AREN 1921 WHOLE LUNG IMRT Contouring Steps

1). Contour Right and Left lungs on the Planning scan (Left side of atlas)

2). Co-register MinIP simulation lung scan to the Planning scan (Right side of atlas)

3). On the Planning scan expand Rt and Lt Lung volumes to Rt and Lt Lung CTV based on maximum lung expansion in MinIP scan. Changes mainly inferiorly near diaphragm. If MinIP Scan lung volumes are smaller than reference scans DO NOT REDUCE planning scan lung volumes while deriving CTVs.

4). Combine Rt and Lt CTV with zero margin to obtain Combined Lung CTV

5). Expand Combined Lung CTV to by 1cm to obtain Combined lung PTV

6). Modify Combined Lung PTV to obtain Lung PTV following regions:

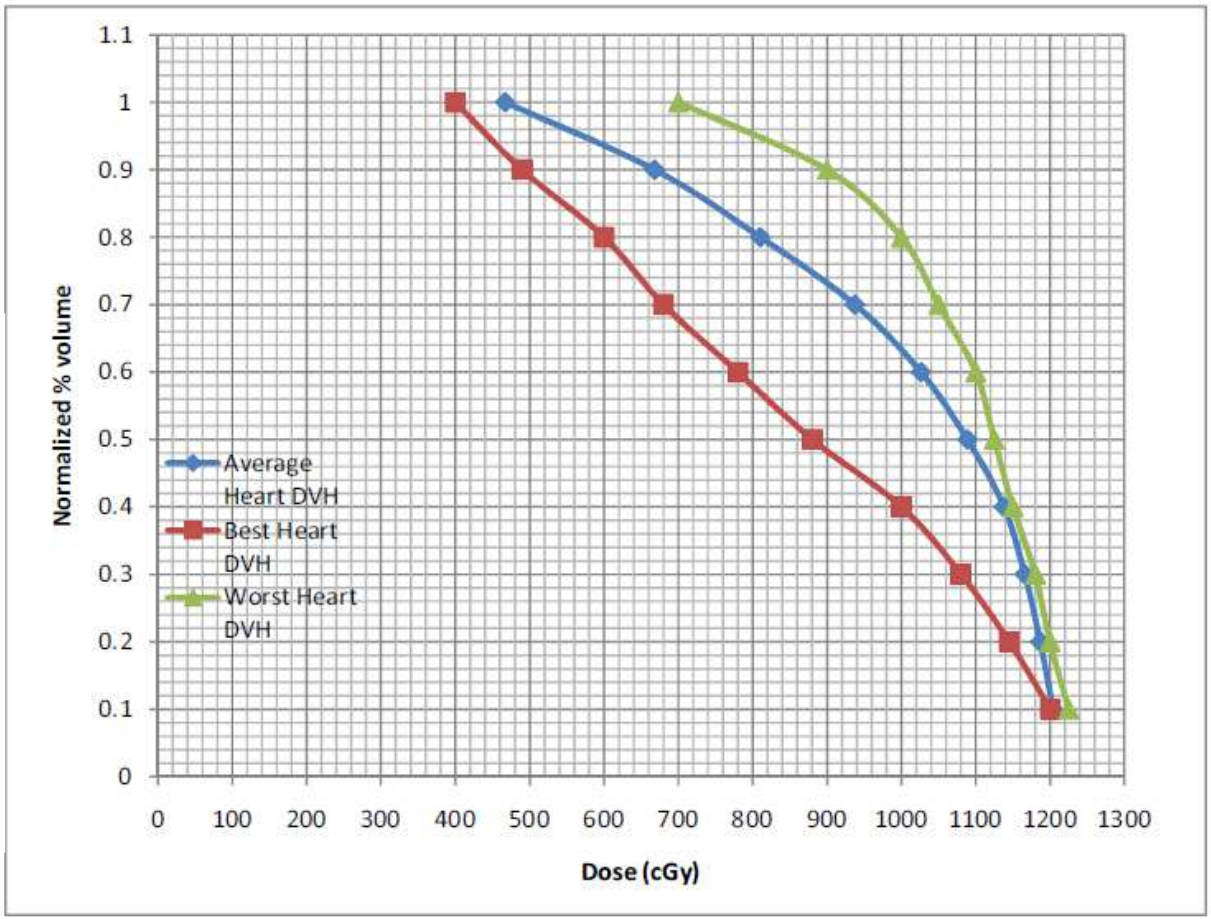
A). Around breast buds in girls and thyroid with 5 mm expansion Margin instead of 1cm
B). Sternum and Mediastinum to include lymph nodes up to 2cm below carina,
C). Include vertebral body except in older children and adults
D). Prevertebral space: at least 1cm margin anterior to vertebra beginning from 2cm below carina to inferior extent of the volume

7). **For Heart volume merge all 4 cardiac chambers drawn as instructed on case examples and fill in the gaps to get a smooth Cardiac contour**

Heart DVH for a prescription of 12Gy

Use the below guidelines as a starting point for planning purposes.

Heart norm.% vol	Average	Best	Least
	dose in cGy		
1	467	400	700
0.9	668	490	900
0.8	810	600	1000
0.7	938	680	1050
0.6	1026	780	1100
0.5	1089	880	1125
0.4	1138	1000	1150
0.3	1166	1080	1180
0.2	1187	1145	1200
0.1	1204	1200	1225



Other RT suggestions

- For simulation and treatment it would be advisable for patients to come on an empty stomach to avoid abdominal distension and minimize nausea following treatment
- Recommend positioning patient with arms up (to avoid radiation exposure), neck rest with chin up, standard immobilization techniques for arms and legs during simulation, place marker on breasts to identify breast buds in young children
- Refer to cardiac doses and DVHs for planning guidelines provided in adult patient guidelines
- Before CBCT, do a kV radiograph to ascertain patient positioning to avoid large shifts after CBCT fusion
- Use daily cone beam CT with six degree of freedom correction daily during treatment delivery
- Please keep in mind the total dose to lungs (12Gy) and Dose to flank/WA 10.5Gy
- Final lung fraction of 1.5Gy to exclude field matching volume of flank or WA
- Use 4DCT to derive MinIP for contouring lung (mediastinum, pleural and costo-diaphragmatic recesses)
- Use 4DCT to derive MaxIP for contouring diaphragm extension for WA