## **Adaptive Planning**

Adaptive Planning is another powerful tool within Astroid that enables users to quickly recompute the dose to a patient for an existing plan when a new CT image set has been obtained. This tool applies an existing plan to the new images and structure volumes (i.e. the plan is not re-optimized) so that the dose is recomputed using the HU data from the new CT images. Users will be able to quickly assess the impact of changes in the patient (e.g. the patient losing/gaining weight) or tumor volume (e.g. tumor shrinkage) on the dose delivered to the patient. The Adaptive Planning tool provides a dual DVH view so that changes to tumor coverage and/or OAR dose can be easily seen and compared. With this information, the clinical team can make accurate decisions regarding when to continue treating with the current plan and when a replan is required. The following steps describe the use of the Adaptive Planning feature:

- 1. Upload the new CT image and Structure Set files for the patient
- 2. From the Imports Block, choose the new CT image set and click the blue *Import into Matching Patient* button
- 3. Select the appropriate HU to RSP curve
- 4. Select the new Structure Set file then assign your structures as needed to ensure they match the existing Patient Model

▼ Import Selection	
Curve Selection	
HU to RSP Curve*: ctedproton; 120 kVp; FOV [0, 1000]	
Import Structure Set	_
Structure Set: Date: 2013-01-18	
Course Selection	
Course: course_2018-Sep-24 (Importing Here)	
Description: none Physician: Treatment Site: MGH_Prostate_Protocol Prescriptions: 2	
Patient Model: patient_model_2018-09-24	
Created: 2011-03-10 Position: HFS	
Patient Model: patient_model_2018-10-01	
Created: 2011-03-10 Position: HFS	
▼ Import Structures	
Treatment Site: MGH_Prostate_Protocol	
Patient Structure: skin	
Variant Label: variant_1_2018-10-02	
<ul> <li>Matched / Assigned (8)</li> </ul>	
► 🗙 Bladder	Importing new structure
► 🗙 skin (BODY)	Importing new structure
<ul> <li>Femur_L (Lt femoral head)</li> </ul>	Importing new structure
PenileBulb (Penile_bulb)	Importing new structure
<ul> <li>PTV_5040 (prostate_bed)</li> </ul>	Importing new structure
▼ ▼ PTV_7920 (PTV_68)	Importing new structure
Assign Site Structure: PTV_7920	<b>T</b>
► 🗙 Rectum	Importing new structure
<ul> <li>Femur_R (Rt femoral head)</li> </ul>	Importing new structure
<ul> <li>Not Matched (custom) (5)</li> </ul>	
► 🕱 BODY - PTV68	Importing new structure
► 🗙 Lymph Nodes	Importing new structure
► X POST_RECTUM	Importing new structure
► × PTV56 - PTV68	Importing new structure
PTV_56 (course)	Importing new structure
Archive DICOM on import	
	Import Cancel
	inport contool

- 5. Click the orange Import button
- 6. Once import is complete open the patient
- 7. Choose the new patient model and then open the Adaptive Planning Block

8. From the drop down list, select the treatment plan that should be used for the computation (Note: only Published plans are available for selection)

astroid	planning »	TG244 Prostate	_Bed [002441]	» patient_	model_201
		•			
CT Image Se DICOM file 90 slices DICOM Inf	t				
Structure	85				
View structures in the patient model.					
▼ Adaptive Planning					
Plan:					
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	four field				

- 9. The selected plan parameters will be used to compute the dose that would be delivered on this updated Patient Model (Note: the isocenter will be place in the same coordinate location as it was on the original image set)
- 10. Once the calculation is complete the dose on the new data set will be displayed along with a dual DVH that shows the original and new DVH values
- 11. A decision to treat or replan can now be made with all the necessary data in hand to accurately assess the quality of the existing plan based on the changes to the patient and/or tumor volume
- 12. If a decision to replan is made, the Plan Template feature can be used to quickly reoptimize the current plan based on the new images and structures

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