Prova pratica: irradiazione craniospinale

a) descriva il processo di pianificazione dalla TAC alla prima seduta

b) nomini gli organi a rischio e le corrispondenti dosi tollerate (TD 5/5) in trattamento radiante, nonché i possibili effetti tardivi sulla base della pubblicazione di Emami nel Red Journal 1995 e secondo i recenti dati QUANTEC.

c) diussione e interpretazione del piano

d) conosce tecniche alternative
### Plan Report

#### Patient data
- **Patient ID**: 27766
- **Gender**: Male
- **Birth Date**: 03 Mar 1989
- **Case ID**: CASE 1

#### Treatment plan data
- **Treatment Plan Name**: CSI
- **Last save time**: 20 Feb 2018, 18:26:24 (hr:min:sec)
- **Planned By**: HFS: Head First Supine
- **Number of Beam Sets**: 2
- **Treatment plan approval data**: 
  - **Approved by**: RAYSTATION\raybz
  - **Approval time**: 20 Feb 2018, 18:26:24 (hr:min:sec)
- **Plan Comment**: CT 2
- **Planning Image Set**: 
  - **Name**: AquilionLB 29 Jan 2014, 14:04:29 (hr:min:sec)
  - **Modality**: HFS
  - **Series Date and Time**: 19 Feb 2018, 12:57:11 (hr:min:sec)
  - **Acquisition Date and Time**: 19 Feb 2018, 12:57:37 (hr:min:sec)
  - **External ROI**: External

#### General data
- **Treatment planning system**: RayStation 7 (7.0.0.19)
- **Report creation time**: 31 May 2018, 14:14:35 (hr:min:sec)
- **Time Zone Info**: UTC+02:00 (using daylight saving time)
- **Patient Coordinate System**: IEC 61217

### Signatures

Signature 1 (Name/Signature/Date)

Signature 2 (Name/Signature/Date)
Plan dose data

Isocenter name
Isocenter [cm]
Dose grid resolution [cm]

CT: CT-2
Aquilion LB
Transverse: -31.20 cm
Slice 203/345

CT: CT-2
Aquilion LB
Coronal: -4.62 cm

CT: CT 2
Aquilion LB
Sagittal: 0.18 cm

CSI 2
Right-Left: 0.18 Inf-Sup: -31.20 Post-Ant: 4.62
Right-Left: 0.20 Inf-Sup: 0.20 Post-Ant: 0.20

DOSE IS NOT CALCULATED WITH CURRENT DOSE ENGINE VERSION.
% of 2340 cGy

Plan dose: CSI (CT-2)
Clinical: Collapsed Cone v3.3

DOSE IS NOT CALCULATED WITH CURRENT DOSE ENGINE VERSION.
% of 2340 cGy

Plan dose: CSI (CT-2)
Clinical: Collapsed Cone v3.3

DOSE IS NOT CALCULATED WITH CURRENT DOSE ENGINE VERSION.
% of 2340 cGy

Plan dose: CSI (CT-2)
Clinical: Collapsed Cone v3.3
Plan dose data

Isocenter name

Isocenter [cm]
Dose grid resolution [cm]

CSI 4
boost 1
Right-Left: 0.18 Inf-Sup: -56.10 Post-Ant: -4.62
Right-Left: 0.20 Inf-Sup: 0.20 Post-Ant: 0.20

DOSE IS NOT CALCULATED WITH CURRENT DOSE ENGINE VERSION.

Plan dose: CSI (CT 2)
Clinical: Collapsed Cone v3.3

DOSE IS NOT CALCULATED WITH CURRENT DOSE ENGINE VERSION.

Plan dose: CSI (CT 2)
Clinical: Collapsed Cone v3.3

DOSE IS NOT CALCULATED WITH CURRENT DOSE ENGINE VERSION.

Plan dose: CSI (CT 2)
Clinical: Collapsed Cone v3.3
## POI Dose statistics

<table>
<thead>
<tr>
<th>Dose</th>
<th>POI</th>
<th>Dose [cGy]</th>
<th>Right-Left: [cm]</th>
<th>Position Inf-Sup: [cm]</th>
<th>Post-Ant: [cm]</th>
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</thead>
<tbody>
<tr>
<td>Plan dose: CSI (CT 2)</td>
<td>Reference point</td>
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<td>5.93</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Plan dose: CSI (CT 2)</td>
<td>punto dose</td>
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## ROI Dose statistics [Plan dose]

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<td>2216</td>
<td>2243</td>
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<td>Brain</td>
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<td>992</td>
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<td>59</td>
<td>66</td>
<td>62</td>
<td>576</td>
<td>235</td>
<td>1557</td>
<td>1658</td>
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<tr>
<td>Eye (Right)</td>
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<td>27</td>
<td>29</td>
<td>53</td>
<td>50</td>
<td>96</td>
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RayStation-7 (7.0.0.19)

5 of 29
<table>
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<tr>
<th>Patient name</th>
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<th>Treatment plan name</th>
<th>Plan approved</th>
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<td>RAYSTATION\raybz</td>
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### Clinical Goals (Plan dose)

There are no clinical goals.
ROI properties

<table>
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<th>Name</th>
<th>Material</th>
<th>Mass density (g/cm²)</th>
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<tbody>
<tr>
<td>ibeam</td>
<td>Carbon fiber</td>
<td>1.700</td>
</tr>
<tr>
<td>barra1</td>
<td>Aluminum 1</td>
<td>2.700</td>
</tr>
</tbody>
</table>

Beam Set overview

| Beam Set name | CSI         |
| Treatment technique | 3D-CRT    |
| Treatment unit      | SynBz-3160 |
| Number of beams     | 4          |

Beam Set overview

| Beam Set name | boost      |
| Treatment technique | 3D-CRT    |
| Treatment unit      | SynBz-3160 |
| Number of beams     | 4          |

Warnings [ CSI ]

- The ROI 'barra1' has a material override but the ROI is not defined on image set ‘CT 2’.
- The image set CT 2 is missing geometries for a support ROI. If a support ROI was present in that image set, make sure that its attenuation was taken into account by inclusion in the External ROI geometry or that it can be safely disregarded.
- The beam set dose for an already approved beam set within this plan was computed with a previous dose engine version.
- Old version of dose statistics, voxel volumes have been computed using an old algorithm version.

Warnings [ boost ]

- The ROI 'barra1' has a material override but the ROI is not defined on image set ‘CT 2’.
- The image set CT 2 is missing geometries for a support ROI. If a support ROI was present in that image set, make sure that its attenuation was taken into account by inclusion in the External ROI geometry or that it can be safely disregarded.
- The beam set dose for an already approved beam set within this plan was computed with a previous dose engine version.
- Old version of dose statistics, voxel volumes have been computed using an old algorithm version.
Beam Set Report

Beam Set data

- Beam Set name: CSI
- Modality: Photons
- Treatment technique: 3D-CRT
- Number of beams: 8
- Number of segments: 1,2,752.243 1.1.20180220182624246.6100.67516
- Planning image set: CT 2
- CT to density table: AquilionLB 29 Jan 2014, 14:04:29 (hr:min:sec)
- Treatment unit: SynBz-3160
- Commission time: 18 May 2018, 15:07:11 (hr:min:sec)
- Treatment machine scale: IEC 61217
- Jaw labelling standard: IEC 61217
- Energy (MV): 15.00
- Dose calculation algorithm: Collapsed Cone, Version 3.3 (Not current version)
- Density calculation algorithm version: 2.0
- MU per fraction: 532.96
- Number of fractions: 7
- ROI(s) with density override: ibeam, barra1

Beam setup approval data

- Approved: Yes
- Approved by: RAYSTATIONVraybhz
- Approval time: 20 Feb 2018, 18:28:24 (hr:min:sec)
- Structure set UID: 1.2.752.243.1.20180220163945145,2000.11075

Beam Data Overview [Right-Left: -0.16 Inf-Sup: -3.15 Post-Ant: 10.93]

<table>
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<tbody>
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<td>1</td>
<td>2iliat</td>
<td>1</td>
<td>-15.89, 5.63</td>
<td>83.4</td>
<td>90.0</td>
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<td>83.38</td>
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<td>N</td>
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<tr>
<td>2</td>
<td>2ieliat</td>
<td>1</td>
<td>-15.89, 5.63</td>
<td>263.4</td>
<td>270.0</td>
<td>0.0</td>
<td>83.38</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

Beam Data Overview [ Right-Left: 0.18 Inf-Sup: -31.20 Post-Ant: -4.62]

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>5</td>
<td>pa1</td>
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<td>-7.00, 18.50</td>
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<td>186.10</td>
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Beam Data Overview [Right-Left: 0.18 Inf-Sup: -56.10 Post-Ant: -4.62]

<table>
<thead>
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<tbody>
<tr>
<td>7</td>
<td>pa2</td>
<td>3</td>
<td>-18.80, 18.00</td>
<td>194.2</td>
<td>270.0</td>
<td>90.0</td>
<td>180.09</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

Prescription

- Prescription: 180 cGy x 7 fx = 1260 cGy
- Prescription Type: Dose at point
- Fulfillment: @Fulfilled (180 cGy x 7 fx = 1262 cGy)
- Dose type: Relates to beam set dose
Patient setup

Localization point
POI
Reference point
Treatment position
HFS : Head First Supine
Position [cm]
X(Right-Left) = -0.23 , Y(Irl-Sup) = 0 , Z(Post-Ant) = 5.93

Patient setup
Beams
2ilat, 2relat
Isocenter [cm]
CSI 1 - X(R-L) = -0.16 , Y(I-I-S) = -3.15 , Z(P-A) = 10.93
Localization point - Isocenter [cm]
X(R-L) = -0.07 , Y(I-I-S) = 3.15 , Z(P-A) = -5.01

Position patient such that lasers line up with patient marks.
Perform the couch shift so that the PATIENT is moved according to

the instructions below:
Right 0.07 cm (patient's right)
Superior 3.15 cm
Posterior 5.01 cm

Patient setup
Beams
pa1
Isocenter [cm]
CSI 2 - X(R-L) = 0.18 , Y(I-I-S) = -31.2 , Z(P-A) = -4.62
Localization point - Isocenter [cm]
X(R-L) = -0.42 , Y(I-I-S) = 31.2 , Z(P-A) = 10.55

Position patient such that lasers line up with patient marks.
Perform the couch shift so that the PATIENT is moved according to

the instructions below:
Right 0.42 cm (patient's right)
Superior 31.2 cm
Anterior 10.55 cm

Patient setup
Beams
pa2
Isocenter [cm]
CSI 4 - X(R-L) = 0.18 , Y(I-I-S) = -56.1 , Z(P-A) = -4.62
Localization point - Isocenter [cm]
X(R-L) = -0.42 , Y(I-I-S) = 56.1 , Z(P-A) = 10.55

Position patient such that lasers line up with patient marks.
Perform the couch shift so that the PATIENT is moved according to

the instructions below:
Right 0.42 cm (patient's right)
Superior 56.1 cm
Anterior 10.55 cm
**Beamset dose data**

Isocenter name
Isocenter [cm]
Dose grid resolution [cm]

<table>
<thead>
<tr>
<th>DOSE IS NOT CALCULATED WITH CURRENT RADIATION BEAM VERS.</th>
<th>% of 1260 cGy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam Set dose: CSI (CSI, CT 2)</td>
<td></td>
</tr>
<tr>
<td>Clinical: Collapsed Cone v3.3</td>
<td></td>
</tr>
</tbody>
</table>

CT: CT 2
AquilonLB
Transversal: -58.10 cm
Slice 120/345

<table>
<thead>
<tr>
<th>DOSE IS NOT CALCULATED WITH CURRENT RADIATION BEAM VERS.</th>
<th>% of 1260 cGy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam Set dose: CSI (CSI, CT 2)</td>
<td></td>
</tr>
<tr>
<td>Clinical: Collapsed Cone v3.3</td>
<td></td>
</tr>
</tbody>
</table>

CT: CT 2
AquilonLB
Coronal: -4.62 cm

<table>
<thead>
<tr>
<th>DOSE IS NOT CALCULATED WITH CURRENT RADIATION BEAM VERS.</th>
<th>% of 1260 cGy</th>
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</thead>
<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>Clinical: Collapsed Cone v3.3</td>
<td></td>
</tr>
</tbody>
</table>

CT: CT 2
AquilonLB
Sagittal: 0.18 cm

Right-Left: 0.18 Inf-Sup: 56.10 Post-Ant: -4.62
Right-Left: 0.20 Inf-Sup: 0.20 Post-Ant: 0.20 pa2
### Points Of Interest

<table>
<thead>
<tr>
<th>Name</th>
<th>Location [cm]</th>
<th>Beam isocenters [cm]</th>
<th>Point - Isocenter [cm]</th>
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<tbody>
<tr>
<td>Name</td>
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<td>Post-Ant: -4.62</td>
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<td>Post-Ant: 0</td>
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<td>Inf-Sup: 56.10</td>
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Report creation time: 31 May 2016, 14:14:35 (hr:min:sec)  
Plan last save time: 20 Feb 2018, 18:28:24 (hr:min:sec)  
Plan approved by: RAYSTATIONraybz  
Plan approval time: 20 Feb 2018, 18:28:24 (hr:min:sec)
### POI Dose statistics

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**External**

This ROI is set as the external ROI that defines the outer border of the patient.
# Beam data

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<td>Patient coordinate system</td>
<td>IEC 61217</td>
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<td>Isocenter [cm]</td>
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<td>Gantry angle [deg]</td>
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<td>Collimator angle [deg]</td>
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<td>Couch angle [deg]</td>
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<td>Number of fractions</td>
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<tr>
<td>Beam MU/fraction</td>
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<td>Total beam MU</td>
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<td>Beam weight [%]</td>
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<td>Number of segments</td>
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<td>Dose calculation algorithm</td>
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## Beam dose specification point

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<td>Water equivalent depth [cm]</td>
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<td>Source to skin distance [cm]</td>
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<td>Source to surface distance [cm]</td>
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## Segments

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<th>Seg. No.</th>
<th>MU/Fraction</th>
<th>Jaw positions [cm]</th>
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<td>Y1: -15.89, Y2: 5.63</td>
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Beam data

Beam name: 2relat
Beam number: 2
Beam description: IEC 61217
Patient coordinate system: CSI 1 - Right-Left: -0.16 Inf-Sup: -3.15 Post-Ant: 10.93
Gantry angle [deg]: 263.4
Collimator angle [deg]: 270.0
Couch angle [deg]: 0.0
Treatment technique: 3D-CRT
Number of fractions: 7
Beam MU/fraction: 83.38
Total beam MU: 583.66
Beam weight [%]: 15.6
Number of segments: 1
Dose calculation algorithm: Collapsed Cone, Version 3.3 (Not current version)
Treatment unit: SynBz-3160
Commission time: 18 May 2016, 15:07:11 (hr:min:sec)
Energy [MV]: 15.00
Jaw max aperture width [cm]: -
X1 [cm]: -
X2 [cm]: -
Jaw max aperture height [cm]: 21.52
Y1 [cm]: -15.89
Y2 [cm]: 5.63
Source to skin distance (isocenter) [cm]: 93.97
Source to surface distance (isocenter) [cm]: 93.97
Bolus data: No bolus

Beam dose specification point
Coordinates [cm]: Isocenter
Dose per fraction [cGy]: 88.1
Physical depth [cm]: 6.03
Water equivalent depth [cm]: 5.55
Source to skin distance [cm]: 93.97
Source to surface distance [cm]: 93.97

Segments

<table>
<thead>
<tr>
<th>Seg. No.</th>
<th>MU/Fraction</th>
<th>Jaw positions [cm]</th>
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<td>1</td>
<td>83.38</td>
<td>Y1 : -15.89</td>
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<tr>
<td></td>
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<td>Y2 : 5.63</td>
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RayStation 7 (7.0.0.19)
**Beam data**

- **Beam name**: pa1
- **Beam number**: 5
- **Beam description**: IEC 61217
- **Isocenter [cm]**: CSI 2 - Right-Left: 0.18 Inf-Sup: -31.20 Post-Ant: -4.62
- **Gantry angle [deg]**: 180.0
- **Collimator angle [deg]**: 0.0
- **Couch angle [deg]**: 0.0
- **Treatment technique**: 3D-CRT
- **Number of fractions**: 7
- **Beam MU/fraction**: 186.10
- **Total beam MU**: 1302.67
- **Beam weight [%]**: 34.9
- **Number of segments**: 3
- **Dose calculation algorithm**: Collapsed Cone, Version 3.3 (Not current version)
- **Treatment unit**: SynBz-3160
- **Commission time**: 18 May 2016, 15:07:11 (hr:min:sec)
- **Energy [MV]**: 15.00
- **Jaw max aperture width [cm]**: -
- **X1 [cm]**: -
- **X2 [cm]**: -
- **Jaw max aperture height [cm]**: 25.50
- **Y1 [cm]**: -7.00
- **Y2 [cm]**: 18.50
- **Source to skin distance (isocenter) [cm]**: 95.62
- **Source to surface distance (isocenter) [cm]**: 90.17
- **Bolus data**: No bolus

**Beam dose specification point**

- **Coordinates [cm]**: isocenter
- **Dose per fraction [cGy]**: 190.4
- **Physical depth [cm]**: 9.83
- **Water equivalent depth [cm]**: 5.38
- **Source to skin distance [cm]**: 95.62
- **Source to surface distance [cm]**: 90.17

**Segments**

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<th>Seg. No.</th>
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<th>Jaw positions [cm]</th>
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**Beam name**
- pa2

**Beam number**
- 7

**Patient coordinate system**
- IEC 61217

**Isocenter [cm]**
- CSI 4 - Right-Left: 0.18 Inf-Sup: -56.10 Post-Ant: -4.62

**Gantry angle [deg]**
- 194.2

**Collimator angle [deg]**
- 270.0

**Couch angle [deg]**
- 90.0

**Treatment technique**
- 3D-CRT

**Number of fractions**
- 7

**Beam MU/fraction**
- 180.09

**Total beam MU**
- 1260.65

**Beam weight [%]**
- 33.8

**Number of segments**
- 3

**Dose calculation algorithm**
- Collapsed Cone, Version 3.3 (Not current version)

**Treatment unit**
- SynBz-3160

**Commission time**
- 18 May 2016, 15:07:11 (hr:min:sec)

**Energy [MV]**
- 15.00

**Jaw max aperture width [cm]**
- X1 [cm] -
- X2 [cm] -

**Jaw max aperture height [cm]**
- Y1 [cm] -18.80
- Y2 [cm] 18.00

**Source to skin distance (isocenter) [cm]**
- 95.00

**Source to surface distance (isocenter) [cm]**
- 89.86

**Beam data**

**Beam dose specification point**

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**Segments**

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RayStation.7 (7.0.0.19)
Beam Set Report

Beam Set data

- Beam Set name: boost
- Modality: Photons
- Treatment technique: 3D-CRT
- Number of beams: 4
- Number of segments: 4
- DICOM Plan UID: 1.2.752.243.1.1.20180220182547047.6000.48784
- Planning image set: ct.2
- CT to density table: AquilionLB 29 Jan 2014, 14:04:29 (hr:min:sec)
- Treatment unit: SynBz-3160
- Commission time: 18 May 2016, 15:07:11 (hr:min:sec)
- Treatment machine scale: IEC 61217
- Jaw labeling standard: IEC 61217
- Energy [MV]: 15.00
- Dose calculation algorithm: Collapsed Cone, Version 3.3 (Not current version)
- Density calculation algorithm version: 2.0
- MU per fraction: 297.09
- Number of fractions: 6
- ROI(s) with density override: ibeam, barra1
- Beam set approval data: Approved
- Approved by: RAYSTATIONraybz
- Approval time: 20 Feb 2018, 18:28:24 (hr:min:sec)

Structure set data

- Structure set UID: 1.2.752.243.1.1.20180220163945145,2000.11075
- Structure set approval data: Approved
- Approved by: RAYSTATIONraybz
- Approval time: 20 Feb 2018, 18:28:24 (hr:min:sec)

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Prescription

- Prescription: 180 cGy x 6 fx = 1080 cGy
- Prescription Type: Median dose (D50%)
- ROI: Boost
- Fulfillment: Fulfilled (180 cGy x 6 fx = 1080 cGy)
- Dose type: Relates to beam set dose

Patient setup

- Localization point - POI: Reference point
- Treatment position: HFS : Head First Supine
- Position [cm]: X(Right-Left) = -0.23 , Y(Inf-Sup) = 0 , Z(Post-Ant) = 5.93
- Patient setup
- Beams: brelat, bpa, billat, bpa2
- Boost 1 - X(R-L) = 0.18 , Y(I-S) = -56.1 , Z(P-A) = -4.62
- X(R-L) = -0.42 , Y(I-S) = 56.1 , Z(P-A) = 10.55

Position patient such that lasers line up with patient marks. Perform the couch shift so that the PATIENT is moved according to the instructions below:
- Right 0.42 cm (patient's right)
- Superior 56.1 cm
- Anterior 10.55 cm

RAYSTATION 7 (7.0.0.19)
### Points Of Interest

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<tr>
<th>Name</th>
<th>Type</th>
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<th>Location [cm]</th>
<th>Beam isocenters [cm]</th>
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POI Dose statistics

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<th>Position Inf-Sup [cm]</th>
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ROI Dose statistics [Beam Set dose]

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RayStation 7.7.0.19 24 of 29
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External This ROI is set as the external ROI that defines the outer border of the patient.
Beam data

Beam name: brelat
Beam number: 1
Beam description: IEC 61217
Isocenter [cm]: 278.8
Gantry angle [deg]: 0.0
Collimator angle [deg]: 0.0
Couch angle [deg]: 0.0
Treatment technique: 3D-CRT
Number of fractions: 6
Beam MU/fraction: 64.01
Total beam MU: 384.07
Beam weight [%]: 21.5
Number of segments: 1
Dose calculation algorithm: Collapsed Cone, Version 3.3 (Not current version)
Treatment unit: Synb-x-3160
Commission time: 18 May 2016, 15:07:11 (hr:min:sec)
Energy [MV]: 15.00
Jaw max aperture width [cm]: X1 [cm]
Jaw max aperture height [cm]: Y1 [cm], Y2 [cm]
Source to skin distance (isocenter) [cm]: 84.47
Source to surface distance (isocenter) [cm]: 84.47
Bolus data: No bolus

Beam dose specification point

Coordinates [cm]: Isocenter
Dose per fraction [cGy]: 23.4
Physical depth [cm]: 15.53
Water equivalent depth [cm]: 15.40
Source to skin distance [cm]: 84.47
Source to surface distance [cm]: 84.47

Beam dose specification point

Segments

<table>
<thead>
<tr>
<th>Seg. No.</th>
<th>MU/Fraction</th>
<th>Jaw positions [cm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>64.01</td>
<td>Y1 -17.87 Y2 -0.10</td>
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**Beam data**

<table>
<thead>
<tr>
<th>Beam name</th>
<th>bpa</th>
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<tbody>
<tr>
<td>Beam number</td>
<td>2</td>
</tr>
<tr>
<td>Beam description</td>
<td></td>
</tr>
<tr>
<td>Patient coordinate system</td>
<td>IEC 61217</td>
</tr>
<tr>
<td>Isocenter [cm]</td>
<td></td>
</tr>
<tr>
<td>Gantry angle [deg]</td>
<td>180.0</td>
</tr>
<tr>
<td>Collimator angle [deg]</td>
<td>0.0</td>
</tr>
<tr>
<td>Couch angle [deg]</td>
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</tr>
<tr>
<td>Treatment technique</td>
<td>3D-CRT</td>
</tr>
<tr>
<td>Number of fractions</td>
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<td>Beam MU/fraction</td>
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<tr>
<td>Total beam MU</td>
<td>384.07</td>
</tr>
<tr>
<td>Beam weight [%]</td>
<td>21.5</td>
</tr>
<tr>
<td>Number of segments</td>
<td>1</td>
</tr>
<tr>
<td>Dose calculation algorithm</td>
<td>Collapsed Cone, Version 3.3 (Not current version)</td>
</tr>
<tr>
<td>Treatment unit</td>
<td>SynBz-3160</td>
</tr>
<tr>
<td>Commission time</td>
<td>18 May 2016, 15:07:11 (hr:min:sec)</td>
</tr>
<tr>
<td>Energy [MV]</td>
<td>15.00</td>
</tr>
<tr>
<td>Jaw max aperture width [cm]</td>
<td>-</td>
</tr>
<tr>
<td>X1 [cm]</td>
<td></td>
</tr>
<tr>
<td>X2 [cm]</td>
<td></td>
</tr>
<tr>
<td>Jaw max aperture height [cm]</td>
<td>28.46</td>
</tr>
<tr>
<td>Y1 [cm]</td>
<td>-19.18</td>
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<tr>
<td>Y2 [cm]</td>
<td>9.28</td>
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<tr>
<td>Source to skin distance (isocenter) [cm]</td>
<td>95.14</td>
</tr>
<tr>
<td>Source to surface distance (isocenter) [cm]</td>
<td>90.17</td>
</tr>
<tr>
<td>Bolus data</td>
<td>No bolus</td>
</tr>
</tbody>
</table>

**Beam dose specification point**

<table>
<thead>
<tr>
<th>Coordinates [cm]</th>
<th>Isocenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose per fraction [cGy]</td>
<td>71.2</td>
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<tr>
<td>Physical depth [cm]</td>
<td>9.83</td>
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<tr>
<td>Water equivalent depth [cm]</td>
<td>6.03</td>
</tr>
<tr>
<td>Source to skin distance [cm]</td>
<td>95.14</td>
</tr>
<tr>
<td>Source to surface distance [cm]</td>
<td>90.17</td>
</tr>
</tbody>
</table>

**Segments**

<table>
<thead>
<tr>
<th>Seg. No.</th>
<th>MU/Fraction</th>
<th>Jaw positions [cm]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>64.01</td>
<td>Y1: -19.18, Y2: 9.28</td>
</tr>
</tbody>
</table>

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### Beam data

- **Beam name**: bi-lat
- **Beam number**: 3
- **Beam description**:
  - IEC 61217
  - boost 1 - Right-Left: 0.18 Inf-Sup: -56.10 Post-Ant: -4.62
- **Patient coordinate system**:
- **Isocenter [cm]**:
- **Gantry angle [deg]**: 83.5
- **Collimator angle [deg]**: 0.0
- **Couch angle [deg]**: 0.0
- **Treatment technique**: 3D-CRT
- **Number of fractions**: 6
- **Beam MU/fraction**: 64.01
- **Total beam MU**: 384.07
- **Beam weight [%]**: 21.5
- **Number of segments**: 1
- **Dose calculation algorithm**: Collapsed Cone, Version 3.3 (Not current version)
- **Treatment unit**: SynBz-3160
- **Commission time**: 18 May 2016, 15:07:11 (hr:min:sec)
- **Energy [MV]**: 15.00
- **Jaw max aperture width [cm]**:
- **X1 [cm]**: -
- **X2 [cm]**: -
- **Jaw max aperture height [cm]**:
- **Y1 [cm]**: 17.76
- **Y2 [cm]**: -17.76
- **Source to skin distance (isocenter) [cm]**: 84.85
- **Source to surface distance (isocenter) [cm]**: 84.85
- **Bolus data**:
  - No bolus

### Beam dose specification point

- **Coordinates [cm]**: Isocenter
- **Dose per fraction [cGy]**: 30.4
- **Physical depth [cm]**: 15.35
- **Water equivalent depth [cm]**: 15.37
- **Source to skin distance [cm]**: 84.85
- **Source to surface distance [cm]**: 84.85

### Segments

<table>
<thead>
<tr>
<th>Seg. No.</th>
<th>MU/Fraction</th>
<th>Jaw positions [cm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>64.01</td>
<td>Y1: -17.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y2: 0.00</td>
</tr>
</tbody>
</table>

![Beam diagram](attachment:Beam.png)
**Beam data**

- **Beam name**: bpa2
- **Beam number**: 4
- **Beam description**: IEC 61217
- **Patient coordinate system**: Boost 1 - Right-Left: 0.18 Inf-Sup: -56.10 Post-Ant: -4.62
- **Gantry angle [deg]**: 180.0
- **Collimator angle [deg]**: 0.0
- **Couch angle [deg]**: 0.0
- **Treatment technique**: 3D-CRT
- **Number of fractions**: 6
- **Beam MU/fraction**: 105.06
- **Total beam MU**: 630.37
- **Beam weight [%]**: 35.4
- **Number of segments**: 1
- **Dose calculation algorithm**: Collapsed Cone, Version 3.3 (Not current version)
- **Treatment unit**: SynBz-316C
- **Commission time**: 18 May 2018, 15:07:11 (hr:min:sec)
- **Energy [MV]**: 15.00
- **Jaw max aperture width [cm]**: -
- **X1 [cm]**: -
- **X2 [cm]**: -
- **Jaw max aperture height [cm]**: 9.28
- **Y1 [cm]**: 0.00
- **Y2 [cm]**: 9.28
- **Source to skin distance (isocenter) [cm]**: 95.14
- **Source to surface distance (isocenter) [cm]**: 90.17
- **Bolus data**
  - No bolus

**Beam dose specification point**

- **Coordinates [cm]**: Isocenter
- **Dose per fraction [cGy]**: 66.4
- **Physical depth [cm]**: 9.63
- **Water equivalent depth [cm]**: 6.03
- **Source to skin distance [cm]**: 95.14
- **Source to surface distance [cm]**: 90.17

**Segments**

<table>
<thead>
<tr>
<th>Seg. No.</th>
<th>MU/Fraction</th>
<th>Jaw positions [cm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>105.06</td>
<td>Y1 0.00, Y2 9.28</td>
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</tbody>
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