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Purpose/Objective(s): VA STARPORT is a phase 2/3 trial comparing systemic therapy +/- PET-directed, metastasis directed radiation therapy (RT) for oligo recurrent prostate cancer enrolling at 16 sites. RT options include SBRT to metastases only or elective nodal RT with a simultaneous integrated boost (ENRT+SIB). We hypothesized that benchmark credentialing exercise results that were shared across study sites would enhance protocol understanding, increase compliance, and identify opportunities to improve the study protocol.

Materials/Methods: A hypothetical benchmark patient scenario was created including prior definitive prostate RT with recurrences in a right obturator node, right external iliac node, and right iliac bone. OARs, target structures, and prior RT dosimetry were created on an open-source CT dataset. The benchmark exercise included: Phase 1: Each site described their preferred protocol treatment approach (SBRT or ENRT+SIB) and RT details (dose, fractions, PTV margins, and method to address prior RT). Phase 2: Each site performed 2 standardized treatment planning exercises on the dataset (SBRT vs. ENRT+SIB). Compliance worksheets summarized and assessed dose metrics, target coverage, and conformality. Plan DICOM files, worksheets, and IMRT QA were submitted for central RT quality assurance (RTQA). Phase 3: SBRT and ENRT + SIB plans were scored by the study RTQA team using a numerical plan scoring system. Scorecards and lessons learned were discussed with local investigators and further communicated to all study sites.

Results: Site survey results (n=16) revealed 8 preferred ENRT+SIB. Only 4 ENRT+SIB prescriptions were per-protocol, and there was PTV margin non-compliance in an intended SBRT plan. Benchmark lessons learned are summarized in the Table.

Conclusion: A practical and useful benchmark exercise successfully assessed protocol compliance, revealed key lessons, and identified ways to improve the protocol's RT section and RTQA process. Teaching points and learned planning strategies were shared across study sites and have a potential to improve metastasis-directed RT planning for both trial and non-trial patients at each facility.

Abstract 276 — Table 1

Benchmark	Lesson Learned
SBRT	Evaluate dose spillage & conformality metrics for multi target plans
	Attempt full PTV coverage first, even if there is an adjacent OAR
	Avoid strict limitations on dose maximum inside the GTV
	Follow TG-218 for IMRT/VMAT QA
	Add sections accounting for prior RT and simultaneous treatments to the planning directive
	Note that some planning systems overestimate PTV V100% for targets <10cc
ENRT+SIB	Implement pre-treatment peer review when treating adjacent to prior RT
	Control intermediate dose spillage during planning
	Use automated scoring systems for efficient review of new submissions
	Pay attention to dose spillage into OARS, even when constraints are met
	Clarify the protocol section on CTV generation

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Evaluating Accuracy, Completion Time and Usability of Everyday Touch Devices for Contouring

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Purpose/Objective(s): Adaptive radiation therapy aims to account for patients' continuous anatomical changes and update the treatment plans on a daily basis. Despite the potential benefits, technological limitations hinder clinical adoption: daily re-evaluation of contours associated with adaptive planning is time-intensive and difficult to access, and often requires direct provider input which classically involves visualizing and editing contours on immobile desktop computers. This project evaluated the efficacy of everyday touch devices (i.e., tablet and phone) for contouring using a novel cross-platform interface.

Materials/Methods: Guided by user-centered and iterative design principles, we developed a cross-platform web-based contouring application which facilitates CT image navigation and target delineation. In a within-subject study design, we invited 8 radiation oncology residents to contour a liver using 4 different conditions: Desktop & Mouse, Tablet & Stylus, Tablet & Finger, and Phone & Finger. We compared the time spent contouring and assessed accuracy with Dice Similarity Coefficients (DSC). With each interface we administered a System Usability Scale (SUS) questionnaire which evaluates perceived ease of use. We incorporated repeated-measure ANOVA to assess differences between groups.

Results: Among the participants, using a Tablet & Finger and Phone & Finger produced the shortest time spent contouring per CT slice ($p < .001$), while Desktop & Mouse led to the longest time per slice (see Table). When comparing participant contours to a baseline gold standard, results were similar between all devices, though the Desktop & Mouse yielded a slightly lower contouring accuracy, and the most accurate was the Tablet & Stylus ($p < .0001$). Usability assessment after contouring found that participants scored Tablet & Stylus the highest, followed by Tablet & Finger, Desktop & Mouse, and Phone & Finger ($p < .01$).

Conclusion: Everyday touch devices (i.e., tablet and phone) not only met the standard contouring efficiency with a Desktop & Mouse, but also exceeded expectations in terms of both time spent and accuracy, especially contouring with a Tablet & Stylus which also received significantly better usability scores. Given the improved mobility with touch devices, these results suggest promising implications in addressing technological challenges associated with adaptive radiation therapy.

Abstract 277 — Table 1

	Desktop & Mouse	Tablet & Stylus	Tablet & Finger	Phone & Finger	p-value
Time spent contouring each CT slice (seconds)	26.8	21.5	19.2	18.6	<0.001
Accuracy (DSC)	0.916	0.923	0.922	0.917	<0.0001
Usability (SUS)	56.9	73.1	68.4	54.1	<0.01

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Withdrawn