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

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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.
- Utilization of impartial, highly trained radiologists to perform longitudinal tumor measurements allows research teams to evaluate disease response to treatment.
- Accurate disease assessment results are needed prior to protocol timepoints in order for the provider and research team to make informed decisions regarding patient treatment.
- OHSU Knight Cancer Institute Clinical Research Management (CRM) group established metrics and agreements with the radiology department around the turnaround time for the disease measurements.
- The agreement also required the same provider to read a patient's assessments over time, leading to extended delays and issues around provider vacation or time off.
- Key turnarounds were not consistently met, especially time to results, which caused delays and confusion in patient care as well as protocol deviations.

Objectives

The Knight CRM 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.

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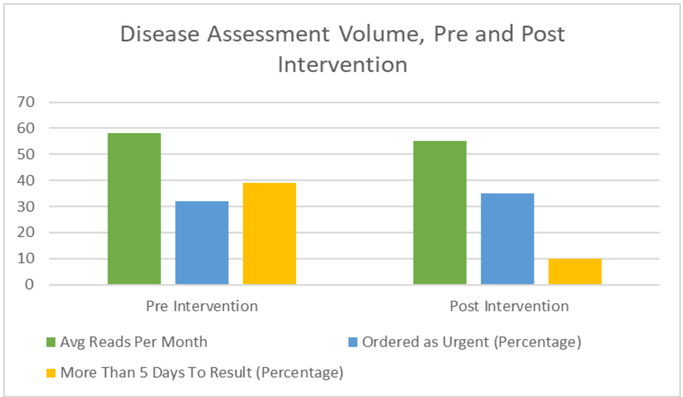
Methods

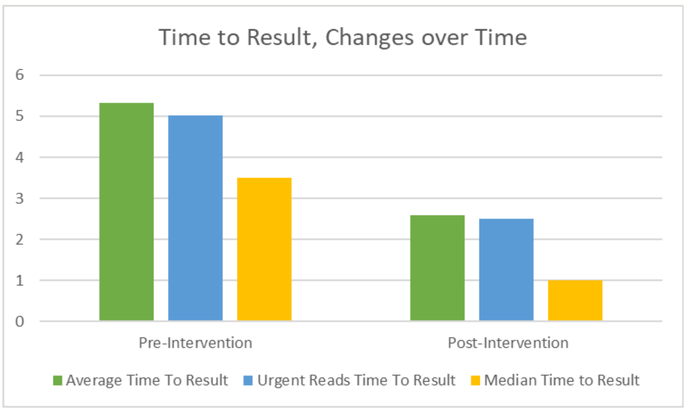
- Data were pulled from the electronic medical record to review quantitative data regarding tumor measurement assessments. The initial analysis allowed leadership to identify possible issues and causes for delays in result availability.
- Analyses were run by volume of scan and scan type, order urgency, ordering program and provider, order sequence (placed before, same day, or after scan occurrence), and by reading provider.
- Turnaround times were corrected to count only total time to result from availability of the scan and order to prevent estimates from including time-to-results where orders were placed before the scan occurred or vice-versa.
- Results were presented to radiology collaborators and research leadership. Interventions were identified to address the two major issues: research staff training and radiologist capacity.
- The Radiology Department identified qualified providers to staff a RECIST Reading Core. All tumor assessments were assigned to this group for triage and evaluation (intervention).
- Radiologists participating in the Research Reading Core are evaluated on turnaround time and read quality to ensure compliance.
- Data were pulled from the EMR a second time to assess intervention impact.

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.
- 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.
- July to 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.





Future Direction

Analysis of available data allowed for careful review of root causes, successful workflows, and identification of process improvements across the Knight 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.