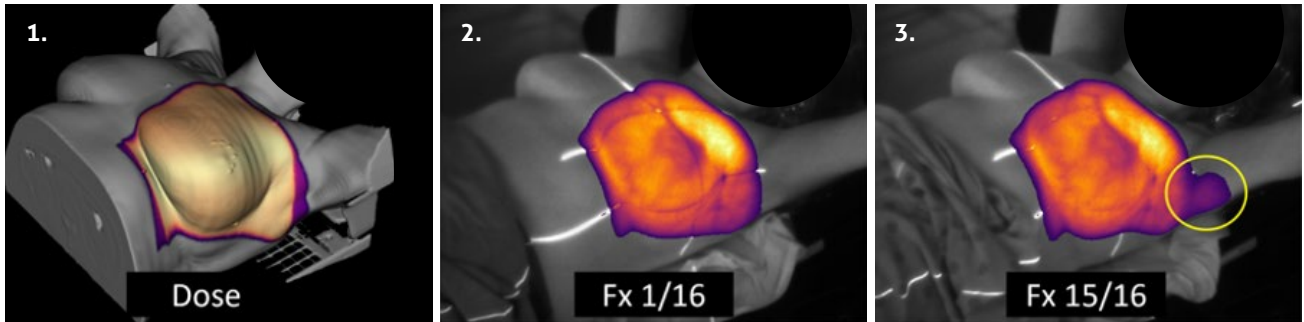


# Unintended radiation dose to the arm identified by Cherenkov Imaging. <sup>1</sup>



1. The planned surface dose from Eclipse® TPS overlaid on the patient CT.
2. Cumulative Cherenkov image from treatment day one with treatment delivery matching the planned surface dose.
3. Cumulative image from fraction 15 identifying unintended dose (circled) to left arm axilla.

**PATIENT:** A patient was receiving standard whole breast radiotherapy (16 Fx) with a following boost (4 Fx) to the left side delivered with free breathing.

**SUMMARY:** During Fx 15/16, it was found that excess dose was delivered outside the planned treatment area, to the left axilla from the RAO fields (6MV and 10MV). This was attributed to non-ideal positioning of the patient's left arm that day.

**DISCUSSION:** This patient was treated to her left breast for 16 fractions of 266 cGy each. The plan consisted of four fields: RAO 6MV, RAO 10MV, LPO 6MV, LPO 10MV. During fraction 15 of 16, it was found on post-treatment review of images that the superior field edge intersected the armpit on the exit side of both the RAO 6MV and RAO 10MV fields. It is hypothesized that a slight change in the left arm placement led to this extraneous exposure. AlignRT was used to monitor this case, but the arm placement was outside of the surface ROI used for tracking.

**KEY LEARNINGS:** Small changes in alignment from day to day can significantly impact the treated area. The offset from plan can be significant with tangent (oblique) fields.