Thanks to Dosimetry and Physics Group at Renown
The Language of planning

Qualifier – Renown Equipment
Your equipment
Question 1: In treatment Planning, when does the conversation actually Start?

Question 2: How much difference does what I say really make?
Question 3: What did we do to Evaluate?

Question 3: How did we evaluate? Let’s start with question 3.
Baseline

- Existing Patient
- Existing Optimization Criteria
- Utilized Non-Adjusted Optimization Parameters
- Allowed Plan to Run Through Optimization Undisturbed
- Normalized, then Evaluated Same plan 10 times
Question 1: In treatment Planning, when does the conversation actually Start?

Question 2: How much difference does what I say really make?
Let’s Backtrack to the beginning, play and find out

Software Version
Software Version
Recent Software update
Treatment Machine Choice
(Leaf Width)
Energy Selection

6x Max Dose 126.7
18x Max Dose 107.1
Total Difference for Bladder and Rectum, Leaf Width and Energy
Total Difference for Bladder and Rectum, Leaf Width and Energy

Planning Algorithm
Planning Algorithm
AAA – 3D Pencil Beam
Acuros – Simplified Monte Carlo
Grid Spacing
Acuros, 2.5mm Grid vs 1.5mm Grid
Acruos, 2.5mm Grid
vs 1.5mm Grid – 1mm Grid Unavailable

Combined Effect
Combined Effect
Worst case to Best

Combined Effect
Worst case to Best
(SO FAR!!!)
Let’s Keep Going

Field Size
15cm X setting
No Jaw Restriction

Jaw Restriction

Collimator Angle
Coll Angle 15 Degrees

Coll Angle 30 Degrees
Coll Angle 45 Degrees

Coll Angle 60 Degrees
Additional Factors

Isocenter Position
10cm Shift
Jaw Tracking
On vs Off

Note of Interest:
Note of Interest:
We haven’t actually even started running our plan yet!

Optimization – The ‘Real’ Conversation
Optimization – 4 types

1) Minimal Constraint
Optimization – 4 types
1) Minimal Constraint
2) Brute Force
Optimization – 4 types
1) Minimal Constraint
2) Brute Force
3) Single Pixel Ownership
Structure List Brute Force
Prostate Overlaps
- Bladder
- Rectum
- PTV

Structure List Single Pixel
Prostate Single Owner
- Bladder
- Bladder in PTV
- Bladder – PTV
- Rectum in PTV
- Rectum – PTV
- PTV
- PTV - Bladder

Structure List Brute Force
H+N Overlaps
- Parotid Rt
- Parotid Lt
- Oral Cavity
- Mandible
- Larynx
- Esophagus
- Sub Mandib Rt
- Submandib Lt
- PTV
Structure List Brute Force
H+N Overlaps
- Parotid Rt (3 structures)
- Parotid Lt (3)
- Oral Cavity (3)
- Mandible (3)
- Larynx (3)
- Esophagus (3)
- Sub Mandib Rt (3)
- Submandib Lt (3)
- PTV (2)

9 Structures Become 26 Structures

3) Bladder
3) Rectum
Optimization – 4 types
1) Minimal Constraint
2) Brute Force
3) Single Pixel Ownership
4) Modified Single Pixel
Normalization vs Optimization