



RO-ILS Medical Physicist 2023 Great Catch

One of the primary responsibilities of a medical physicist is to perform quality assurance, a task designed to check for errors. When physicists have the time and are given the necessary resources, they can identify errors that may have otherwise been overlooked.

The following RO-ILS great catch event commends a physicist who went above and beyond and identified missing nodal contours.

- A patient with head and neck cancer had a PET scan, and the images were fused with their CT-simulation image data set in preparation for radiation treatment planning.
- While reviewing the plan, the medical physicist noticed that the gross tumor volume/clinical target volume contours did not include some of the nodes visible on the fused PET scan.
- The physicist pulled the PET scan report from the patient's electronic health record in which the radiologist reported those nodes as positive.
- The physicist alerted the radiation oncologist of the discrepancy, and the physician revised the contours to include these nodes.

GREAT CATCH PHYSICS!

This near miss highlights some important takeaways:

1. In an ideal practice setting, a physics plan review should include high-level verification of contours in the treatment planning system (TPS) evaluating all imaging studies used to generate the plan. However, with common workload and time pressures, this may not always be realistic. Therefore, careful consideration needs to be given to the timelines allocated to the tasks within the process of care.
2. A physicist's access to and training on software systems, if different from the oncology information system, can provide relevant information regarding a patient's plan, as was the case in this event.
3. An established safety culture empowered the physicist to speak up about the contouring discrepancy. A facility's culture must encourage employees to voice concerns and have the necessary training and resources to perform their work.
4. While there was no specific information about peer review provided by the practice related to this specific event, peer review, such as prospective segmentation rounds, can serve as an additional safety barrier to catch contouring errors.

SAFETY CHECK

In practice settings where the plan is documented in a file containing 2D screen captures of contours and dose distributions, do physicists open the primary TPS to review the plan as part of their plan review? Do physicists feel they have adequate time to complete a thorough second chart check?

On November 7 RO-ILS celebrates the International Day of Medical Physics and acknowledges the vital role of physicists in patient safety. In 2022, RO-ILS shared [an event](#) where a medical physicist reviewing a 4-D CT scan identified incorrect contours that occurred upstream in the planning process. Poor contours were again highlighted in this year's great catch to showcase that having multiple eyes review the same information (e.g., contours) is helpful in identifying discrepancies.

Medical physicists play an integral role in patient care and are leaders in incident learning. The American Association of Physicists in Medicine (AAPM) partnered with the American Society for Radiation Oncology in 2014 to develop RO-ILS and has co-sponsored the program for nearly a decade. Together, the sponsors and supporters enable U.S.-based practices to participate in the RO-ILS program for free, allowing shared learning and quality improvement. RO-ILS thanks AAPM for their generous contribution to RO-ILS and the field.