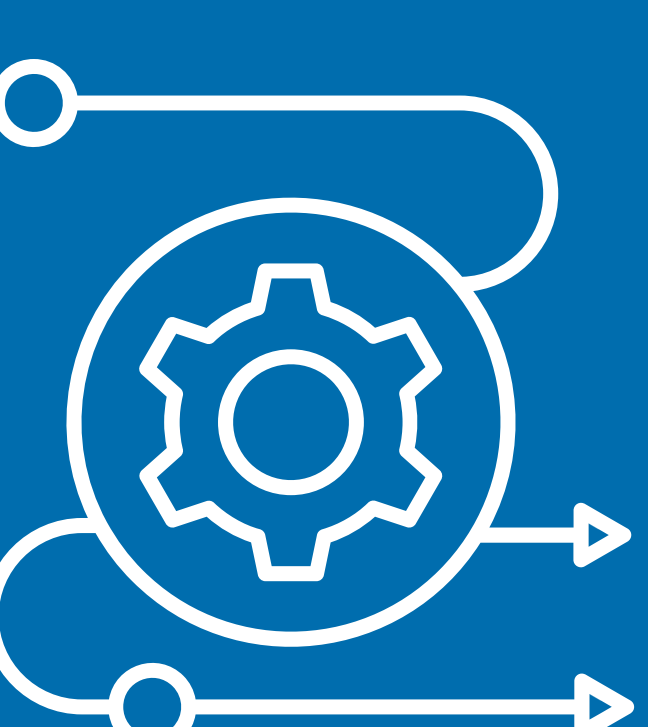




ESTRO-EANO recently recommended 18F-FET PET as an additional tool to assist in glioblastoma target delineation (1)



Does the 18F-FET PET scan timing change the glioblastoma clinical target volume or plan?



Eight patients had two 18F-FET PET scans prior to starting radiation therapy (RT). These were used to create two novel target volume sets using Varian Eclipse and the Orbit - RT rapid plan model. The new volumes and plans were compared with each other and the originals

using ProKnow DS and Golden Rule.

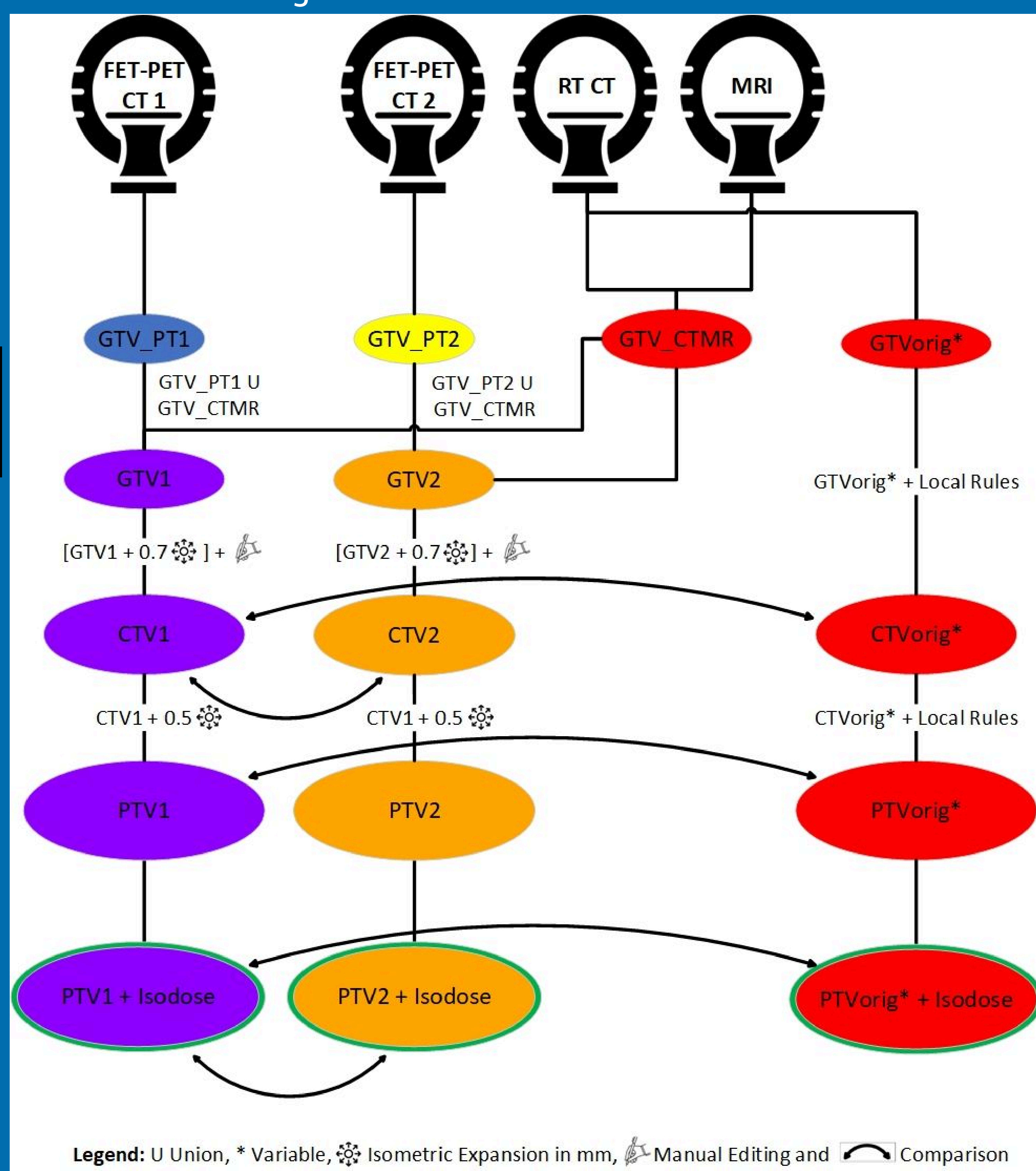


Figure 1: An overview of the target outlining process and volume comparison



The median Dice score for the CTV1/CTV2 was 0.98 and, of the voxels that differ (median 6.5 cc), 99.7% were covered with a 5 mm expansion. Overall organs at risk (OAR) and target dosimetry were similar in the PTV1 and PTV2 plans.

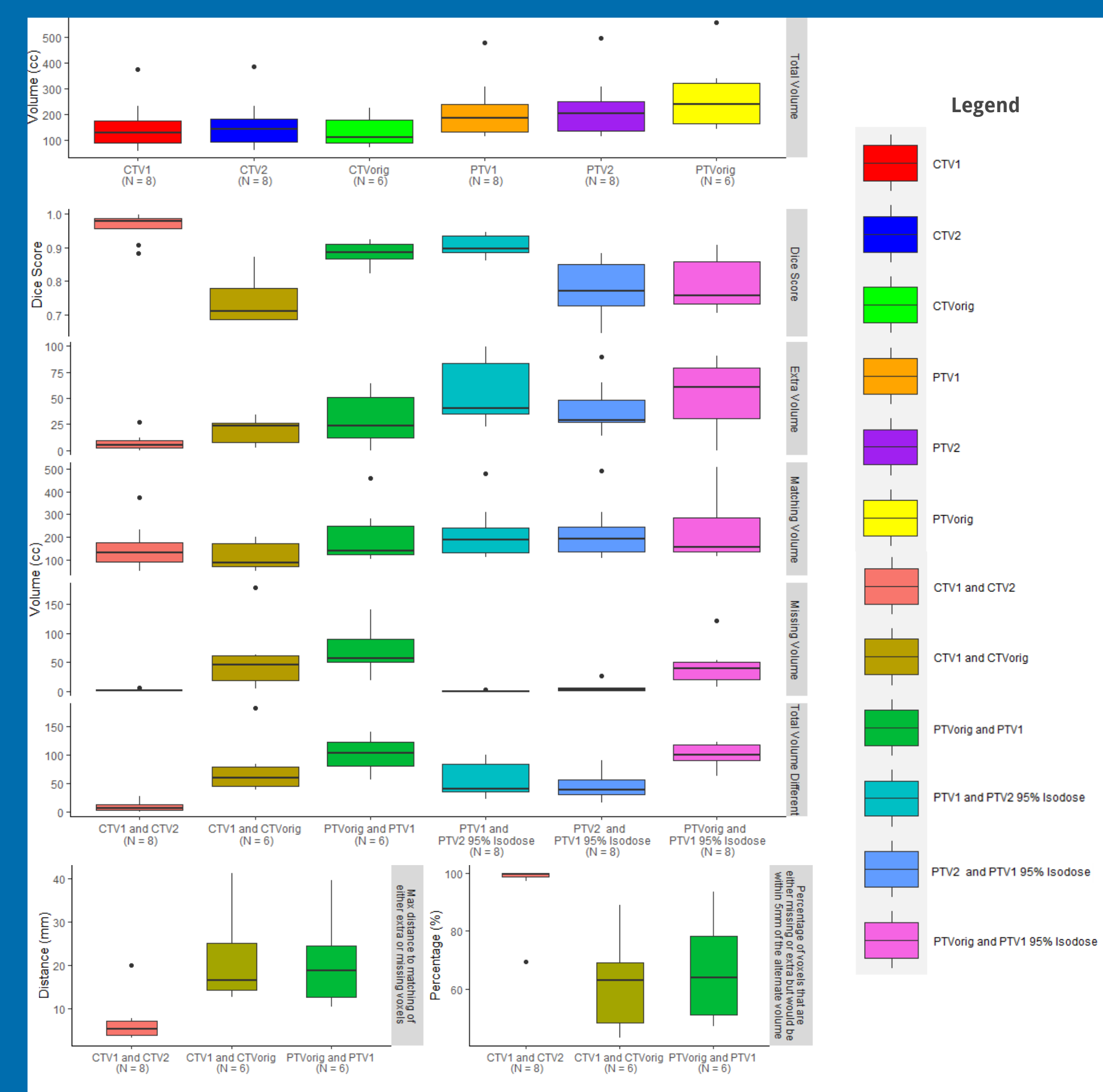


Figure 2: The quantitative comparisons of target and dosimetry volumes



Figure 3: Target and organ at risk dosimetry metrics for PTV1 and PTV2 plans



ProKnow DS along with Golden Rule enables flexible, efficient and effective RT plan batch analyses. Volume and dosimetric analyses included using the alternate plans 95% isodose as a structure for volume comparison. Future work may consider a Delphi and a prospective study to inform clinical FET-PET-aided RT planing guidelines.



Provided the 18F-FET PET scan is acquired within two weeks of the RT planning and a comprehensive approach is taken to CTV delineation, the timing of scan acquisition has minimal impact on the resulting RT plan.

1) Niyazi M, Andratschke N, Bendszus M, Chalmers AJ, Erridge SC, Galldiks N, et al. ESTRO-EANO guideline on target delineation and

