# Supplementary Material

"A single neural network for cone-beam computed tomography-based radiotherapy of head-and-neck, lung and breast cancer"

# Abstract

This file contains the supplementary material reporting: a collection of patient demographics 1, the imaging protocols 2, a description of the network architecture adopted 3, an overview of additional metric for the image comparison 4, and images for further patients 5.

## 1. Patient demographics

Sex, age, tumour type, tumour stage, dose prescription in terms of total dose, fractionation scheme, linac on which the CBCT have been acquired and number of days between the acquisition of CBCT and CT were reported for all the patients in the training, validation and test set for head-and-neck (Table S1), breast (Table S2) and lung (Table S3). The gender is expressed as male (M) or female (F). The tumour type can be accompanied by the specification of the location of the tumour, e.g. right (R) or left (L). Also, the follwoing abbreviations have been introduced: SupraClav for supra clavicularis, local or locoreg for local and loco-regional treatment. In the prescription SIB stands for simultaneous integrated boost; boost indicates a sequential boost, adjuv if treatment is intended as an adjuvant therapy, reirr in the case of reirradiation, pall in case of palliative treatment, lymph when elective irradiation was considered. Other abbreviations are reported in the caption of each table. For the patients in the training set, the CBCT have been the closest to CT or rCT. For the patients in the test set, the RT plan was briefly described in terms of angle of the beam and the arc of irradiation for intensity-modulated radiotherapy (IMRT) and volumetric modulated arc therapy (VMAT). Also, the volumetric percentage difference of the body between rCT ( $\Delta V_{\rm rCT}$ ) and sCT ( $\Delta V_{\rm sCT}$ ) to CT in Mask<sub>CBCT</sub> was reported.

| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | HI         M         60.4         Oropharynx R         T3N2b           H2         M         67.3         Larynx glottid $cT1aN0$ H3         M         68.6         Larynx glottid $pT4cN0$ H4         M         68.6         Nasopharynx $pT4cN0$ H5         M         62.7         Nasopharynx $pT4cN0$ H6         M         58.6         Nasopharynx $rTN2$ H1         M         69.7         Nasopharynx $T1N2$ H10         M         69.7         Oropharynx $T1N2$ H11         M         69.7         Oropharynx $T2N3aM0$ H11         M         69.6         Oropharynx $T2N3aM0$ H11         M         69.7         Parotis L $T2N2aM0$ H11         F         61.3         Parotis L $T2N3aM0$ H11         F         61.3         Nasopharynx R $T2N2aM0$ H11         F         61.3         Nasopharynx R $T2N1M0$ H11         F         61.3         Nasopharynx R $T2N1M0$   | Frescription no.        | ,             | Plan <sup>*</sup> ] | Linac t    | per frac. Plan* Linac to-(r)CT to-CT<br>[Gy] [d] [d] | $\begin{bmatrix} \mathbf{T} & \Delta V_{reT} \\ [\%] \end{bmatrix}$ | $\Delta V_{\rm scr}$ [%] |
|--|--|-------------------------|---------------|---------------------|------------|--|---|--------------------------|
| H3         M         Diage R $C13M$ $0.00y$ $2.2$ $0.11$ $1$ H3         M         63.5         Layus $pT4zN0$ $660y$ SIB $3.2$ $0.11$ $1$ H3         M         63.5         Nasopharyus $TTM22$ $700y$ SIB $3.5$ $2.0$ $0.114$ $3.2$ H1         M $0.33$ Oropharyus $TTM22$ $700y$ SIB $3.5$ $2.0$ $0.114$ $1$ H11         M $0.0$ Oropharyus $TTM22$ $700y$ SIB $3.5$ $2.0$ $0.114$ $1$ H11         M $0.0$ Oropharyus $TTM3A$ $600y$ SIB $3.5$ $2.0$ $0.114$ $2$ H11 $0.3$ Oropharyus (Losal) $TTM30$ $500y$ SIB $3.5$ $2.0$ $0.114$ $2.0$ H11 $F$ $2.03$ $0.014$ $2.01$ $0.014$ $2.01$ H11 $F$ $3.3$ $5.00$ $0.014$ $2.01$ $1.014$ </td <td>H2         M         01.3         Larynx giotud         C1.1av0           H3         M         48.1         Tongue R         <math>pT4aN2b</math>           H4         M         68.6         Larynx giotud         <math>pT4aN2b</math>           H5         M         65.7         Nasopharynx         <math>TNN2</math>           H6         M         53.6         Nasopharynx         <math>TNN2</math>           H1         M         53.6         Oropharynx         <math>TAN2cM0</math>           H10         M         69.7         Parotis L (meths SCC)         <math>T4NxM1</math>           H11         M         49.0         Oropharynx R         <math>T1N2</math>           H12         M         66.8         Oropharynx R         <math>T2N2acM0</math>           H13         F         70.5         Parotis L         <math>T1aN0</math>           H14         F         61.3         Hypopharynx R         <math>cT1cN2acM0</math>           H15         F         52.3         Nasopharynx R         <math>cT3N2bM0</math>           H14         F         61.3         Hypopharynx R         <math>cT1cN2acM0</math>           H15         F         52.3         Non-Hodgkin Lymy SupraClav R         <math>cT1cN2acM0</math>           H18         F         54.3         Hypopharynx R</td> <td></td> <td></td> <td></td> <td>U09</td> <td>3.</td> <td></td> <td></td>   | H2         M         01.3         Larynx giotud         C1.1av0           H3         M         48.1         Tongue R $pT4aN2b$ H4         M         68.6         Larynx giotud $pT4aN2b$ H5         M         65.7         Nasopharynx $TNN2$ H6         M         53.6         Nasopharynx $TNN2$ H1         M         53.6         Oropharynx $TAN2cM0$ H10         M         69.7         Parotis L (meths SCC) $T4NxM1$ H11         M         49.0         Oropharynx R $T1N2$ H12         M         66.8         Oropharynx R $T2N2acM0$ H13         F         70.5         Parotis L $T1aN0$ H14         F         61.3         Hypopharynx R $cT1cN2acM0$ H15         F         52.3         Nasopharynx R $cT3N2bM0$ H14         F         61.3         Hypopharynx R $cT1cN2acM0$ H15         F         52.3         Non-Hodgkin Lymy SupraClav R $cT1cN2acM0$ H18         F         54.3         Hypopharynx R   |                         |               |                     | U09        | 3.   |   |                          |
| Hi         M         68:6         Largins         PT4:RO         66:65 SIB         35         2.0         U11         4         32           H         M         63:6         Nasopharyms         T2N2aAlx         7005 SIB         35         2.0         U11         4           H         M         31:6         Oropharyms         T2N2aAl0         66:5 SIB         35         2.0         U11         4           H10         M         33:6         Oropharyms         T2N2aAl0         66:5 SIB         35         2.0         U11         4           H11         M         90         Oropharyms         TAN2AL         70:5 SIB         35         2.0         U11         4           H11         F         0.1         Paoris L         T3N2AM0         66:5 SIB         35         2.0         U11         4           H12         F         2.3         Nasopharyms         T3N2AM0         66:5 SIB         35         2.0         U11         2           H13         F         5.3         Nasopharyms         T3N3A         T3N3A         10:0; SIB         35         2.0         U11         1           H12         6:5         Misyppharyms   | H4         M         68.6         Larymx $PT4cN0$ H5         M         62.7         Nasopharymx $T1N2$ H6         M         58.6         Nasopharymx $T1N2$ H7         M         71.6         Oropharymx $T2N3$ H8         M         54.5         Oropharymx $T4AN2cM0$ H10         M         69.7         Parotis L (meths SCC) $T4AN2cM0$ H11         M         49.0         Oropharymx R $CT1cN2acM0$ H11         M         66.8         Oropharymx R $CT1cN2acM0$ H11         F         61.3         Hypopharymx R $CT1cN2acM0$ H12         F         52.3         Oropharymx R $CT1cN2acM0$ H13         F         70.5         Parotis L $T1aN0$ H14         F         61.3         Hypopharymx R $CT1cN2acM0$ H15         F         52.3         Nasopharymx R $CT1cN2acM0$ H16         M         74.6         T0.5         T4AN2h           H17         M         67.3         Suproblacymx         T4AN2h <td></td> <td></td> <td></td> <td>U14<br/>U14</td> <td>- ന</td> <td></td> <td></td>  |                         |               |                     | U14<br>U14 | - ന  |   |                          |
| H5         M         G27         Nasopharyns         TN22         TOOy         S3         2.0         U14         1           H7         M         7.6         Voropharyns         T/N23         TOOy         S3         2.0         U14         1           H10         0.87         Cropharyns         T/N23         TOOy         S3         2.0         U14         1           H10         0.87         Parotis L         Tonsil         T/N23         TOOy         S3         2.0         U14         2           H11         0.00         Oropharyns         T/N30         60Cy slib         35         2.0         U14         2           H112         M         6.3         Myopharyns (nonsil)         T/N30         70Cy slib         35         2.0         U14         0           H112         M         6.3         Myopharyns (nonsil)         T/N30         50Cy slib         35         2.0         U14         2           H112         M         7.3         Non-block         T/N30         50Cy slib         23         2.0         U14         2           H112         M         7.3         Non-block         T/N30         6/Cy slib         2 </td <td>H5M62.7Nasopharynx<math>TIN2</math>H6M58.6Nasopharynx<math>TIN2</math>H7M71.6Oropharynx<math>T2N3</math>H8M54.5Oropharynx<math>T4aN2cM0</math>H9M53.6Tonsil<math>T2N2aM0</math>H10M69.7Parotis L (meths SCC)<math>T4NxM1</math>H11M49.0Oropharynx R<math>CTIcN2acM0</math>H12M66.8Oropharynx R<math>CTIcN2acM0</math>H13F70.5Parotis L<math>T1aN0</math>H14F61.3Hypopharynx R<math>CT2N1bM1</math>H15F52.3Nasopharynx R<math>CT3N2bM0</math>H16M74.6Tonguebasis<math>T4N2b</math>H17M67.3Supraclav R<math>CT1N3M1</math>H18F54.3Hypopharynx Axilla R<math>T1N2bM1</math>H19M85.6Tonsil epiglottis<math>T2N1M0</math>H21M74.5Non-Hodgkin Lymph SupraClav LDeaville VH21M67.3Hypopharynx L<math>T3N2bM1</math>H22F53.5Hypopharynx L<math>T4aN2b</math>H22M64.0Parotis L<math>T3N2bM1</math>H23M67.3Supraglottis<math>T4aN2b</math>H24M71.4Head R<math>T4aN2b</math>H22M64.0Parotis L<math>T3N1</math>H23M64.0Parotis L<math>T3N2b</math>H24M71.4Head R<math>T4aN2b</math>H25M67.3Oropharynx L<td></td><td></td><td></td><td>U14</td><td>32</td><td></td><td></td></td>   | H5M62.7Nasopharynx $TIN2$ H6M58.6Nasopharynx $TIN2$ H7M71.6Oropharynx $T2N3$ H8M54.5Oropharynx $T4aN2cM0$ H9M53.6Tonsil $T2N2aM0$ H10M69.7Parotis L (meths SCC) $T4NxM1$ H11M49.0Oropharynx R $CTIcN2acM0$ H12M66.8Oropharynx R $CTIcN2acM0$ H13F70.5Parotis L $T1aN0$ H14F61.3Hypopharynx R $CT2N1bM1$ H15F52.3Nasopharynx R $CT3N2bM0$ H16M74.6Tonguebasis $T4N2b$ H17M67.3Supraclav R $CT1N3M1$ H18F54.3Hypopharynx Axilla R $T1N2bM1$ H19M85.6Tonsil epiglottis $T2N1M0$ H21M74.5Non-Hodgkin Lymph SupraClav LDeaville VH21M67.3Hypopharynx L $T3N2bM1$ H22F53.5Hypopharynx L $T4aN2b$ H22M64.0Parotis L $T3N2bM1$ H23M67.3Supraglottis $T4aN2b$ H24M71.4Head R $T4aN2b$ H22M64.0Parotis L $T3N1$ H23M64.0Parotis L $T3N2b$ H24M71.4Head R $T4aN2b$ H25M67.3Oropharynx L <td></td> <td></td> <td></td> <td>U14</td> <td>32</td> <td></td> <td></td>  |                         |               |                     | U14        | 32   |   |                          |
| Bit         M         Sign         Usepharynx         T1N2         700y SIB         Sign         200         Ul1         1           HT         M         11.6         Oropharynx         T2N3         700y         Sign         200         Ul1         1           H10         0.55         Parotis L         TAN2AM0         665, block 70Gy         Sign         200         Ul1         4           H11         0.00         Oropharynx R         TAN2AM0         700y SIB         35         2.00         Ul1         4           H12         0.00         Oropharynx R         C/1cN2acM0         700y SIB         35         2.00         Ul1         4           H13         7.05         Oropharynx R         C/1cN2acM0         700y SIB         35         2.00         Ul1         4           H14         F         0.35         Ul1         1.4         2         0         3         2         0         1.4         3           H12         M 65         Dargeharynx R         C/1N3M1         605 y SIB         35         2.0         Ul1         4           H12         M 57         Dargeharynx R         C/1N3M1         605 y SIB         2.2         Ul1 </td <td>H6M58.6NasopharynxT1N2H7M71.6OropharynxT2N3H8M54.5OropharynxT4aN2cM0H9M53.6TonsilT2N2aM0H10M60.8Oropharynx RT4NxM1H11M49.0Oropharynx RT1aN0H12M66.8Oropharynx Rc71cN2acM0H13F70.5Parotis LT1aN0H14F61.3Hypopharynx Rc71sN2bM0H15F52.3Nasopharynx Rc71sN2bM0H16M74.6TonguebasisT4N2hH17M67.3Supracflav Rc71sN2bM0H18F54.3Hypopharynx Rc71sN2bM1H18F54.3Hypopharynx Rc71sN3h1H18F54.3Hypopharynx Rc71sN3h1H19M85.6Tonsil epiglottisT2N1H11M67.3Supracflav Rc71sN3h1H20M74.5Non-Hodgkin Lymph Supracflav LDeauville VH21M67.3SupraglottisT3N2H22M71.4Hypopharynx L74aN2bH23M64.0Hypopharynx L74aN2bH24M71.4Head L73N2H25M64.0Parotis L74aN2bH26M67.3SupraglottisT2N0M0H27F74.7Parotis L74aN2bH28M</td> <td></td> <td></td> <td></td> <td>U14</td> <td>0</td> <td></td> <td></td>   | H6M58.6NasopharynxT1N2H7M71.6OropharynxT2N3H8M54.5OropharynxT4aN2cM0H9M53.6TonsilT2N2aM0H10M60.8Oropharynx RT4NxM1H11M49.0Oropharynx RT1aN0H12M66.8Oropharynx Rc71cN2acM0H13F70.5Parotis LT1aN0H14F61.3Hypopharynx Rc71sN2bM0H15F52.3Nasopharynx Rc71sN2bM0H16M74.6TonguebasisT4N2hH17M67.3Supracflav Rc71sN2bM0H18F54.3Hypopharynx Rc71sN2bM1H18F54.3Hypopharynx Rc71sN3h1H18F54.3Hypopharynx Rc71sN3h1H19M85.6Tonsil epiglottisT2N1H11M67.3Supracflav Rc71sN3h1H20M74.5Non-Hodgkin Lymph Supracflav LDeauville VH21M67.3SupraglottisT3N2H22M71.4Hypopharynx L74aN2bH23M64.0Hypopharynx L74aN2bH24M71.4Head L73N2H25M64.0Parotis L74aN2bH26M67.3SupraglottisT2N0M0H27F74.7Parotis L74aN2bH28M   |                         |               |                     | U14        | 0  |   |                          |
| Intermediation         Total   | H7M71.6OropharynxT2N3H8M54.5OropharynxT4aN2cM0H9M53.6TonsilT2N2aM0H10M69.7Parotis L (meths SCC)T4NxM1H11M49.0Oropharynx Rc71cN2acM0H12M66.8Oropharynx Rc71cN2acM0H13F70.5Hypopharynx Rc71cN2acM0H14F61.3Hypopharynx Rc71sN2acM0H15F52.3Nasopharynx Rc71sN2m0H16M74.6TonguebasisT4N2m1H17M67.3SupraClav Rc71sN2m1H18F54.3Hypopharynx axilla RT2N1M0H18F54.3Hypopharynx axilla RT2N1H18F54.3Hypopharynx axilla RT2N1H18F53.5Hypopharynx axilla RT2N1H20M74.5Non-Hodgkin Lymph SupraClav LDeauville VH21M67.3SupraglottisT2N1H22M67.3SupraglottisT2N1H22M71.4HypopharynxT3N1H23M71.4HypopharynxT3N1H24M71.4HypopharynxT3N1H25M64.0HypopharynxT3N1H22M71.4HypopharynxT4aN2bH23M71.4HypopharynxT4aN2bH25M61.2C0ropharynxT3N1 </td <td></td> <td></td> <td></td> <td>U11</td> <td>4</td> <td></td> <td></td>   |                         |               |                     | U11        | 4  |   |                          |
| This         N         51.5         Oropharynx         TaN2AM0         665, boost         U11         0           H10         M         60.7         Parotis L         TAN3AM0         705 SIB         35         2.0         U11         4.0           H11         M         60.6         Oropharynx R $cT1cN2acM0$ 705 SIB         35         2.0         U11         4.2           H11         M         60.6         Oropharynx R $cT3N2M0$ 705 SIB         35         2.0         U11         4           H13         F         70.5         Parotis L         TAN2M0         705 SIB         35         2.0         U11         4           H14         F         0.13         Hypopharynx R         TAN2k         705 SIB         35         2.0         U14         2           H16         G.3         Supraclast R         CTN3M1         665 SIB         35         2.0         U14         2           A117         M 5.3         Supraclast R         CTN3M1         665 SIB         35         2.0         U14         2           A118         F         54.3         Supraclast R         TAN2c         705 SIB         3         2  | H8         M         54.5         Oropharynx         T4aN2cM0           H9         M         53.6         Tonsil         T2N2aM0           H10         M         69.7         Parotis L (meths SCC)         T4NxM1           H11         M         49.0         Oropharynx R         cT1cN2acM0           H12         M         66.8         Oropharynx R         cT1cN2acM0           H13         F         70.5         Parotis L         T1aN0           H14         F         61.3         Mypopharynx R         cT1cN2acM0           H15         F         52.3         Nasopharynx R         cT3N2bM0           H16         M         74.6         Tonguebasis         T4N2c           H17         M         67.3         SupraClav R         cT4N3M1           H18         F         54.3         Hypopharynx axilla R         T4N3C           H18         F         54.3         Tonsil epiglottis         T2N1M0           H18         F         54.3         Hypopharynx axilla R         cT1N2bM1           H20         M         71.4         T4N2c         T4N2c           H21         M         67.3         T0ngue R         cT1N2bM1 |                         |               |                     | U14        | 1  |   |                          |
|  | H9M53.6TonsilT2N2aM0H10M69.7Parotis L (meths SCC)T4NxM1H11M49.0Oropharynx Rc $T1cN2acM0$ H12M66.8Oropharynx Rc $T1cN2acM0$ H13F70.5Parotis LT1aN0H14F61.3Hypopharynx Rc $T1cN2acM0$ H15F52.3Nasopharynx Rc $T1cN2acM0$ H16M74.6TonguebasisT4NzM1H17M67.3SupraClav Rc $T3N2bM0$ H16M74.6TonguebasisT4N3M1H17M67.3SupraClav Rc $T4N3M1$ H18F54.3Hypopharynx axilla R74N2M1H18F54.3Hypopharynx axilla Rc $T1N3M1$ H20M74.5Non-Hodgkin Lymph SupraClav LDeauville VH21M67.3Hypopharynx Lc $T1N2bM1$ H22F71.4Head Lc $T3N2bM1$ H21M67.3SupraGlottisT2N1H22M64.0Head Lc $T3N2bM1$ H22M64.0SupraglottisT2N1H23M64.0Fan2bT4aN2bH24M71.4Head RT3N1H26M67.3SupraglottisT3N1H27F74.7Parotis LT4aN2bH28M65.0Oropharynx LT2N0M0H27F74.7Parotis LT3N1<   |                         |               |                     | U14        | 2  |   |                          |
|  | H10M69.7Parotis L (meths SCC)T4NxM1H11M49.0Oropharynx RcT1cN2acM0H12M66.8Oropharynx (tonsil)cT2N2bH13F70.5Parotis LT1aN0H14F61.3Hypopharynx RcT1cN2acM0H15F52.3Nasopharynx RcT3N2bM0H16M74.6TonguebasisT4N2M1H17M67.3SupraClav RcT4N3M1H18F54.3Hypopharynx axilla RcT1N3M1H18F54.3Hypopharynx axilla RcT1N3M1H18F54.3Hypopharynx axilla RcT1N3M1H20M74.5Non-Hodgkin Lymph SupraClav LDeauville VH21M67.3Hypopharynx LT2N1H22F53.5Hypopharynx LT4AH23F71.4Head LcT3N2M1H24M71.4Hypopharynx LT4AN2bH25M64.0Fad RT3N1H26M67.3SupraglottisT3N1H27F74.7Parotis LT3N1H28M67.3SupraglottisT3N1H28M67.3SupraglottisT3N1H29M67.3SupraglottisT3N0H21M67.3SupraglottisT3N1H22F74.7Parotis LT3N1H23F74.7Parotis LT3N1 <t< td=""><td></td><td></td><td></td><td>U11</td><td>0</td><td></td><td></td></t<>   |                         |               |                     | U11        | 0  |   |                          |
|  | H11M49.0Oropharynx (tonsil) $cT1cN2acM0$ H12M66.8Oropharynx (tonsil) $cT2N2b$ H13F70.5Parotis L $T1aN0$ H14F61.3Hypopharynx R $cT2N1M0$ H15F52.3Nasopharynx R $cT3N2bM0$ H16M74.6Tonguebasis $T4N2c$ H17M67.3SupraClav R $cT4N3M1$ H18F54.3Hypopharynx axilla R $cT4N3M1$ H19M85.6Tonsil epiglottis $T2N1$ H20M74.5Non-Hodgkin Lymph SupraClav LDeauville VH21M67.3Hypopharynx $cT1N3M1$ H22F53.5Hypopharynx $T2N1$ H22F53.5Hypopharynx $T2N1$ H22M67.3Tonsil epiglottis $T2N1$ H22M67.3Tonsil epiglottis $T2N1$ H22F53.5Hypopharynx $T3N2$ H22F71.4Head L $cT3N2M1$ H22M71.4Hoogharynx $cT4N3M1$ H22M64.0Head R $T3N1$ H22M67.3Cuopharynx $cT4N2M1$ H23M71.4Head R $cT3N2M1$ H24M71.4Head R $cT3N2M0$ H25M64.0Head R $T3N1$ H23M67.3Cuopharynx $cT3N2M0$ H24M71.4Head R <td< td=""><td></td><td></td><td></td><td>U14</td><td>4</td><td></td><td></td></td<>  |                         |               |                     | U14        | 4  |   |                          |
| H12         M 668         Oropharynx (tonsit) $cT2N3b$ $705ySIB$ $35$ $2.0$ U11 $2$ H13         F $7.0$ Hypopharynx (tonsit)         T1aN0 $605ySIB$ $35$ $2.0$ U11 $2$ H16         M 746         Tonguebasis         T4N2c $705ySIB$ $35$ $2.0$ U14 $2$ $261$ H16         M 746         Tonguebasis         T4N2c $706ySIB$ $35$ $2.0$ U14 $2$ $261$ H17         M 5.5         Tonsile projokits         T2N1 $669xy$ $36$ $2.0$ U14 $10$ $34$ H21         M 5.5         Tonsile projokits         T2N1 $609xy$ $30$ $201$ $112$ $10$ $30$ $112$ $10$ $31$ H21         M 57.3         H20 playrax axile         T2N1 $606yy$ value $30$ $112$ $10$ $31$ H22         M 74.5         Non-Hodgint Lymph Superaclave T         T2N1 $606yy$ value $30$ $112$ $10$   | H12M66.8Oropharynx (tonsil) $cT2N2b$ H13F70.5Parotis LT1aN0H14F61.3Hypopharynx RT2N1M0H15F52.3Nasopharynx R $cT3N2bM0$ H16M74.6Tonguebasis $cT4N3M1$ H17M67.3SupraClav R $cT4N3M1$ H18F54.3Hypopharynx axilla R $cT1N3M1$ H19M85.6Tonsil epiglottis $T2N1$ H20M74.5Non-Hodgkin Lymph SupraClav LDeauville VH21M67.3Tonsil epiglottis $T2N1$ H22F53.5Hypopharynx axilla R $cT1N2bM1$ H22F53.5Hypopharynx L $T4a$ H22F53.5Hypopharynx L $T4aN2b$ H22M64.0Head L $cT3N2bM1$ H22M71.4Head L $cT3N2bM1$ H22M67.3Conpus $cT3N2bM1$ H22F53.5Hypopharynx L $T4aN2b$ H23M71.4Head L $cT3N2M1b$ H24M71.4Head L $cT3N2M1b$ H25M67.3Cuopharynx L $T4aN2b$ H26M67.3Cuopharynx L $T4aN2b$ H27F74.7Parotis L $T3N1b$ H28M55.3Oropharynx L $T4aN2b$ H28M55.3Oropharynx L $T4aN2c$ H28M55.3Or   |                         |               |                     | 000        | 3  |   |                          |
| H13         F         70.5         Parotis L         T1aN0         50Gy         25         2.0         U14         5           H15         F         52.3         H30pharyux         T2N1M0         46Gy SIB         23         2.0         U14         5           H16         M         7.6         Tonguebasis         T4N2         706y SIB         23         2.0         U14         0         261           H17         M         67.3         SupraClav R         cT1N3M1         16Gy reir         2         8.0         U05         0         261           H18         F         54.3         Hypopharyux scilla R         cT1N3M1         16Gy reir         2         8.0         U05         0         261           H20         M         67.3         T30m4         46Gy SIB         35         2.0         U14         10         34           H22         F         53.5         U11         10         34         3         112         12         12         12         12         12         12         12         12         12         12         12         12         12         12         12         12         12         12 <td< td=""><td>H13F<math>70.5</math>Parotis LT1aN0H14F<math>61.3</math>Hypopharynx RT2N1M0H15F<math>52.3</math>Nasopharynx RT2N1M0H16M<math>74.6</math>TonguebasisT4N2cH17M<math>67.3</math>SupraClav R<math>cT4N3M1</math>H18F<math>54.3</math>Hypopharynx axilla R<math>cT1N3M1</math>H19M<math>85.6</math>Tonsil epiglottis<math>T2N1</math>H20M<math>74.5</math>Non-Hodgkin Lymph SupraClav LDeauville VH21M<math>67.3</math>Tonsil epiglottis<math>T2N1</math>H22F<math>53.5</math>Hypopharynx<math>T2N1</math>H22F<math>53.5</math>Hypopharynx<math>T4a</math>H22F<math>71.4</math>Head L<math>cT1N2M1</math>H22M<math>71.4</math>Head L<math>T2N0M0</math>H24M<math>71.4</math>Hypopharynx L<math>T4aN2b</math>H25M<math>64.0</math>Head R<math>T3N2M1</math>H26M<math>67.3</math>Supraglottis<math>T3N2M1</math>H27F<math>71.4</math>Head R<math>71.4N2</math>H28M<math>67.3</math>Supraglottis<math>T2N0M0</math>H20M<math>62.0</math>Oropharynx<l< td=""><math>74aN2c</math>H21M<math>61.2</math>Parotis L<math>74aN2c</math>H28M<math>55.3</math>Oropharynx<l< td=""><math>74aN2c</math>H29M<math>61.2</math>Parotis R<math>cT0N2aM0</math>H21M<math>61.2</math>Oropharynx<l< td=""><math>cT4N3bM0</math>H22F<math>53.7</math>Mouth bed<math>cT4N3bM0</math></l<></l<></l<></td><td></td><td></td><td></td><td>U11</td><td>2</td><td></td><td></td></td<> | H13F $70.5$ Parotis LT1aN0H14F $61.3$ Hypopharynx RT2N1M0H15F $52.3$ Nasopharynx RT2N1M0H16M $74.6$ TonguebasisT4N2cH17M $67.3$ SupraClav R $cT4N3M1$ H18F $54.3$ Hypopharynx axilla R $cT1N3M1$ H19M $85.6$ Tonsil epiglottis $T2N1$ H20M $74.5$ Non-Hodgkin Lymph SupraClav LDeauville VH21M $67.3$ Tonsil epiglottis $T2N1$ H22F $53.5$ Hypopharynx $T2N1$ H22F $53.5$ Hypopharynx $T4a$ H22F $71.4$ Head L $cT1N2M1$ H22M $71.4$ Head L $T2N0M0$ H24M $71.4$ Hypopharynx L $T4aN2b$ H25M $64.0$ Head R $T3N2M1$ H26M $67.3$ Supraglottis $T3N2M1$ H27F $71.4$ Head R $71.4N2$ H28M $67.3$ Supraglottis $T2N0M0$ H20M $62.0$ Oropharynx <l< td=""><math>74aN2c</math>H21M<math>61.2</math>Parotis L<math>74aN2c</math>H28M<math>55.3</math>Oropharynx<l< td=""><math>74aN2c</math>H29M<math>61.2</math>Parotis R<math>cT0N2aM0</math>H21M<math>61.2</math>Oropharynx<l< td=""><math>cT4N3bM0</math>H22F<math>53.7</math>Mouth bed<math>cT4N3bM0</math></l<></l<></l<>   |                         |               |                     | U11        | 2  |   |                          |
| H14         F         61.3         Hypopharynx R         T2N1M0         46Gy SIB         23         2.0         U14         5           H15         F         52.3         Nasopharynx R         T2N1M0         46Gy SIB         23         2.0         U14         2         261           H17         M         74.6         Tongebasis         T4M2c         7Gy SIB         35         2.0         U14         0         261           H18         F         54.3         Hypopharynx scilla R         CTJN3M1         16Gy reirr         2         8.0         U14         0         261           H21         M         67.3         Tonsil epiglotis         T2N1         69Gy         30         2.1         U11         12         121           A         71.4         Hypopharynx scilla R         T2N1         69Gy         30         2.3         U11         12         121           A         7.3         H0uper         71.4         Hypopharynx axilla R         71N1         69Gy         30         111         12         121           P         71.4         H3         70Gy SIB         16         30         U11         4         7         4         7<   | H14F61.3Hypopharynx RT2N1M0H15F52.3NasopharynxcT3N2bM0H16M74.6TonguebasisT4N2cH17M67.3SupraClav RcT4N3M1H18F54.3Hypopharynx axilla RcT1N3M1H19M85.6Tonsil epiglottisT2N1H20M74.5Non-Hodgkin Lymph SupraClav LDeauville VH21M67.3Tonsil epiglottisT2N1H22F53.5HypopharynxcT1N2M1H22F53.5HypopharynxT4aH22F53.5HypopharynxT4aH22F71.4Head LcT3N2M1H24M71.4Head LcT3N2M1H25M64.0Head RT3N1H26M67.3SupraglottisT3N0H27F74.7Parotis LT3N0M0H28M55.3Oropharynx <l< td="">T2N0M0H28M55.3Oropharynx<l< td="">cT0N2aM0H28M55.3Oropharynx<l< td="">T3N0M0H28M55.3Oropharynx<l< td="">cT4N3M0H29M61.2Parotis LcT4N3M0H21M52.0Oropharynx<l< td="">cT4N3M0H22F74.7Parotis RcT0N2aM0H23F7.3Oropharynx<l< td="">cT4N3BM0H21M52.0Oropharynx LcT4N3BM0H22F&lt;</l<></l<></l<></l<></l<></l<>  |                         |               |                     | U14        | 4  |   |                          |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | H15F52.3NasopharynxcT3N2bM0H16M74.6TonguebasisT4N2cH17M67.3SupraClav RcT4N3M1H18F54.3Hypopharynx axilla RcT1N3M1H19M85.6Tonsil epiglottisT2N1H20M74.5Non-Hodgkin Lymph SupraClav LDeauville VH21M67.3Tongue RcT1N2M1H22F53.5HypopharynxT4aH22F71.4Head LcT3N2M1H24M71.4HypopharynxT4aH25M64.0Head LcT3N2M0H26M67.3SupraglottisT3N1H26M67.3SupraglottisT3N1H26M67.3SupraglottisT3N2MH27F74.7Parotis LT4aN2bH28M55.3OropharynxT2N0M0H20M62.0OropharynxcT0N2aM0H21M52.0OropharynxcT4AN2cH28M55.3OropharynxcT4AN2cH29M61.2Parotis LcT4N3bM0H21M52.0OropharynxcT4AN2cH22F53.7Mouth bedpT4aCN0M0   |                         |               |                     | U14        | 2  |   |                          |
| HI6 $74.6$ Tonguebasis $T4N2c$ $70Gy$ SIB $35$ $2.0$ $U14$ $0$ $261$ H17M 67.3SupraClav R $cT4N3M1$ $16Gy$ reir $2$ $8.0$ $U05$ $0$ $261$ H18F $54.3$ Hypopharynx axilla R $cT1N3M1$ $70Gy$ $35$ $2.0$ $U14$ $10$ $34$ H21M 67.3SupraClav LCentrile V $30GyH$ $10$ $30$ $011$ $12$ $121$ H21M 67.3Tongue R $cT1N3M1$ $70Gy$ $30$ $0112$ $16$ $32$ H22F $53.5$ HypopharynxT $T3N1$ $60Gy$ SIB $35$ $2.0$ $U11$ $12$ $121$ H22F $71.4$ HypopharynxT $T3N2M1$ $20Gy$ SIB $35$ $2.0$ $U11$ $12$ $12$ H23NT1.4HypopharynxT $T3N1$ $46Gy$ SIB $35$ $2.0$ $U11$ $47$ $47$ $76$ H24NT1.4HypopharynxTT3N1 $46Gy$ SIB $35$ $2.0$ $360^{\circ}$ $U11$ $47$ $47$ $47$ H25M 61.3SupragottisT2N0M0 $70Gy$ SIB $15$ $18$ $360^{\circ}$ $U11$ $47$ $47$ $47$ $46$ $66.6$ $61.2$ H24M 71.4Hand LT3N2bM0 $70Gy$ SIB $15$ $18$ $360^{\circ}$ $U11$ $47$ $47$ $47$ $46$ $66.6$ $61.2$ H25M 62.0Oropha  | H16M74.6TonguebasisT4N2cH17M $67.3$ SupraClav R $cT4N3M1$ H18F $54.3$ Hypopharynx axilla R $cT1N3M1$ H19M $85.6$ Tonsil epiglottis $T2N1$ H20M $74.5$ Non-Hodgkin Lymph SupraClav LDeauville VH21M $67.3$ Tongue R $cT1N2M1$ H21M $67.3$ Tongue R $T2N1$ H22F $53.5$ Hypopharynx $T4a$ H24M $71.4$ Hypopharynx $T4a$ H25M $64.0$ Head L $cT3N2M1$ H26M $67.3$ Supraglottis $T4a$ H28M $67.3$ Supraglottis $T4a$ H28M $67.3$ Supraglottis $T4aN2b$ H28M $67.3$ Supraglottis $T4aN2b$ H28M $67.3$ Supraglottis $T2N0M0$ H28M $67.3$ Supraglottis $T2N0M0$ H29M $67.3$ Supraglottis $T2N0M0$ H28M $55.3$ Oropharynx $t2N0M0$ H29M $61.2$ Parotis R $cT0N2aM0$ H29M $61.2$ Parotis R $cT4N3bM0$ H21M $52.0$ Oropharynx $t2N3M0$ H22F $53.7$ Mouth bed $pT4aCN0M0$  |                         |               |                     | U14        | 2  |   |                          |
| HITM67.3SupraClav R $c74N3M1$ 16Gy reirr28.0U050HIRN56.3Hypopharynx axilla R $c7N3M1$ $70Gy$ $35$ 2.0U1410 $34$ HIRN56.3.5Hypopharynx axilla R $c7N3M1$ $70Gy$ $35$ 2.0U1112121HIRN67.3Tomil epidottis $T2N1$ $69Gy$ $30$ U1216 $34$ HIRNon-Hodgin Lymph SupraClav LDenge R $T1M$ $70Gy$ SIB $35$ $2.0$ U11 $12$ $121$ HI2FT.4Hypopharynx L $T4a$ $70Gy$ SIB $35$ $2.0$ U12 $16$ $32$ H24MT14Hypopharynx L $T4a$ $70Gy$ SIB $35$ $2.0$ U11 $47$ $47$ $76$ H22KT14Hypopharynx LT4a $70Gy$ SIB $35$ $2.0$ U11 $47$ $47$ $90$ H24MT14Hypopharynx LT4a $70Gy$ SIB $35$ $2.0$ $300^\circ$ $111$ $47$ $47$ $76$ H25M53Oropharynx LT3N0M0 $70Gy$ SIB $35$ $20$ $300^\circ$ $111$ $47$ $44$ $40$ $-46$ H26M53Oropharynx LT3N0M0 $70Gy$ SIB $35$ $20$ $300^\circ$ $111$ $47$ $44$ $40$ $-46$ H25M53Oropharynx LT2N0M0 $70Gy$ SIB $12$ $360^\circ$ <   | $ \begin{array}{llllllllllllllllllllllllllllllllllll$  |                         |               |                     | U14        | 0 26   | 1   |                          |
| H18F54.3Hypopharynx axilla R $cT1N3M1$ $70Gy$ $35$ $2.0$ $U14$ $10$ $34$ H19M85.6Tonsil epiglottisT2N1 $69Gy$ $30$ $2.3$ $U11$ $12$ $121$ H21M $67.3$ Tonsil epiglottisT2N1 $69Gy$ $30$ $2.3$ $U11$ $12$ $121$ H21M $67.3$ Tonsil epiglottisT4N1Deauvile V $30Gy$ pall $10$ $3.0$ $U12$ $16$ $3.2$ H22F $71.4$ Hypopharynx LT4AN2b $70Gy$ SIB $35$ $2.0$ $0112$ $4$ $47$ $47$ $47$ $47$ $47$ $47$ $47$ $47$ $47$ $47$ $49$ H24M $71.4$ Hypopharynx LT4AN2b $70Gy$ SIB $35$ $2.0$ $360^{\circ}$ $U11$ $47$ $47$ $47$ $47$ $47$ $47$ $47$ $49$ $40$ H24M $71.4$ Hypopharynx LT3N0M0 $70Gy$ SIB $35$ $2.0$ $360^{\circ}$ $U11$ $47$ $47$ $47$ $47$ $49$ $40$ $2.7$ $3.3$ H26M $67.3$ SupraglottisT2N0M0 $70Gy$ SIB $15$ $18$ $360^{\circ}$ $U14$ $16$ $20$ $2.3$ $3.0$ $2.17$ $2.90$ $3.11$ H27M $74.7$ $9.7$ $70Gy$ SIB $15$ $15$ $18$ $360^{\circ}$ $U14$ $67$ $62$ $64$ $6.6$ $6.1$ H28 <th< td=""><td>H18F<math>54.3</math>Hypopharynx axilla R<math>cT1N3M1</math>H19M<math>85.6</math>Tonsil epiglottis<math>T2N1</math>H20M<math>74.5</math>Non-Hodgkin Lymph SupraClav LDeauville VH21M<math>67.3</math>Tongue R<math>cT1N2bM1</math>H21M<math>67.3</math>Tongue R<math>cT1N2bM1</math>H21M<math>67.3</math>Tongue R<math>cT1N2bM1</math>H22F<math>53.5</math>Hypopharynx<math>T4a</math>H24M<math>71.4</math>Hypopharynx L<math>T4aN2b</math>H25M<math>64.0</math>Head R<math>T3N1</math>H26M<math>67.3</math>Supraglottis<math>T3N1</math>H27F<math>74.7</math>Parotis L<math>T4n2b</math>H28M<math>67.3</math>Supraglottis<math>T2N0M0</math>H27F<math>74.7</math>Parotis L<math>73N2b</math>H28M<math>62.0</math>Oropharynx<l< td=""><math>72N0M0</math>H27F<math>74.7</math>Parotis L<math>72N0M0</math>H28M<math>62.0</math>Oropharynx<l< td=""><math>cT4aN2c</math>H28M<math>61.2</math>Parotis R<math>cT0N2aM0</math>H28M<math>52.0</math>Oropharynx<l l<="" td="" tongue=""><math>cT4N3bM0</math>H29F<math>53.7</math>Mouth bed<math>pT4aCN0M0</math></l></l<></l<></td><td></td><td></td><td></td><td>U05</td><td>0</td><td></td><td></td></th<>  | H18F $54.3$ Hypopharynx axilla R $cT1N3M1$ H19M $85.6$ Tonsil epiglottis $T2N1$ H20M $74.5$ Non-Hodgkin Lymph SupraClav LDeauville VH21M $67.3$ Tongue R $cT1N2bM1$ H21M $67.3$ Tongue R $cT1N2bM1$ H21M $67.3$ Tongue R $cT1N2bM1$ H22F $53.5$ Hypopharynx $T4a$ H24M $71.4$ Hypopharynx L $T4aN2b$ H25M $64.0$ Head R $T3N1$ H26M $67.3$ Supraglottis $T3N1$ H27F $74.7$ Parotis L $T4n2b$ H28M $67.3$ Supraglottis $T2N0M0$ H27F $74.7$ Parotis L $73N2b$ H28M $62.0$ Oropharynx <l< td=""><math>72N0M0</math>H27F<math>74.7</math>Parotis L<math>72N0M0</math>H28M<math>62.0</math>Oropharynx<l< td=""><math>cT4aN2c</math>H28M<math>61.2</math>Parotis R<math>cT0N2aM0</math>H28M<math>52.0</math>Oropharynx<l l<="" td="" tongue=""><math>cT4N3bM0</math>H29F<math>53.7</math>Mouth bed<math>pT4aCN0M0</math></l></l<></l<>  |                         |               |                     | U05        | 0  |   |                          |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | $ \begin{array}{llllllllllllllllllllllllllllllllllll$  |                         |               |                     | U14        |  |   |                          |
| Image: Interview         Matrix         Matrit         Matrix         Matrit  | H20M74.5Non-Hodgkin Lymph SupraClav LDeauville VH21M $67.3$ Tongue R $cT1N2bM1$ H22F $53.5$ Hypopharynx $T4a$ h23F $71.4$ Hypopharynx $T4a$ H24M $71.4$ Hypopharynx L $T4aN2b$ H25M $64.0$ Head R $T3N1$ H26M $67.3$ Supraglottis $T2N0M0$ H27F $74.7$ Parotis L $T4aN2b$ H28M $55.3$ Oropharynx $T2N0M0$ H28M $55.3$ Oropharynx $T2N0M0$ H29M $61.2$ Parotis L $72N0M0$ H28M $55.3$ Oropharynx $cT4aN2c$ H29M $61.2$ Parotis R $cT0N2aM0$ H28M $52.0$ Oropharynx $cT4N3bM0$ H31M $52.0$ Oropharynx L $cT4N3bM0$ H32F $53.7$ Mouth bed $pT4aCN0M0$   |                         |               |                     | U11        |  | 1   |                          |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | H21       M       67.3       Tongue R       cT1N2bM1         H22       F $53.5$ Hypopharynx       T4a         h23       F $71.4$ Head L $cT3N2M1b$ H24       M $71.4$ Hypopharynx L $T4a$ H25       M $64.0$ Head R $T3N1$ H26       M $67.3$ Supraglottis $T3N1$ H26       M $67.3$ Supraglottis $T3N1$ H27       F $74.7$ Parotis L $T3N00$ H28       M $55.3$ Oropharynx $T2N0M0$ H28       M $55.3$ Oropharynx $T2N0M0$ H28       M $55.3$ Oropharynx $T2N0M0$ H28       M $55.3$ Oropharynx $cT4aN2c$ H28       M $52.0$ Oropharynx $cT4AN2c$ H29       M $61.2$ Parotis R $cT4A3N2c$ H28       M $52.0$ Oropharynx $cT4A3N2c$ H29       M $61.2$ Parotis R $cT4A3DM0$  |                         |               |                     | U12        | 3  |   |                          |
| H22       F       53.5       Hypopharynx       T4a       70Gy SIB       35       2.0       U12       -6       32         h23       F       71.4       Hypopharynx L $T14$ $70Gy$ Ball reirr       5       4.0       U05       4       -6       32         H24       M       71.4       Hypopharynx L $T3N2M1b$ $20Gy$ Ball reirr       5       4.0       U05       4       76       7.8       -8.0         H26       M       67.3       Supraglottis       T3N1 $46Gy$ 23       2.0 $360^{\circ}$ U14       47       47       -9.6       6.1         H26       M       65.3       Oropharynx       T2N0M0 $70Gy$ SIB       15       1.8 $360^{\circ}$ U14       16       20       -3.1       -3.0         H28       M       55.3       Oropharynx       T2N0M0 $70Gy$ SIB       15       1.8 $360^{\circ}$ U14       16       20       -3.1       -3.0         H28       M       55.3       Oropharynx       T2N0M0 $70Gy$ SIB       15       1.8 $380^{\circ}$ U14       44       -4.0       -4.0       -4.0       -4.0 <t< td=""><td><math display="block"> \begin{array}{llllllllllllllllllllllllllllllllllll</math></td><td></td><td></td><td></td><td>U12</td><td>16</td><td></td><td></td></t<>  | $ \begin{array}{llllllllllllllllllllllllllllllllllll$  |                         |               |                     | U12        | 16   |   |                          |
| h23F71.4Head LcT3N2M1b $20Gy$ pall reirr54.0 $105$ 4H24M71.4Hypopharynx LT4AN2b $70Gy$ SIB352.0 $360^{\circ}$ $1019$ 5556 $-7.8$ $-8.0$ H25M $64.0$ Head RT3N1 $46Gy$ 232.0 $360^{\circ}$ $1011$ $47$ $47$ $-9.7$ $-9.6$ H26M $67.3$ SupraglottisT2N0M0 $70Gy$ SIB $35$ $2.0$ $360^{\circ}$ $1014$ $63$ $64$ $-9.6$ H26M $67.3$ SupraglottisT2N0M0 $70Gy$ SIB $15$ $1.8$ $360^{\circ}$ $1014$ $16$ $20$ $-3.1$ H28M $55.3$ OropharynxT2N0M0 $70Gy$ SIB $12/35$ $2.0$ $180^{\circ}$ $1014$ $16$ $20$ $-3.1$ H20M $61.2$ Parotis LParotis R $70Gy$ SIB $12/35$ $2.0$ $180^{\circ}$ $1014$ $16$ $20$ $-3.1$ H20M $61.2$ Parotis R $70Gy$ SIB $12/35$ $2.0$ $180^{\circ}$ $101$ $43$ $4.0$ $-2.7$ H30M $61.2$ Parotis R $70Gy$ SIB $12/35$ $2.0$ $360^{\circ}$ $101$ $43$ $4.0$ $-4.6$ H28M $52.0$ Oropharynx L tongue L $710Ry$ SIB $15$ $1.8$ $180^{\circ}$ $101$ $4.1$ $4.0$ $-3.2$ H30M $61.2$ Parotis R $700Sy$ SIB $35$  |  |                         |               |                     | U12        |  | ~   |                          |
| H24       M       71.4       Hypopharynx L       T4aN2b       70Gy SIB       35       2.0       360°       U09       55       56       -7.8       -8.0         H25       M       64.0       Head R       T3N1       46Gy       23       2.0       360°       U11       47       47       -9.7       -9.6       6.1         H26       M       67.3       Supraglottis       T2N0M0       70Gy SIB       35       2.0       360°       U14       63       64       -6.6       6.1         H28       M       55.3       Oropharynx       T2N0M0       70Gy SIB       15       1.8       360°       U14       16       20       -3.1       -3.0         H28       M       65.0       Oropharynx       T2N0M0       70Gy SIB       15       1.8       360°       U14       16       20       -3.1       -3.0         H20       M       65.0       Oropharynx       T2N0M0       70Gy SIB       15       1.8       160°       U11       47       47       4.0       2.0       -3.1       3.0         H20       M       61.0       65.0       7.03       3.3       2.3       1.1       1.8 <th< td=""><td><math display="block"> \begin{array}{cccccccccccccccccccccccccccccccccccc</math></td><td></td><td></td><td></td><td>U05</td><td>4</td><td></td><td></td></th<>  | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  |                         |               |                     | U05        | 4  |   |                          |
| H25M64.0Head RT3N146Gy232.0 $360^{\circ}$ U11 $47$ $47$ $9.7$ $-9.6$ H26M67.3SupraglottisT2N0M070Gy SIB $35$ 2.0 $360^{\circ}$ U14 $63$ $64$ $-6.6$ $6.1$ H26M $55.3$ OropharynxT2N0M070Gy SIB $15$ $1.8$ $360^{\circ}$ U14 $16$ $20$ $-3.1$ $-3.0$ H28M $55.3$ OropharynxT2N0M0 $70Gy SIB$ $15$ $1.8$ $360^{\circ}$ U14 $16$ $20$ $-3.1$ $-3.0$ H20M $62.0$ OropharynxT2N0M0 $70Gy SIB$ $15$ $1.8$ $360^{\circ}$ U14 $16$ $20$ $-3.1$ $-3.0$ H20M $62.0$ OropharynxT2N0M0 $70Gy SIB$ $15$ $1.8$ $180^{\circ}$ $U11$ $47$ $44$ $-4.0$ $-4.6$ H30M $61.2$ Parotis R $cT0N2aM0$ $70Gy SIB$ $35$ $2.0$ $300^{\circ}$ $U11$ $43$ $35$ $-1.8$ $2.3$ H31M $52.0$ Oropharynx L tongue L $cT4N3bM0$ $70Gy SIB$ $35$ $2.0$ $300^{\circ}$ $U11$ $43$ $35$ $-1.8$ $-2.3$ H31M $52.0$ Oropharynx L tongue L $cT4N3bM0$ $70Gy SIB$ $35$ $2.0$ $300^{\circ}$ $U10$ $30$ $2.1$ $-3.0$ H32F $53.7$ $0$ $0$ $0$ $0$ $0$ $0$ $0$   | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  |                         | 5 2.0         | $360^{\circ}$       | U09        |  |   | -8.0                     |
| H26       M       67.3       Supraglottis       T2N0M0       70Gy SIB       35       2.0       360°       U14       63       64       -6.6       6.1         H27       F       74.7       Parotis L       pT3N2b       47Gy SIB       15       1.8       360°       U14       63       64       -6.6       6.1       -3.0         H28       M       55.3       Oropharynx       T2N0M0       70Gy SIB       15       1.8       360°       U14       16       20       -3.1       -3.0         H20       M       62.0       Oropharynx       T2N0M0       70Gy SIB       15       1.8       180°       U11       16       20       -3.1       -3.0         H30       M       61.2       Parotis R       cT4aN2c       47Gy SIB       15       1.8       180°       U11       43       35       -1.8       2.3         H31       M       52.0       Oropharynx L tongue L       cT4N3bM0       70Gy SIB       3/3       2.3       170°       U11       43       35       -1.8       2.3         H31       M       52.0       Nonth bed       PT4acN0M0       70Gy sIB       3/3       2.0       360°       U   | $\begin{array}{cccccccccccccccccccccccccccccccccccc$   |                         |               | $360^{\circ}$       | U11        |  |   | -9.6                     |
| $z_{1}$ H27       F       74.7       Parotis L       pT3N2b       47Gy SIB       15       1.8       360°       U14       16       20       -3.1       -3.0         H28       M       55.3       Oropharynx       T2N0M0       70Gy SIB       12       1.8       360°       U14       16       20       -3.1       -3.0         H20       M       62.0       Oropharynx       T2N0M0       70Gy SIB       15       1.8       180°       U15       53       49       -2.7       -3.3         H30       M       61.2       Parotis R       cT4aN2c       47Gy SIB       15       1.8       180°       U11       43       35       -1.8       2.0         H31       M       52.0       Oropharynx L tongue L       cT4N3bM0       70Gy SIB       35       2.0       360°       U11       43       35       -1.8       2.0         H33       M       52.0       Mouth bed       pT4acN0M0       70Gy adjuv       12/35       2.0       170°       U11       43       35       -1.8       2.3         H33       M       75.5       Glottis Larynx R       cT2N0M0       70Gy       12/35       2.0       360°  | H27         F         74.7         Parotis L         pT3N2b           H28         M         55.3         Oropharynx         T2N0M0           H20         M         62.0         Oropharynx         T4aN2c           H30         M         61.2         Parotis R         cT4aN2c           H31         M         52.0         Oropharynx L tongue L         cT4N3bM0           H32         F         53.7         Mouth bed         pT4acN0M0  |                         |               | $360^{\circ}$       | U14        |  |   | 6.1                      |
| T       H28       M       55.3       Oropharynx       T2N0M0       70Gy SIB $12/35$ 2.0 $180^\circ$ $015$ $53$ $49$ $-2.7$ $-3.3$ H20       M       62.0       Oropharynx       cT4aN2c $47$ Gy SIB $15$ $1.8$ $180^\circ$ $012$ $44$ $44$ $-4.0$ $-4.6$ H30       M $61.2$ Parotis R       cT0N2aM0 $69$ Gy $3/33$ $2.3$ $170^\circ$ $011$ $43$ $35$ $-1.8$ $-2.3$ H31       M $52.0$ Oropharynx L tongue L       cT4N3bM0 $70$ Gy SIB $35$ $2.0$ $360^\circ$ $011$ $43$ $35$ $-1.8$ $-2.3$ H32       F $53.7$ Mouth bed $pT4acN0M0$ $70$ Gy adjuv $12/35$ $2.0$ $170^\circ$ $011$ $43$ $36$ $-1.6$ $-1.6$ H33       M $75.5$ Glottis Larynx R       cT2N0M0 $70$ Gy $35$ $2.0$ $360^\circ$ $010$ $34$ $-8.0$ $-1.5$ $1.5$ #33 $75.5$ Glottis Larynx  | H28         M         55.3         Oropharynx         T2N0M0           H20         M         62.0         Oropharynx         cT4aN2c           H30         M         61.2         Parotis R         cT0N2aM0           H31         M         52.0         Oropharynx L tongue L         cT4N3bM0           H32         F         53.7         Mouth bed         pT4acN0M0  |                         |               | $360^{\circ}$       | U14        |  |   | -3.0                     |
| H20       M       62.0       Oropharynx       cT4aN2c       47Gy SIB       15       1.8       180°       U12       44       44       -4.0       -4.6       -4.6         H30       M       61.2       Parotis R       cT0N2aM0       69Gy       3/33       2.3       170°       U11       43       35       -1.8       -2.3         H31       M       52.0       Oropharynx L tongue L       cT4N3bM0       70Gy SIB       35       2.0       360°       U10       39       34       -0.3       -1.1         H32       F       53.7       Mouth bed       pT4acN0M0       70Gy adjuv       12/35       2.0       360°       U10       39       34       -0.3       -1.1         H33       M       75.5       Glottis Larynx R       cT2N0M0       70Gy       35       2.0       360°       U10       34       34       -0.3       -1.1         *VMAT <plans 6="" arc.<="" degree="" delivered="" energy="" generally="" indicates="" mv="" of="" plans="" th="" the="" were="" with="">       *VMAT<plans 6="" arc.<="" degree="" delivered="" energy="" generally="" indicates="" mv="" of="" plans="" th="" the="" were="" with=""></plans></plans>   | M62.0OropharynxcT4aN2cM61.2Parotis RcT0N2aM0M52.0Oropharynx L tongue LcT4N3bM0F53.7Mouth bedpT4acN0M0  |                         |               | $180^{\circ}$       | U15        |  |   | -3.3                     |
| H30       M       61.2       Parotis R       cT0N2aM0       69Gy $3/33$ $2.3$ $170^{\circ}$ U11 $43$ $35$ $-1.8$ $-2.3$ H31       M $52.0$ Oropharynx L tongue L       cT4N3bM0 $70Gy$ SIB $35$ $2.0$ $360^{\circ}$ $U10$ $39$ $34$ $-0.3$ $-1.1$ H32       F $53.7$ Mouth bed       pT4acN0M0 $70Gy$ adjuv $12/35$ $2.0$ $170^{\circ}$ $U14$ $67$ $62$ $1.6$ $1.5$ H33       M $75.5$ Glottis Larynx R       cT2N0M0 $70Gy$ $355$ $2.0$ $360^{\circ}$ $U10$ $34$ $60$ $8.0$ $8.0$ $8.0$ $8.0$ $8.0$ $8.3$ H33       M $75.5$ Glottis Larynx R $cT2N0M0$ $70Gy$ $355$ $2.0$ $360^{\circ}$ $U10$ $34$ $8.0$ $8.3$ *VMAT plans with 6 MV energy were generally delivered plans indicates the degree of the arc. $8.0$ $8.0$ $8.0$ $8.0$ $8.0$ $8.0$ $8.0$ $8.3$  | M61.2Parotis RcT0N2aM0M52.0Oropharynx L tongue LcT4N3bM0F53.7Mouth bedpT4acN0M0  |                         |               | $180^{\circ}$       | U12        |  |   | -4.6                     |
| H31       M       52.0       Oropharynx L tongue L $cT4N3bM0$ $70Gy SIB$ 35 $2.0$ $360^{\circ}$ $U10$ $39$ $34$ $-0.3$ $-1.1$ H32       F $53.7$ Mouth bed       pT4acN0M0 $70Gy adjuv$ $12/35$ $2.0$ $170^{\circ}$ $U14$ $67$ $62$ $1.6$ $1.5$ H33       M $75.5$ Glottis Larynx R $cT2N0M0$ $70Gy$ $35$ $2.0$ $360^{\circ}$ $U10$ $34$ $40$ $8.3$ H33       M $75.5$ Glottis Larynx R $cT2N0M0$ $70Gy$ $35$ $2.0$ $360^{\circ}$ $U10$ $34$ $48.0$ $8.3$ *VMAT plans with 6 MV energy were generally delivered plans indicates the degree of the arc. $*$ $41.5$ $42.5$ $42.5$ $42.5$ $42.5$ $42.5$ $42.5$ $52.0$   | M 52.0 Oropharynx L tongue L cT4N3bM0<br>F 53.7 Mouth bed pT4acN0M0  |                         |               | $170^{\circ}$       | U11        |  |   | -2.3                     |
| H32 F 53.7 Mouth bed $pT4acN0M0$ 70Gy adjuv 12/35 2.0 170° U14 67 62 1.6 1.5 H33 M 75.5 Glottis Larynx R $cT2N0M0$ 70Gy 35 2.0 360° U10 34 34 -8.0 -8.3 *VMAT plans with 6 MV energy were generally delivered plans indicates the degree of the arc.   | F 53.7 Mouth bed pT4acN0M0 '   |                         |               | $360^{\circ}$       | U10        |  |   | -1.1                     |
| H33 M 75.5 Glottis Larynx R cT2N0M0 70Gy 35 2.0 360° U10 34 34 -8.0 -8.3<br>*VMAT plans with 6 MV energy were generally delivered plans indicates the degree of the arc.   |  |                         |               | $170^{\circ}$       | U14        |  |   | 1.5                      |
| *VMAT plans with 6 MV energy were generally delivered plans indicates the degree of the arc.   | M 75.5 Glottis Larynx R cT2N0M0  |                         |               | $360^{\circ}$       | U10        |  |   | -8.3                     |
|  | *VMAT plans with 6 MV energy were generally de   | nerally delivered plans | indicates the | edegree             | of the a   | rc.  |   |                          |

| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  |       | Sex [y]           | Tumour           | [TNM]         | Prescription            | no. <sup>1</sup> | per frac.<br>[Gy] | $\operatorname{Plan}^*$            | Linac    | to-(r)CT to-CT<br>[d] [d] |      | Avret Avser<br>[%] [%] | [%]<br>[%] |
|--|-------|-------------------|------------------|---------------|-------------------------|------------------|-------------------|------------------------------------|----------|---------------------------|------|------------------------|------------|
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  | B1 F  | <del>م</del> 57.6 | R                | cT2-3N2M0     | 42.56Gy                 | 16               | 2.66              |                                    | U10      | 0                         |      |                        |            |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | B2 F  | 7 33.3            | L locoreg        | cT3N1M0       | 61.2Gy SIB + lymph      | 23               | 2.66              |                                    | U12      | 1                         |      |                        |            |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  |       |                   | R local          | pT1cN1        | 46 Gy SIB               | 21               | 2.66              |                                    | U12      | 5<br>C                    |      |                        |            |
|  | B4 F  | 7 52.2            | R local          | cT2N0M0       | 46 Gy SIB               | 21               | 2.66              |                                    | U11      | 2                         |      |                        |            |
|  | _     |                   | R                | cT2N0M0       | $46 G_{y} SIB$          | 21               | 2.66              |                                    | U05      | ы                         |      |                        |            |
|  |       | 7 63.3            | R locoreg        | cT2N1M0       | 46Gy                    | 21               | 2.66              |                                    | U14      | 4                         |      |                        |            |
|  |       | 7 59.5            | R                | pT2N0         | 42.56Gy reirr           | 16               | 2.66              |                                    | U04      | 5<br>C                    |      |                        |            |
|  | B8    |                   | R                | pT2N3M0       | 61.2 Gv SIB             | 23               | 2.66              |                                    | U11      | 2                         |      |                        |            |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | B9    |                   | R                | cT2N2M0       | 46 Gv SIB               | 21               | 2.66              |                                    | U04      | 4                         |      |                        |            |
|  |       | ب 66.7            | L locoreg        | cT2N2M0       | 42.56Gy                 | 16               | 2.66              |                                    | U11      | ъ                         |      |                        |            |
|  | B11 F | ۲.167 F           | R                | pT1G2N0       | 42.56Gy                 | 16               | 2.66              |                                    | U04      | 1                         |      |                        |            |
|  |       |                   | L local          | cT2N0Mx       | 46Gy SIB + $21x0.5$ seq | 21               | 2.66              |                                    | U11      | 4                         |      |                        |            |
|  | B13 F | P33.7             | R                | pT1N1         | 24Gy pall               | e<br>S           | 8.00              |                                    | 004, 010 | 2                         |      |                        |            |
|  | B14 F | ۲.76 G            | R                | cT2-3N2M0     | 42.56Gy                 | 16               | 2.66              |                                    | U04,U07  | 4                         |      |                        |            |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | B15 F | 7 37.1            | R                | cT1N0         | 46Gy SIB                | 21               | 2.66              |                                    | U04      | 4                         |      |                        |            |
|  | B16 F | 7 56.5            | R postop         | pT1N0         | 55.86Gy SIB             | 21               | 2.17              |                                    | U10      | 14                        |      |                        |            |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  |       | ۲.2 F             | Thorax           | $^{1}$ T23    | 45.57 local             | 21               | 2.17              |                                    | U12      | 2-                        | 54   |                        |            |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  |       | 7 63.5            | R                |               | 6Gy SIB neo-adjuv chemo |                  | 2.66              |                                    | U04      | 7                         | 49   |                        |            |
| B20F70.0L $pT4N0$ 60Gy SBRT512.00U0947187B21F67.7RpostopcT2-3N2M042.56Gy adj162.66U04,U07144B22F52.4RpostopcT2-3N2M042.56Gy adj162.66U0579-25B23F67.6LcT1cN015/20Gy SIB120.00U0579-25B24F76.8RRostoppT1cN061.2Gy SIB232.666MV 8f*U04143.6B24F73.3LLpostoppT1cN061.2Gy SIB232.66 $00MV 7f*$ U14262.6B25F73.3LLpostoppT1cN161.2Gy SIB232.66 $10MV 7f*$ U14262.6B26F77.3LLDostop47183.5B26F73.3LL0.03232.66 $10MV 7f*$ U14262.6B26F73.3LL2.66 $10MV 7f*$ U1428232.53.5B26F73.3LL2.66 $10MV 7f*$ U1428211.6B26F73.3LL2.66 $10MV 2f*$ U14281.61.6B26F74.1RRRLU14281.61.6B2  |       | 7 69.5            | R preop          |               | 42.56Gy                 |                  | 2.66              |                                    | U04      | 38                        | 27   |                        |            |
| B21F $67.7$ R postop $cT2-3N2M0$ $42.56Gy$ adj $16$ $2.66$ $104,107$ $1$ $44$ B22F $52.4$ RpT1cG2N1 $42.56Gy$ $16$ $2.66$ $1005$ 7 $9-25$ B23F $67.6$ LcT1cN0 $15/20GySIB$ $1$ $20.00$ $1010$ $8$ B24F $76.8$ R postoppT1cN0 $61.2GySIB$ $23$ $2.66$ $00N77^*$ $114$ $26$ $5.4$ B25F $7.3$ L postoppT1cN0 $61.2GySIB$ $23$ $2.66$ $00N77^*$ $114$ $26$ $5.4$ B26F $7.3$ L postoppT1cN1 $61.2GySIB$ $23$ $2.66$ $00N77^*$ $114$ $26$ $5.4$ B26F $7.3$ L postoppT1cG2N1 $42.56GyJymph$ $16$ $2.66$ $00N74^*$ $104$ $23$ $23$ $3.5$ B27F $7.3$ L localpT1cPN2 $42.56GyJymph$ $16$ $2.66$ $00N74^*$ $104$ $23$ $22$ $-3.5$ B28F $7.41$ R locoregpT1cPN2 $42.56GyJymph$ $16$ $2.66$ $00N720^\circ$ $114$ $23$ $22$ $-3.5$ B29F $7.41$ R locoregpT1cPN2 $42.56GyJymph$ $16$ $2.66$ $00N720^\circ$ $111$ $10$ $10.6$ B29F $7.41$ R locoregpT1cPN2 $42.56GyJymph$ $16$ $2.66$ $00N710^\circ$ $112$ $21$ $21$ $21$ <td></td> <td>r 70.0</td> <td>L</td> <td>pT4N0</td> <td>60Gy SBRT</td> <td>ŋ</td> <td>12.00</td> <td></td> <td>000</td> <td></td> <td>187</td> <td></td> <td></td>   |       | r 70.0            | L                | pT4N0         | 60Gy SBRT               | ŋ                | 12.00             |                                    | 000      |                           | 187  |                        |            |
| B22F52.4RpTlcG2N142.56Gy162.66100579-25B23F67.6LcTlcN015/20Gy SIB120.00U108B24F76.8RpostoppTlcN061.2Gy SIB232.666MV 8f*U0414143.6B25F50.3LpostoppTlcN061.2Gy SIB232.666MV 8f*U0414265.4B26F72.2LpostoppT1N061.2Gy SIB232.666/NW 7f*U14262.65.4B26F77.3LLocalpT3N161.2Gy SIB232.666/NW 4f*U142322-3.5B27F77.3LLocalpT3N161.2Gy SIB232.666/NW 270°U142322-3.5B26F74.1RRlocal42.56Gy lymph162.666/NW 270°U142322-3.5B29F74.1Rlocal42.56Gy lymph162.666/NW 270°U1421-1.6B29F74.1Rlocal42.56Gy lymph162.666/NW 270°U1421-1.6B30F57.8Llocal42.56Gy lymph162.666/NW 10f*U1117178.3B31F72.2LpostoppT1cG2N142.56Gy lymph <t< td=""><td></td><td>7.76 F</td><td>R postop</td><td>cT2-3N2M0</td><td>42.56Gy adj</td><td>16</td><td>2.66</td><td></td><td>U04,U07</td><td></td><td>44</td><td></td><td></td></t<>  |       | 7.76 F            | R postop         | cT2-3N2M0     | 42.56Gy adj             | 16               | 2.66              |                                    | U04,U07  |                           | 44   |                        |            |
| B23F67.6LcTlcN015/20Gy SIB120.00U108B24F76.8RpostoppTlcN061.2Gy SIB232.66 $6MV 8f^*$ U0414143.6B25F50.3LpostoppTlcN061.2Gy SIB232.66 $10MV 7f^*$ U1426265.4B26F77.3LLpostoppTlcG2N142.56Gy lymph162.66 $10MV 4f^*$ U142322-3.5B27F77.3LLDccalpT3N161.2Gy SIB232.66 $6/10MV 4f^*$ U142322-3.5B28F73.3LLL00M42.56Gy lymph162.66 $6/10MV 270^\circ$ U142322-3.5B29F74.1RRNocreegpTlcpN242.56Gy lymph162.66 $6/10MV 2/9f^*$ U1421-1.6B30F57.8LLlocal42.56Gy lymph162.66 $6/10MV 2/9f^*$ U1117178.3B31F72.2LpostoppTlcG2N142.56Gy lymph162.66 $6/10MV 2/9f^*$ U1117178.3B31F72.2LpostoppTlcG2N142.56Gy lymph162.66 $6/10MV 2/9f^*$ U1117178.3B32F39.2LpostoppTlcG2N142.56Gy lymph <td></td> <td></td> <td>R</td> <td>pT1cG2N1</td> <td>42.56 Gy</td> <td>16</td> <td>2.66</td> <td></td> <td>U05</td> <td>7</td> <td>9-25</td> <td></td> <td></td>  |       |                   | R                | pT1cG2N1      | 42.56 Gy                | 16               | 2.66              |                                    | U05      | 7                         | 9-25 |                        |            |
| B24         F         76.8         R postop         pT1cN0         61.2Gy SIB         23         2.66         6MV 8f*         U04         14         14         3.6           B25         F         50.3         L postop         pT1N0         61.2Gy SIB         23         2.66         10MV 7f*         U14         26         5.4           B26         F         7.2         L postop         pT1cG2N1         42.56Gy lymph         16         2.66         10MV 4f*         U14         23         22         -3.5           B26         F         77.3         L local         pT3N1         61.2Gy SIB         23         2.66         10MV 4f*         U14         23         22         -3.5           B28         F         73.8         Thoraxwand locoreg c72mN3bM0         42.56Gy lymph         16         2.66         01MV 2/9f*         U14         23         22         -3.5           B29         F         74.1         R locoreg         pT1cpN2         42.56Gy lymph         16         2.66         01MV 2/9f*         U14         21         1.16         1.16           B30         F         57.8         L local         c72N1M0         42.56Gy lymph         16         2.66 | B23 F | ۲ 67.6            | L                | ${ m cT1cN0}$ | $15/20 \mathrm{Gy~SIB}$ | 1                | 20.00             |                                    | U10      | ×                         |      |                        |            |
| B25F50.3LLLpostoppT1N0 $61.2$ Gy SIB232.66 $10MV$ $7f^*$ $U14$ 26265.4B26F72.2LpostoppT1cG2N142.56Gy lymph162.66 $10MV$ $4f^*$ U0816143.5B27F77.3LlocalpT3N1 $61.2Gy$ SIB23 $2.66$ $010MV$ $4f^*$ U0816143.5B28F43.8RThoraxwand locoregpT3N1 $61.2Gy$ SIB23 $2.66$ $010MV$ $4/8f^*$ U142822 $-3.5$ B29F74.1RRlocoregpT1cpN2 $42.56Gy$ lymph16 $2.66$ $010MV$ $2/9f^*$ U0421 $-1.6$ B30F57.8LlocatoppT1cpN2 $42.56Gy$ lymph16 $2.66$ $6MV$ $20^{\circ}$ $0111$ $17$ $17$ $8.3$ B31F72.2LpostoppT1cG2N1 $42.56Gy$ lymph $16$ $2.66$ $6MV$ $20^{\circ}$ $0111$ $17$ $17$ $8.3$ B32F39.2LpostoppT1cG2N1 $42.56Gy$ lymph $16$ $2.66$ $6MV$ $20^{\circ}$ $0111$ $17$ $17$ $8.3$ B33F72.2Lpostop $0.05Gy$ $15$ $2.67$ $6MV$ $240^{\circ}$ $011$ $12$ $22.8$ $0.9$ B33F $42.3$ Lpostop $0105Gy$ <  | B24 F | ۲6.8              | R postop         | pT1cN0        | 61.2Gy SIB              | 23               | 2.66              | $6 MV 8f^*$                        | U04      | 14                        | 14   | 3.6                    | 6.8        |
| B26         F         72.2         L         postop         pT1cG2N1         42.56Gy lymph         16         2.66         10MV         4f*         U08         16         14         3.5           B27         F         77.3         L         local         pT3N1 $61.2Gy$ SIB         23         2.66 $6/10MV$ $4/8f^*$ U14         23         22         -3.5           B28         F         43.8         R         Thoraxwand locoreg $72.03M0$ 42.56Gy         16         2.66 $10MV$ $4/8f^*$ U14         23         22         -3.5           B29         F         74.1         R         locoreg         pT1cpN2         42.56Gy lymph         16         2.66 $6/10MV$ $2/9f^*$ U04         21         1.1         -1.0           B30         F         57.8         L         locareg         pT1cpN2         42.56Gy lymph         16         2.66 $6/10MV$ $2/9f^*$ U04         21         17         17         8.3           B31         F         72.2         L         postop         pT1cG2N1         42.56Gy lymph         16         2.66 $6/10MV$   | B25 F | 7 50.3            | L postop         | pT1N0         | 61.2 Gy SIB             | 23               | 2.66              | $10 \mathrm{MV} ~7 \mathrm{f}^*$   | U14      | 26                        | 26   | 5.4                    | 5.5        |
| B27       F       77.3       L local       pT3N1       61.2Gy SIB       23       2.66 $6/10MV$ $4/8f^*$ U14       23       22       -3.5         B28       F       43.8 R Thoraxwand locoreg cT2mN3bM0       42.56Gy       16       2.66 $10MV$ $270^{\circ}$ U14       23       22       -3.5         B29       F       74.1       R locoreg       pT1cpN2       42.56Gy lymph       16       2.66 $00MV$ 20°       U14       21       21       -1.0         B30       F       57.8       L local       cT2N1M0       42.56Gy lymph       16       2.66 $00MV$ 20°       U11       17       8.3         B31       F       72.2       L       postop       pT1cG2N1       42.56Gy lymph       16       2.66 $0MV$ 20°       U11       17       17       8.3         B31       F       72.2       L       postop       pT1cG2N1       42.56Gy lymph       16       2.66 $6MV$ 20°       U11       17       17       8.3         B32       F       39.2       L       postop       40.05Gy       16       2.67 $6MV$ 240°  | B26 F | 72.2              | L postop         | pT1cG2N1      | $42.56 Gy \ lymph$      | 16               | 2.66              | $10 \mathrm{MV} \ 4 \mathrm{f}^*$  |          | 16                        | 14   | 3.5                    | 3.6        |
| B28       F $43.8$ R Thoraxwand locoreg cT2mN3bM0 $42.56$ Gy       16 $2.66$ $10$ MV $270^{\circ}$ $U14$ 8 $11$ $-1.0$ B29       F $74.1$ R locoreg       pTlcpN2 $42.56$ Gy lymph $16$ $2.66$ $00$ MV $2/9f^*$ $U04$ $21$ $21$ $-1.6$ B30       F $57.8$ L local       cT2N1M0 $42.56$ Gy lymph $16$ $2.66$ $10$ MV $1/11$ $17$ $17$ $8.3$ B31       F $72.2$ L postop       pT1cG2N1 $42.56$ Gy lymph $16$ $2.66$ $6$ MV $101$ $17$ $17$ $8.3$ B31       F $72.2$ L postop       pT1cG2N1 $42.56$ Gy lymph $16$ $2.66$ $6$ MV $210^{\circ}$ $11^{\circ}$ $12^{\circ}$ $2.2$ B32       F $39.2$ L       postop $40.05$ Gy $15^{\circ}$ $267^{\circ}$ $0112$ $20^{\circ}$ $20^{\circ}$ $20^{\circ}$ B33       F $42.3$ L postop       cT1bN0/1 $40.05$ Gy $15^{\circ}$ $6^{\circ}$ $10^{\circ}$ </td <td></td> <td>ה 77.3</td> <td>L local</td> <td>pT3N1</td> <td>61.2 Gy SIB</td> <td>23</td> <td>2.66</td> <td>6/10MV 4/8f</td> <td></td> <td>23</td> <td>22</td> <td>-3.5</td> <td>2.7</td>  |       | ה 77.3            | L local          | pT3N1         | 61.2 Gy SIB             | 23               | 2.66              | 6/10MV 4/8f                        |          | 23                        | 22   | -3.5                   | 2.7        |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | B28   |                   | Thoraxwand locor | eg cT2mN3bM0  | 42.56Gy                 | 16               | 2.66              | $10 \mathrm{MV} \ 270^{\circ}$     |          | ×                         | 11   | -1.0                   | -0.4       |
| F         57.8         L         local         cT2N1M0         42.56Gy         16         2.66         10MV         10f*         U11         17         17         8.3           F         72.2         L         postop         pT1cG2N1         42.56Gy         16         2.66 $6MV$ 20°         U11         14         12         -2.8           F         39.2         L         pT1cN0M0         40.05Gy         15         2.67 $6MV$ 240°         U12         20         -8.2           F         42.3         L         postop         cT1bN0/1         40.05Gy         15         2.67 $6/10MV$ 4/5f*         U12         20         20         -8.2   | B29 F | 74.1              | R locoreg        | pT1cpN2       | $42.56 Gy \ lymph$      | 16               | 2.66              | 6/10MV 2/9f                        |          | 21                        | 21   | -1.6                   | -1.7       |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  | B30 F | ۲ 57.8            | L local          | cT2N1M0       | 42.56Gy                 | 16               | 2.66              | $10 \mathrm{MV} \ 10 \mathrm{f}^*$ | U11      | 17                        | 17   | 8.3                    | 9.3        |
| F 39.2 L pT1cN0M0 40.05Gy 15 2.67 6MV 240° U12 20 20 -8.2 F 42.3 L postop cT1bN0/1 40.05Gy 15 2.67 6/10MV 4/5f* U12 31 28 0.9  |       |                   | L postop         | pT1cG2N1      | 42.56 Gy lymph          | 16               | 2.66              | $6 \mathrm{MV} \ 220^{\circ}$      | U11      | 14                        | 12   | -2.8                   | -2.7       |
| F 42.3 L postop cT1bN0/1 40.05Gy 15 2.67 $6/10MV 4/5f^*$ U12 31 28 0.9   |       |                   | Г                | pT1cN0M0      | 40.05 Gy                | 15               | 2.67              | $6 {\rm MV} 240^{\circ}$           | U12      | 20                        | 20   | -8.2                   | -13.9      |
|  | B33 F | r 42.3            | L postop         | m cT1bN0/1    | 40.05 Gy                | 15               | 2.67              | 6/10MV 4/5f                        |          | 31                        | 28   | 0.9                    | -0.4       |

| L1                     |     |        |                       |             |                |          | [Gy]       |                                |         | [q] | [q] | -    | 5    |
|------------------------|-----|--------|-----------------------|-------------|----------------|----------|------------|--------------------------------|---------|-----|-----|------|------|
|                        | Гц  | 55.2   | R NSCLC R             | cT4N2M1a    | 16Gy pall      | 7        | 8.00       |                                | U05     | 0   |     |      |      |
| L2                     | Ē   | 77.8   | NSCLC R               | pT2bN3M1a-b | 8Gy pall       | -        | 8.00       |                                | U05     | 0   |     |      |      |
| L3                     | Σ   | 80.5   | R                     | T4          | 8Gy pall       | 1        | 8.00       |                                | U04     | 0   |     |      |      |
| L4                     | ſ±, | 52.7 F | 52.7 R NSCLC recidive | T4          | 8Gy pall       | μ        | 8.00       |                                | U05,U03 | 0   |     |      |      |
| L5                     | ſ±, | 59.5 / | Adenocarc postop      | T4N1M1      | 30Gy           | 10       | 3.00       |                                | U04,U05 | 18  |     |      |      |
| . L6                   | ſ±, | 59.9   | Meths                 | T2-3        | 30Gy           | 10       | 3.00       |                                | U09,U05 | 4   |     |      |      |
| Bui                    | ſ±, | 60.3   | Adenocarc R           | pT1N0Mo     | 60Gy SBRT      | ŋ        | 12.00      |                                | U09     | 2   |     |      |      |
| ini<br>8J              | ſ±, | 61.2   | R + meths             | T2-3        | 30 Gy          | 10       | 3.00       |                                | U09     | 4   |     |      |      |
| Б1<br>Г9               | Ζ   | 69.8   | R Thoraxwand          | T4N2M1c     | 8Gy            | 1        | 8.00       |                                | U04     | 0   |     |      |      |
| г<br>L10               | Σ   | 65.1   | L                     | pT4aN0M0    | 8Gy reirr      |          | 8.00       |                                | U05     | 1   |     |      |      |
| L11                    | Ν   | 55.7   | L NSCLC               | $^{-}$ T4   | 20Gy           | ŋ        | 4.00       |                                | U11     | 1   |     |      |      |
| L12                    | Ν   | 83.9   | L NSCLC               | cT4N0Mo     | 39Gy           | 13       | 3.00       |                                | U09,U14 | 1   |     |      |      |
| L13                    | Ν   | 60.6   | L NSCLC               | cT4N1M1c    | 8Gy pall       | 1        | 8.00       |                                | U05     | 0   |     |      |      |
| L14                    | Ν   | 63.3   | SCLC                  | cT2N2M0     | 39Gv           | 13       | 3.00       |                                | 000     | n   |     |      |      |
| L15                    | Μ   | 59.7   | R NSCLC               | cT4N4M1a    | 8Gy pall       | Ч        | 8.00       |                                | U05     | 0   |     |      |      |
| L16                    | N   | 70.6   | Mediastinum           | pT4N2M0     | $65 G_{\rm V}$ | 25       | 3.00       |                                | U12     | -25 | 36  |      |      |
| e L17                  | Ν   | 59.4   | R NSCLC               | cT4N3M1     | 48Gv           | 16       | 3.00       |                                | 00      | 6-  | 13  |      |      |
| tioi<br>L18            | Μ   | 62.5   | L SCLC                | cT3N3M0     | 45 Gy SIB      | 15       | 5.00       |                                | U12     | 0   | 78  |      |      |
| lai<br>L19             | Ν   | 59.8   | L NSCLC               | T4          | 16Gy pall      | 2        | 8.00       |                                | 000     | ъ   | _   |      |      |
| ila<br>L20             | Σ   | 74.4   | L SCLC                | T4          | 8Gy            | Ч        | 8.00       |                                | U04     | 0   | 159 |      |      |
| $\vec{\mathbf{v}}$ L21 | Ζ   | 56.5   | R NSCLC local         | pT3N1M0     | 54 Gy pall     | с,       | 18.00      |                                | U12     | 11  | /   |      |      |
| L22                    | ſ±, | 8.9    | Wilms, both           | T1          | 12Gy+22Gy SIB  | $\infty$ | 1.5 + 2.75 |                                | U15     | 14  | _   |      |      |
| L23                    | Ζ   | 63.2   | Г                     | cT2N2M0     | 60Gy SBRT      | x        | 7.50       |                                | U15     | 24  | 25  |      |      |
| L24                    | Μ   | 64.0   | A denocarc            | m cT1cN2M0  | 65 Gy          | 25       | 2.60       | $10 \mathrm{MV} \ 195^{\circ}$ | U11     | 27  | 28  | 2.5  | -1.8 |
| L25                    | ſĿ, | 60.9   | NSCLC                 | cT2N3M0     | 65 Gy          | 25       | 2.60       | $10 \mathrm{MV} \ 195^{\circ}$ | U10     | 21  | 21  | -4.2 | -2.3 |
| L26                    | ſĿ, | 67.0   | L SCLC                | cT4N3M1c    | 30Gy SABRT     | 10       | 3.00       | $10 MV 195^{\circ}$            | U14     | 11  | 11  | 5.3  | -0.3 |
| t L27                  | Ν   | 81.7   | L locoreg             | T4N2M0      | 36Gy SABRT     | 12       | 3.00       | $10 MV 195^{\circ}$            | U12     | 12  | 14  | -2.6 | -5.8 |
| Те<br>L28              | Σ   | 82.3   | R                     | m cT1aN0M0  | 65 Gy          | 25       | 2.60       | $10 \mathrm{MV} \ 195^{\circ}$ | U14     | 23  | 23  | -1.4 | 0.0  |
| L29                    | ſĿ, | 57.5   | Adenocarc R           | T2N4        | 60Gy SABRT     | 5        | 12.00      | $6 {\rm MV} 360^{\circ}$       | U04     | 27  | 27  | 1.3  | 2.8  |
| L30                    | Σ   | 63.3   | SCLC                  | cT2N2M0     | 66 Gy          | 33       | 2.00       | $10 \mathrm{MV} \ 195^{\circ}$ | 000     | ×   | 12  | 2.9  | 3.4  |
| L31                    | Ζ   | 81.8   | Adenocarc R           | c3T3N3M0    | 3Gy pall       | 10       | 3.0        | $10 {\rm MV} ~ 2 {\rm f}^*$    | U14     | -47 | -49 | 0.4  | 1.1  |
| L32                    | ſĿ, | 73.1   | R NSCLC               | T3N2M0      | 65 Gy          | 25       | 2.60       | $10 \mathrm{MV} \ 195^{\circ}$ |         | 14  | 16  | -1.1 | -1.4 |
| L33                    | Гц  | 60.8   | L NSCLC               | T4N1M0      | 65 Gy          | 25       | 2.60       | $10 \mathrm{MV} \ 195^{\circ}$ | U08     | 22  | 24  | 0.4  | 0.5  |

## 2. Imaging Protocols

CTs were acquired on a Brilliance Big Bore (Philips Healthcare, Ohio, USA); CBCTs were acquired using X-ray volumetric imaging (XVI, v5.0.2b72 Elekta AB, Sweden) system. Table 4 reports the imaging protocols for CT, rescan CT (rCT) and CBCT for all the patients included in the study in terms of fieldof-view (FOV), acquisition matrix (Acq matrix), resolution (Res), tube voltage (kVp), exposure (ms) and current (mA). CBCTs were acquired with 0.25 rotation/s gantry speed and 5.5 frames/s. All the CBCTs were acquired with a  $200^{\circ}$ -arc utilising an empty filter cassette (F0) in combination with a centred detector panel (S position, maximum FOV=27x27 cm<sup>2</sup>). The field-of-view (FOV) was in four cases (elective lymphnodes irradiations or double-sided irradiation for breast and HN patients) enlarged to a maximum of 41x41  $cm^2$  using a shifted detector panel (M position) to accommodate the CTV in the CBCT FOV. Imaging frequency of CBCT followed the extended non-action limit protocol [1]: online corrections (action level 0 mm) were applied in the case of partial or ablative breast irradiation, and offline long (imaging the first three days and then every five) scheme were applied for irradiations having  $\geq 20$  and short scheme (imaging the first two days and then every two) for < 20 fractions. Imaging frequency may have been increased after consultation between a medical physicist and a radiotherapist on a single patient-basis in case large inter-fraction motions were observed in the initial fractions or whenever RT technicians reported difficulties in reproducing the planning position.

Clinical set-up corrections were estimated within a clip-box including the CTV based on bone rigid (translation and rotation) matching [2]. For the breast patients treated with local RT followed by a sequential boost, a dual rigid registration was performed based first on bone matching followed by grey level (soft-tissue) matching [3, 4]. The centre of rotation was assigned as the centre of the PTV. In all cases, the set-up correction finally applied consisted of sole translation, trying to minimise the effect of rotations previously estimated.

| Modality | Site          | ${f FOV}^a \ [cm^3]$ | $Acq matrix^a$        | $\mathbf{Res}^a \ [\mathrm{mm}^3]$ | $\frac{\mathbf{Voltage}^{b}}{[kVp]}$ | $\begin{array}{c} \mathbf{Exposure}^{b} \\ [\mathrm{ms}] \end{array}$ | Current <sup>b</sup><br>[mA] |
|----------|---------------|----------------------|-----------------------|------------------------------------|--------------------------------------|---|------------------------------|
|          |               | 43-70                | 512                   | 0.83-1.37                          | 100                                  | $983 {\pm} 65$  | $159 \pm 50$                 |
|          | Head-and-neck | 43-70<br>30-111      | $512 \\ 101-535$      | 0.83-1.37<br>2-3                   | 120                                  | 923-1090  | 47 - 271                     |
|          |               | 47-70                | 512                   | 0.92-1.37                          |                                      | $1050 \pm 109$  | $63 \pm 37$                  |
| (r)CT    | Breast        | 47-70                | 512                   | 0.92-1.37                          | 120                                  | 923-1332  | 31-271                       |
|          |               | 31-120<br>29-70      | $\frac{103-400}{512}$ | $\frac{2-3}{0.57-1.37}$            |                                      | $3886 \pm 3095$   | $98 \pm 66$                  |
|          | Lung          | 29-70                | 512                   | 0.57 - 1.37                        | 120                                  | 500-10091   | 30-271                       |
|          |               | 23-220               | 76-660                | 1-3                                |                                      |   |                              |
|          | Head-and-neck | $\frac{27}{27}$      | $135-270 \\ 135-270$  | 1-2<br>1-2                         | $100^{c}$                            | $11\pm5$  | $14 \pm 3$                   |
|          | Head-and-neck | $\frac{27}{13-53}$   | 126-526               | 1-2<br>1-2                         | 100                                  | 10-40   | 10-20                        |
|          | Breast        | 27-41                | 270-540               | 0.5-1                              |                                      | $33 \pm 2$  | $17 \pm 2$                   |
| CBCT     |               | 27-41<br>26-53       | 270-540<br>262-526    | 0.5-1<br>0.5-1                     | 120                                  | 32-40   | 16-20                        |
|          |               | 20-35                | 270                   | 1-2                                |                                      | $31 \pm 6$  | $20 \pm 1$                   |
|          | Lung          | 27                   | 270                   | 1-2                                | $120^{d}$                            | 10-40   | 16-25                        |

Table S 4: Overview of CT (including also rescan (r)CT) and CBCT imaging protocols in terms of field-of-view (FOV), acquisition matrix (Acq matrix), resolution (Res), tube voltage (kVp), exposure (ms) and current (mA). For exposure and current, the mean value  $(\pm \sigma)$  was reported along with the range.

<sup>a</sup>Expressed in RL, AP, FH directions; the range is reported in terms of min-max.

<sup>b</sup> Reported in terms of mean value and range=min-max.

 $^c\mathrm{Except}$  for H18 and H20 where kVP was 120.

 $^d\mathrm{Except}$  for L11, L22 and L24 where kVP was 100.

#### 3. Network architecture

The cycle-GAN employed in this study was constituted by nine blocks of residual networks [5] as generators and by Patch-GANs [6] as discriminators. Figure S1 shows the architecture of the generator and discriminator. Stochastic gradient descendent was used applying an Adam solver [7] with learning rate = 0.0002, momentum parameters  $\beta_1 = 0.5$  and  $\beta_2 = 0.999$ . Instance normalisation [8] was employed with a batch size of 1. The weights of the network were randomly initialised from  $\mathcal{N}(0, 0.02)$ . Weight optimisation was performed as in Goodfellow et al. [9] alternating between one gradient descendent step on the discriminator network and one step on the generator network after having performed a forward and backward cycle. A structured loss function composed by  $GAN+\lambda \cdot \mathcal{L}1+cycle$ -consistency with  $\lambda = 25$  was adopted. The original implementation of the network by Zhu et al [10]<sup>1</sup> was modified to accommodate 16-bit grey-scale images with a size of 256x256.

Both networks were trained for 200 epochs on a Tesla P100 (16 Gb, NVIDIA, California, USA) graphical processing unit (GPU) with batch size one and image pool of 1000 images. Data augmentation was applied during training by flipping the images left and right and randomly cropping of 30x30 voxels after having bi-linearly resampled the images to 286x286 voxels in Mask<sub>CBCT</sub>. Early stopping was applied controlling the average and  $\sigma$  of the  $\mathcal{L}_1$  within the body contour over the patients of the validation set: we selected the first epoch with average  $\mathcal{L}_1$  differing less than one  $\sigma$  compared to the following three epochs. Note that  $\mathcal{L}_1$  was calculated at every 10 epoch (a total of 20 models were stored, one each 10 epochs).

#### 4. Image Comparison

Table 5 reports the similarity between the intensity of sCT, CBCT, CT and rCT calculated within  $Mask_{CBCT}$  in terms of peak signal-to-noise ratio (PSNR) and structural similarity index metric (SSIM) as proposed by Liang et al. [11].

| Table S 5: Image comparison calculated as mean $(\pm 1\sigma)$ and range ([min; max]) of the test dataset (30 patients) compared to |
|---|
| the reference dataset in terms of peak signal-to-noise ratio (PSNR) and structural similarity index metric (SSIM) between the       |
| Test and the Ref images. Values are expressed in dB for the PSNR.   |

| $\mathbf{Sit}$   | е   | Head-aı        | nd-Neck         | Bre            | east            | Lu               | ng                |
|------------------|-----|----------------|-----------------|----------------|-----------------|------------------|-------------------|
| Test             | Ref | PSRN           | SSIM            | PSNR           | SSIM            | PSNR             | SSIM              |
|                  |     | [dB]           |                 | [dB]           |                 | [dB]             |                   |
| CBCT             | rCT | $24.6{\pm}0.8$ | $0.46{\pm}0.05$ | $25.3{\pm}1.8$ | $0.71{\pm}0.04$ | $23.7{\pm}1.4$   | $0.69 {\pm} 0.04$ |
| ODUI             | 101 | [23.1;26.1]    | [0.38; 0.52]    | [22.2;28.1]    | [0.63; 0.75]    | [22.2;26.7]      | [0.58; 0.73]      |
| sCT <sup>+</sup> | rCT | $30.5 \pm 2.2$ | $0.81{\pm}0.04$ | $29.0{\pm}2.1$ | $0.76{\pm}0.02$ | $28.5 {\pm} 1.6$ | $0.78 {\pm} 0.04$ |
| 501              | 101 | [27.0; 33.4]   | [0.75; 0.88]    | [26.0; 32.3]   | [0.72; 0.79]    | [25.6; 31.3]     | [0.72; 0.88]      |
| sCT*             | rCT | $30.6{\pm}2.2$ | $0.80{\pm}0.04$ | $28.8{\pm}2.0$ | $0.80{\pm}0.04$ | $28.4{\pm}1.4$   | $0.78 {\pm} 0.05$ |
| 501              | 101 | [27.1; 33.7]   | [0.74; 0.85]    | [25.7; 31.8]   | [0.74; 0.85]    | [26.1; 31.1]     | [0.72; 0.87]      |
| СТ               | rCT | $27.9{\pm}1.9$ | $0.86{\pm}0.04$ | $28.2{\pm}2.3$ | $0.85{\pm}0.05$ | $27.0{\pm}1.9$   | $0.77 {\pm} 0.06$ |
| 01               | 101 | [25.3; 30.5]   | [0.80; 0.92]    | [23.6;30.7]    | [0.74; 0.90]    | [23.5;29.5]      | [0.63; 0.83]      |

<sup>+</sup> sCT obtained from a single network trained on all the anatomical sites.

\* sCT obtained from three different networks trained on each anatomical site.

#### 5. Single patient overview

In the following pages are shown CBCT, CT, rCT and sCT as well as the image differences to CT, dose, dose differences and DVH for the patients in the test set for whom analysis of DVH-points reported dose

<sup>&</sup>lt;sup>1</sup>https://github.com/xhujoy/CycleGAN-tensorflow

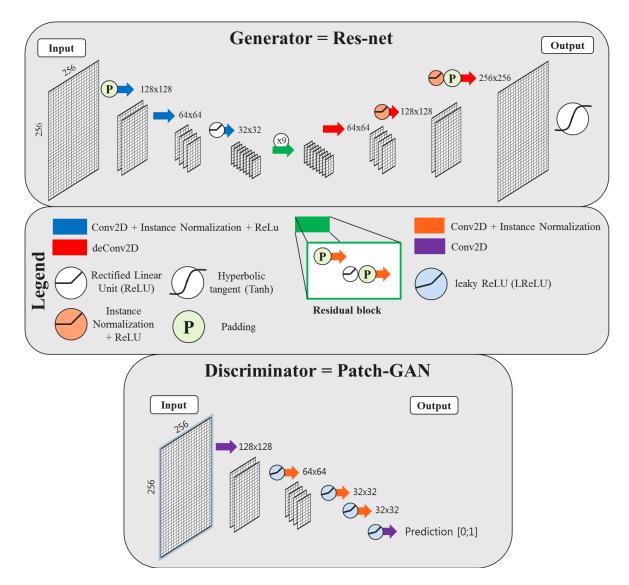


Figure S 1: Architecture of the nine-block residual network used as a generator (top) and of the convolutional network called Patch-GAN used as a discriminator. The size of the images is numerically reported, except for the residual block, where it remains stable. Note that the nine-blocks are omitted in the schematic, as well as the data-flow of the discriminator. Each of the filters had stride two, kernel size four; leaky rectilinear rectifier unit had a scalar multiplier of 0.2, padding was applied in reflect mode.

differences > 2% (L25, L27, B31). Multiple views (e.g. axial, sagittal or coronal) are presented according to which view was most representative to explain the differences reported.

Figure S2 reports images and doses for lung cancer patient L25 and and Figure S3 for L27. For both these patients, different respiratory phases can be noticed, e.g. looking at the lower border of the lungs. For L25, residual artefact characterised by inhomogeneous HUs seem to be present along the cranio-caudal direction in the lungs: it seems that, for this case, the CBCT artefacts were not fully corrected in the lungs. The image protocols were reconsidered for L25, and it was observed that this was the only patient acquired on the linac named "U10": no training data were present for lung patients from this linac. Besides, we hypothesise that data in the test may have been imbalanced compared to data in training set for what concern linacs, as it is discussed in the body of the manuscript.

For L27, one can observe that the CBCT was characterised by severe scatter artefacts probably because the patient was obese and the image protocol has not been optimised on a patient basis. In this case, bones on sCT were not entirely recovered, probably due to the low quality of CBCT.

In Figure S4 and S5, the anatomical differences due to residual set-up differences are visible for B30 and B31. Specifically, for B30, a bolus was used, and it is evident the anatomical mismatch and difference in bolus position between rCT and sCT.

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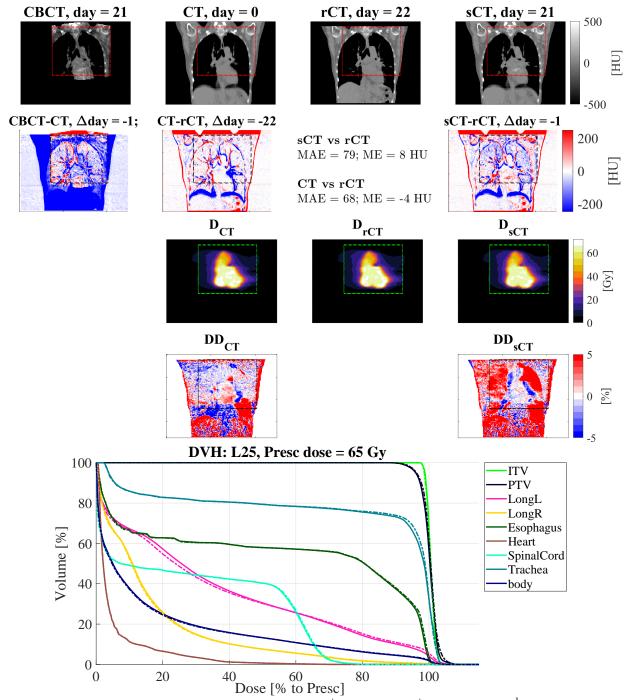


Figure S 2: Coronal views for the lung cancer patient L25 of:  $(1^{st} \text{ row}) \text{ CBCT} (1^{st} \text{ column})$ , CT  $(2^{nd} \text{ column})$ , rescan CT  $(rCT, 3^{rd} \text{ column})$  and synthetic CT  $(sCT, 4^{th} \text{ column})$ , along with  $(2^{nd} \text{ row})$  the respective difference to rCT, and the doses  $(3^{rd} \text{ row})$  and the relative dose differences  $(4^{th})$ . The red, black, or green dotted rectangles indicate the position of Mask<sub>CBCT</sub>. The days refer to the acquisition date relative of the planning CT. In the 5<sup>th</sup> row, the DVH is shown for target and OARs of sCT (solid lines) and rCT (dashed lines).

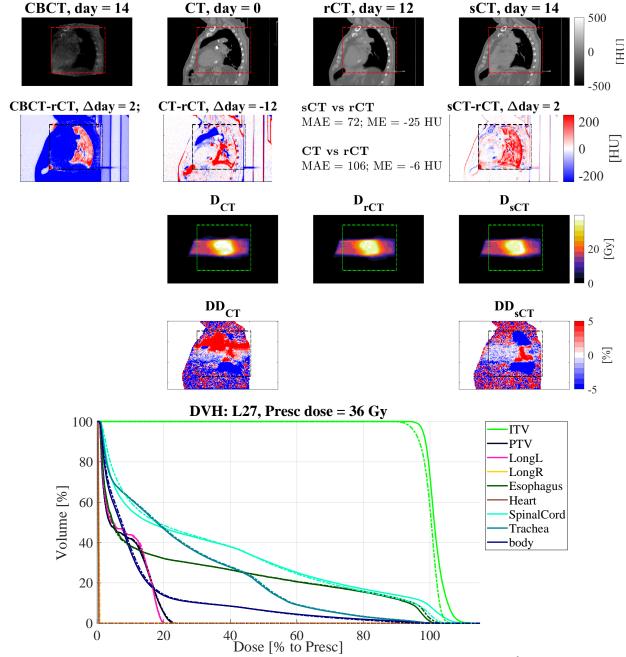


Figure S 3: Sagittal views for the lung cancer patient L27 of: (1<sup>st</sup> row) CBCT (1<sup>st</sup> column), CT (2<sup>nd</sup> column), rescan CT (rCT, 3<sup>rd</sup> column) and synthetic CT (sCT, 4<sup>th</sup> column), along with (2<sup>nd</sup> row) the respective difference to rCT, and the doses (3<sup>rd</sup> row) and the relative dose differences (4<sup>th</sup>). The red, black, or green dotted rectangles indicate the position of Mask<sub>CBCT</sub>. The days refer to the acquisition date relative of the planning CT. In the 5<sup>th</sup> row, the DVH is shown for target and OARs of sCT (solid lines) and rCT (dashed lines).

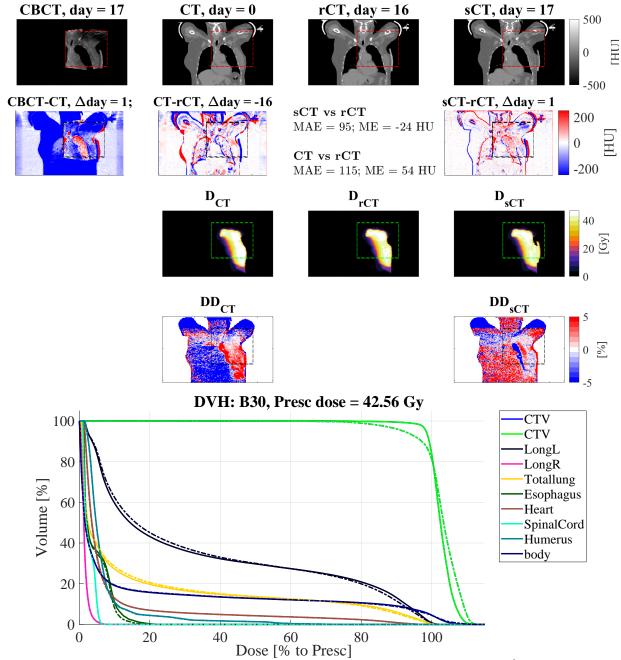


Figure S 4: Coronal views for the breast cancer patient B30 of:  $(1^{st} \text{ row}) \text{ CBCT} (1^{st} \text{ column})$ , CT  $(2^{nd} \text{ column})$ , rescan CT  $(rCT, 3^{rd} \text{ column})$  and synthetic CT  $(sCT, 4^{th} \text{ column})$ , along with  $(2^{nd} \text{ row})$  the respective difference to rCT, and the doses  $(3^{rd} \text{ row})$  and the relative dose differences  $(4^{th})$ . The red, black, or green dotted rectangles indicate the position of Mask<sub>CBCT</sub>. The days refer to the acquisition date relative of the planning CT. In the 5<sup>th</sup> rows, the DVH is shown for target and OARs of sCT (solid lines) and rCT (dashed lines).

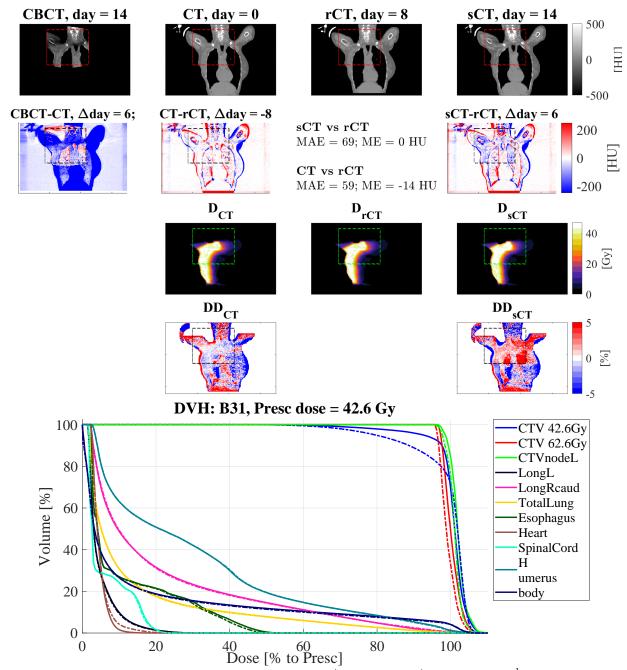


Figure S 5: Coronal views for the breast cancer patient B31 of:  $(1^{st} row)$  CBCT  $(1^{st} column)$ , CT  $(2^{nd} column)$ , rescan CT  $(rCT, 3^{rd} column)$  and synthetic CT  $(sCT, 4^{th} column)$ , along with  $(2^{nd} row)$  the respective difference to rCT, and the doses  $(3^{rd} row)$  and the relative dose differences  $(4^{th})$ . The red, black, or green dotted rectangles indicate the position of Mask<sub>CBCT</sub>. The days refer to the acquisition date relative of the planning CT. In the 5<sup>th</sup> rows, the DVH is shown for target and OARs of sCT (solid lines) and rCT (dashed lines).