

Reporting and Analysis of Improvement Efforts to Research Tumor Measurements Time to Result

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1. Background

Tumor measurements, including Research Evaluation Criteria in Solid Tumors (RECIST), Cheson, and Lugano criteria, are utilized to assess disease burden over the course of participation in a clinical trial. Utilizing trained, impartial radiologists to perform these measurements allows research teams to evaluate disease progression, stability, or response to treatment consistently over time. It is crucial to patient care that research reads are available prior to provider visits, however, groups not directly part of the research team may be unaware of deadlines and upcoming visits for patients. Reliance on radiologists created delays in receiving results and impacted the ability of researchers to provide timely treatment and create documentation for research.

2. Goals

The Clinical Research Management (CRM) group at Oregon Health & Science University set specific expectations for the time-to-result for radiological assessments of disease: three calendar days for urgent reads and five calendar days for non-urgent. While anecdotal evidence of read resulting times was readily available from research teams, it was critical to find and review data to confirm and assess trends. Improving turnaround time for results and read quality allows research teams to provide timelier and better-informed care to the patients participating in therapeutic interventional clinical trials.

3. Solutions and Methods

In December of 2022, an analysis of throughput and time-to-result was undertaken to assess and understand workload for radiology. Data were pulled from the Electronic Health Record including read type, date of order submission and completion, date of scan, ordering provider and reading provider. This allowed for analysis across disease programs and reading providers to assess for differences in workflow and identification of successful approaches. After review by CRM, collaborative and data sharing meetings were undertaken with radiology leadership to review challenges, issues, and results seen in the data. In July 2023, the radiology department developed a centralized and selective group of radiologists (“reading core”) to perform research reads with clear performance expectations for those participating. Additional data were abstracted in October 2023 to review pre- and post-reading core results.

4. Outcomes

This project saw significant improvements in turnaround time for research tumor measurements. Non-urgent reads average turnaround time decreased by 1.1 days and urgent reads were delivered, on average, 2.5 days faster than during the prior period. In January - June of 2023 the median for overall turnaround time was 3.5 days from scan or order completion (whichever was later) to result finalization. For the period between July and October 2023, when the reading core was implemented, the median turnaround time decreased to one day. These changes also took into account overall throughput across the period to ensure changes in turnaround were not attributable to lower workloads. Work Instructions for ordering and reviewing research tumor assessments were updated to reflect necessary changes and remove duplicate workflows and communication between disease teams and radiology.

5. Lessons Learned and Future Directions

Analysis of available data allowed for careful review of root causes, successful workflows, and identification of process improvements across the CRM and radiology departments. Data will be reviewed at six month increments with the head of the radiology core to ensure continued metric compliance. Additional review and process improvement efforts are being made to assess read quality and closely track issues and errors related to radiologist training and understanding of protocol specific requirements. Collaboration with the radiology department and across disease programs is key to successful implementation of solutions and improved workflows.