The dosimetric difference between current and newer radiotherapy techniques have not been fully explored. Techniques are compared for a population but do not account for patient variations and planning difficulty. Overlap volume histograms (OVHs) can be used to normalize plan difficulty between sites and remove the influence of structure proximity.

### Purpose/Objectives

- Database of 53 previously treated pancreas SBRT patients
- Three institutions
- Dose and structure information for
  - 6 VMAT plans
  - 25 IMRT plans
- Dose volume histograms (DVHs) and OVHs are generated for each structure for each patient
- An OVH (Figure 1) describes the relationship between structures in the patient by plotting the Planning Target Volume (PTV) expansion distance required to overlap a percentage of the Organ at Risk (OAR) volume

### Materials/Methods

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### Results

Table 1 shows the average dose and distance for the protocol objectives. Figure 3 shows the trending of VMAT and IMRT doses for the duodenum and kidney objectives. VMAT plans show a trend toward lower duodenal doses with increasing distance to overlap. VMAT plans show significantly reduced dose to duodenum and kidney with no significant difference in overlap distance. No significant difference in cord dose, though the cord was significantly closer in VMAT plans.

### Conclusions

- VMAT planning may reduce critical structure doses for SBRT patients
- OAR doses trended lower with increased distance
- The use of OVHs allows for trends in plan quality to be assessed independently of plan difficulty

### Acknowledgements

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