Defining Constraints

About Constraints

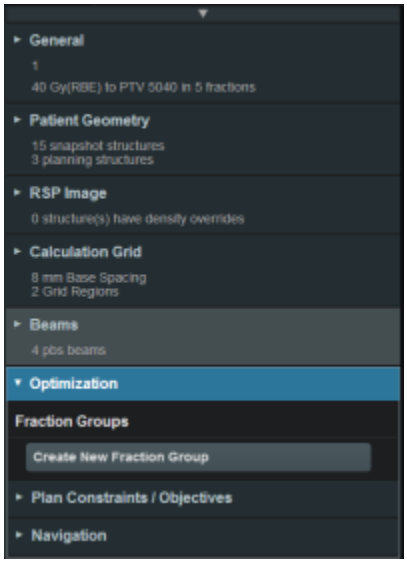
Constraints can be set in multiple levels (*Fraction Group, Beam Set Group, Plan* and they will function differently in each level. *Constraints* applied at the *Fraction Group* level apply to all the beams as a whole regardless of the number of *Beam Sets*. Constraints applied at the *Beam Set* level apply to that group of beams. The *Constraint* dose is divided by the beams in the *Beam Set*. The following will provide a walk through of the different levels and how constraints work at each one. *Constraints* applied at the *Plan* level are considered “hard constraints”- constraints that have to be achieved.

Working with Constraints

Working with Fraction Group Constraints

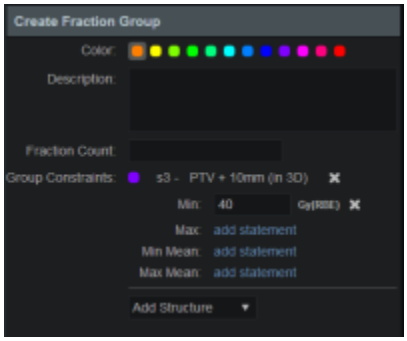
The *Constraints* applied at the *Fraction Group* level take into account everything in the *Fraction Group* and *Beam Sets*

1. Select the *Fraction Group* if it has been created or create a new *Fraction Group*



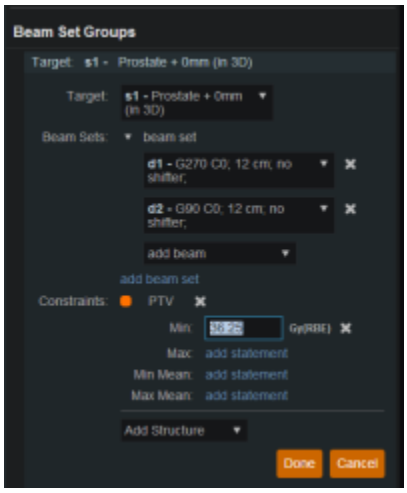
2. Choose from the drop down the structure or structures that should be considered in the *Fraction Group*

3. Define what constraint(s) should be applied to each structure by choosing the constraint and entering the Gy



- Min- The minimum dose the structure should receive
- Max- The maximum dose the structure should receive
- Min Mean-the minimum mean dose a structure should receive
- Max Mean- the maximum mean dose a structure should receive
- the user can choose to apply one of these constraints or multiple constraints to the structure

4. Once the constraints are set in the *Fraction Group* the user will assign constraints in the *Beam Sets* associated to the *Fraction Group*. The assigned dose will be divided between the beams in the *Beam Set*



- Each individual *Beam Set* group can have constraints.
- The constraints only apply to the *Beam Set* group that they are associated with
- As before the user can apply more than one *Constraint* to a *Beam Set*
- Min- The minimum dose the structure should receive
- Max- The maximum dose the structure should receive
- Min Mean-the minimum mean dose a structure should receive
- Max Mean- the maximum mean dose a structure should receive

Working with Plan Constraints

The *Constraints* applied at the *Plan* level apply to the plan as a whole. These constraints are what drive the feasibility calculation- whether the plan is achievable. The calculation engine considers these Constraints as “hard constraints” that have to be achieved

1. Open the Constraints block contained in the Plan Constraints/Objectives block
2. Choose the structures to apply constraints to

3. Choose the constraints to apply to the structure and the Gy that needs to be achieved

- Min- The minimum dose the structure will receive
- Max- The maximum dose the structure will receive
- Min Mean-the minimum mean dose a structure will receive
  - this will drive the dose up across the structure
- Max Mean- the maximum mean dose a structure will receive
  - this will limit the mean dose across the structure

Once all the Constraints have been set the user can either start the Feasibility or move on to defining the Objectives

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