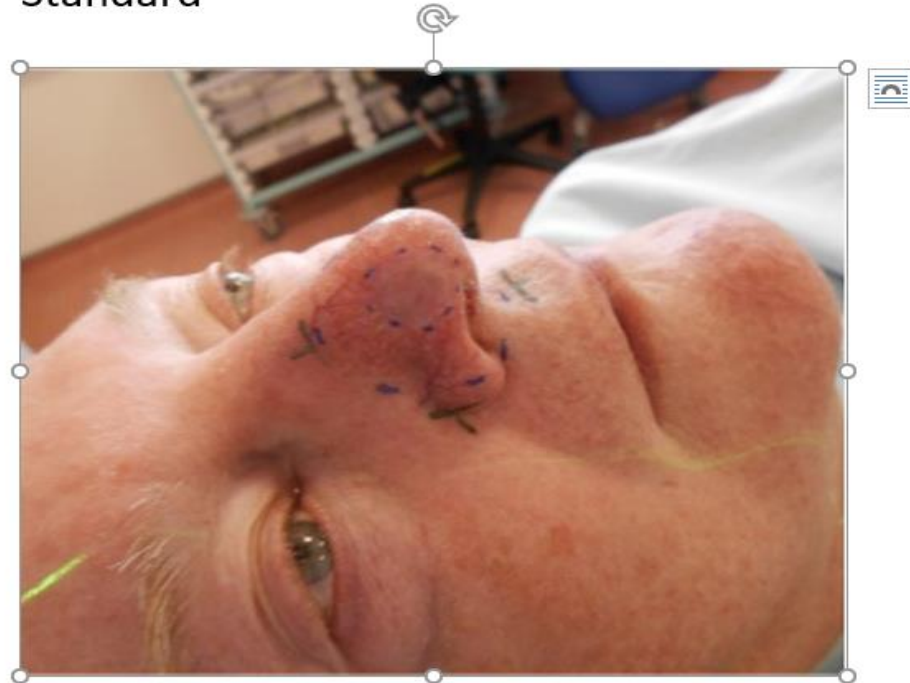
**Site:** Back, **ICRU Reference Point:** 90%, **Dose:** 4Gy/2#, **Energy:** 16MeV, No Bolus, **Insert:** 8 x 15 Ellipse Standard



## Scenario 2 - Nose

**Diagnosis:** Skin BCC, **DOB:** 18<sup>th</sup> Nov 1949, **Sex:** Male

**Site:** Rt Nose, **ICRU Reference Point:** 90%, **Dose:** 55Gy/20#, **Energy:** 9MeV, 1.3cm Bolus, **Insert:** 4cm circle Standard





# ACKNOWLEDGEMENTS

**NHS**

Maidstone and  
Tunbridge Wells  
NHS Trust

- ▶ **AMANDA WILLIAMS**
- ▶ **BRONWYN VAN BLERK**
- ▶ **JENNY FILMER.**
- ▶ **STEPHEN DUCK**
- ▶ **JASMIN WARREN**
- ▶ **SUMITHA MANGALATH**
- ▶ **SHAKIR USMAN.**
- ▶ **LAMEEZ MONTEIRO-SHARRATT**
- ▶ **KOC THERAPEUTIC RADIOGRAPHERS**

THANK YOU ANY QUESTIONS?

*Beaches*  
Resorts by Sandals

# Ocho Rios

