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## Evaluation of clinician contouring for pancreatic Stereotactic Ablative Radiotherapy during a RCR contouring workshop

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Variation in clinician contouring is well recognised and several objective metrics may be used to compare contours[1, 2]. Methods to minimise variation include trial protocols, atlases, peer review, autocontours and teaching[3-5]. Incorrect delineation is associated with inferior survival in clinical trials[6].

We evaluated the impact of teaching on contouring variation during a pancreatic stereotactic ablative radiotherapy (SABR) workshop at RCR19. Participants produced gross tumour volume (GTV), duodenum and stomach contours in AQUILAB (AQUILAB, France) for the same case pre-workshop, during the workshop after teaching and post-workshop. The workshop organisers produced a reference dataset. Only 7 participants could be reliably identified as having produced paired pre and during workshop contours. Of these, only 3 produced post-workshop contours.

Paired contouring DICOM data from AQUILAB was exported into MICE Toolkit (NONPI Medical, Sweden). Contours were compared with the reference dataset for structure volume, minimum distance between contours (Hausdorff distance) and overlap (DICE similarity coefficient). Extent of variation was evaluated using Wilcoxon signed ranks test in SPSS (IBM, USA).

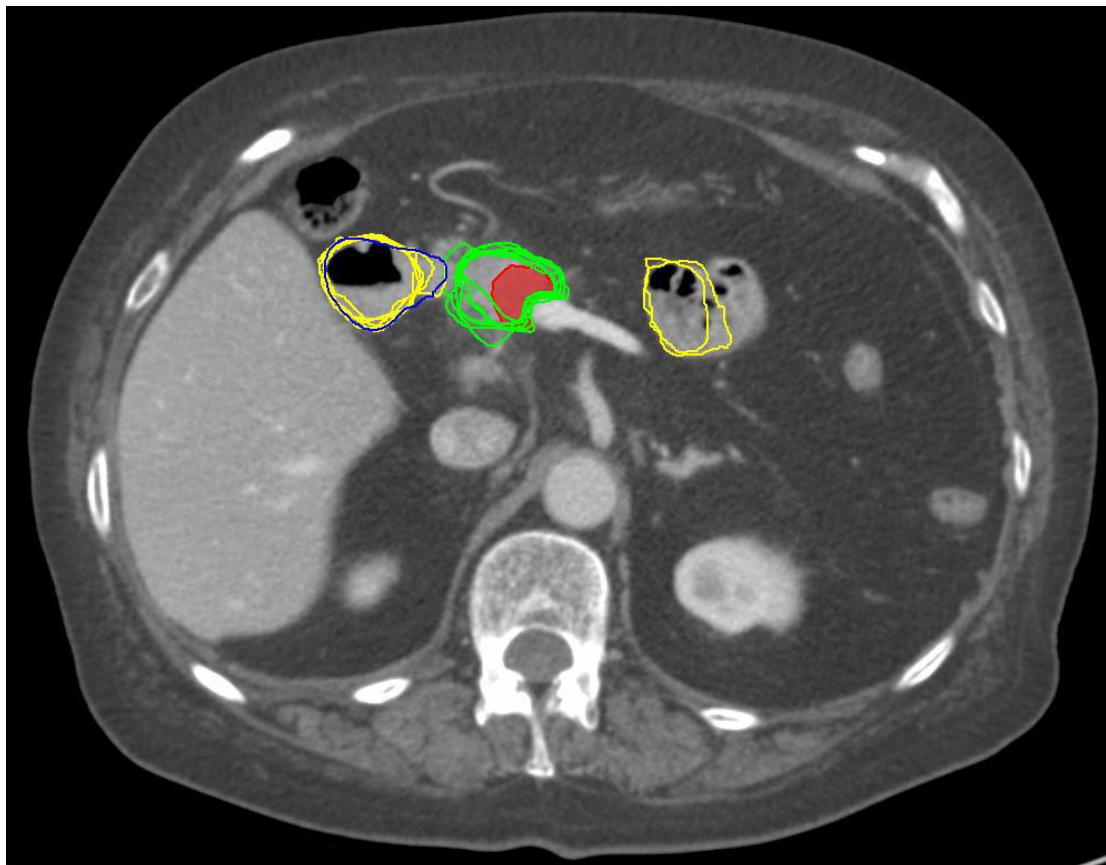
Modest improvements in contouring after teaching were observed but these were not statistically significant and were not maintained post workshop. Considerable variation remained, especially concerning GTV (only visible on two 6 mm CT slices). Median Hausdorff distance between GTV and duodenum for all participants both pre and during the workshop was 6 mm, compared with 12 mm for the reference dataset (see Figure). Such discrepancies might potentially impact patient outcomes.

We have several recommendations for future workshops:

1. Reviewable diagnostic imaging
2. Minimum CT slice thickness of 3 mm
3. Clearer identification of paired participant contours
4. Greater encouragement to complete post-workshop contours, perhaps by provision of individual feedback, to permit evaluation of maintenance of competencies
5. Trial of qualitative feedback on performance instead of quantitative metrics-workshops could mirror peer review process used in clinical practice[3]

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**Figure:** Axial simulation CT image showing reference GTV (red) and duodenum (blue) and pre-workshop participant contours for GTV (green) and duodenum (yellow). A shorter GTV to duodenum distance was seen for participant contours than the reference contour

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