

Use of Electronic Solution Supplemented with Portfolio of Tailored Resources Improves Tumor Response Assessment for Patients

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Background

- Computer-assisted imaging (CAI) records measurements and calculations to support Radiologists in analyzing images.
- Compared to manually tracking measurements and calculations, CAI offers improvements in tumor response assessment accuracy, documentation, and comprehensiveness and thus better informs evaluation of response to treatment (Cai and Hong 26).
- Replacing manual methods with a CAI tool requires structured processes and resources to integrate seamlessly with existing workflows and the technical environment.

Methods

In 2019, our Radiology Research and Clinical Research Administration teams adopted a commercially available CAI tool to begin conducting tumor response assessments for patients enrolled in clinical trials rather than using manual methods, such as entering data into PDF-based forms.

- In 2018, internal quality assurance audits yielded 116 major deficiencies in tumor response assessments completed using manual methods.
- The commercially available CAI tool is FDA-approved and supports an increasing number of tumor response assessment criteria.

Adoption and expansion of the CAI tool across the institution required the development and dissemination of a portfolio of resources that assists each user group with adopting the tool.

Resources provided to all user groups:

- Standard Operating Procedure
- Tumor Response Assessment workflow diagram
- Response Criteria Supported by the CAI tool

Additional resources were developed and tailored to the unique needs of each user group:

Radiologist user group:

- 1 on 1 Training
- Quick Guide
- How-To Guide
- FAQs



Study Team user group:

- Classes (mandatory)
- Live group training in the tool
- Tumor response assessment training (self-paced, online module)

Documents

- How To submit a read request
- How To add or remove users from patients
- How To view outstanding assessments
- How To transition a patient from manual methods to CAI tool
- FAQs

Investigator user group:

- 1 on 1 Training
- Quick Guide
- FAQs

Information Technology team user group:

- Operations Guide

Figure 1: Tumor Response Assessment Workflow

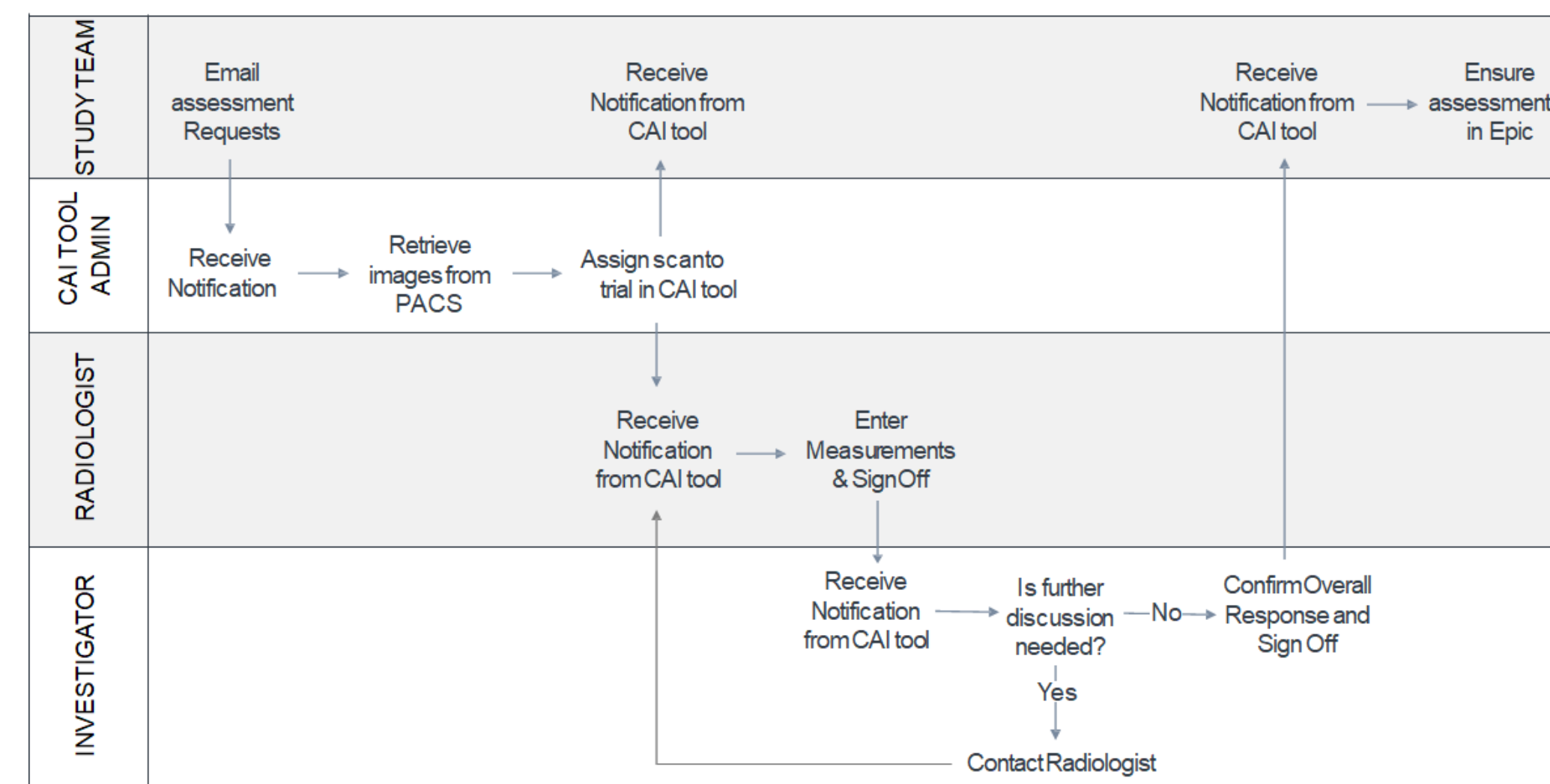


Figure 2: Assessments completed in CAI tool vs. using Manual Methods

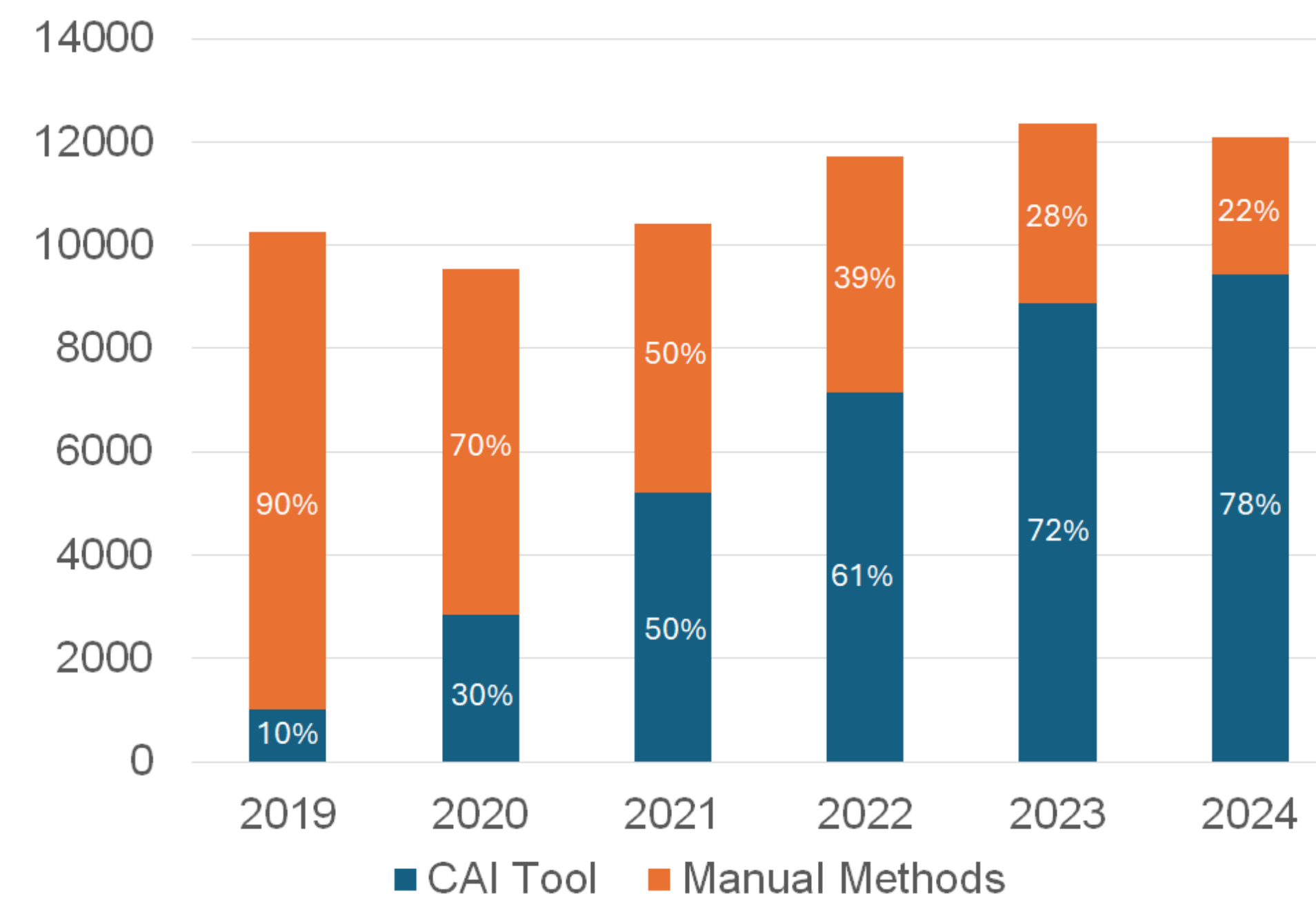
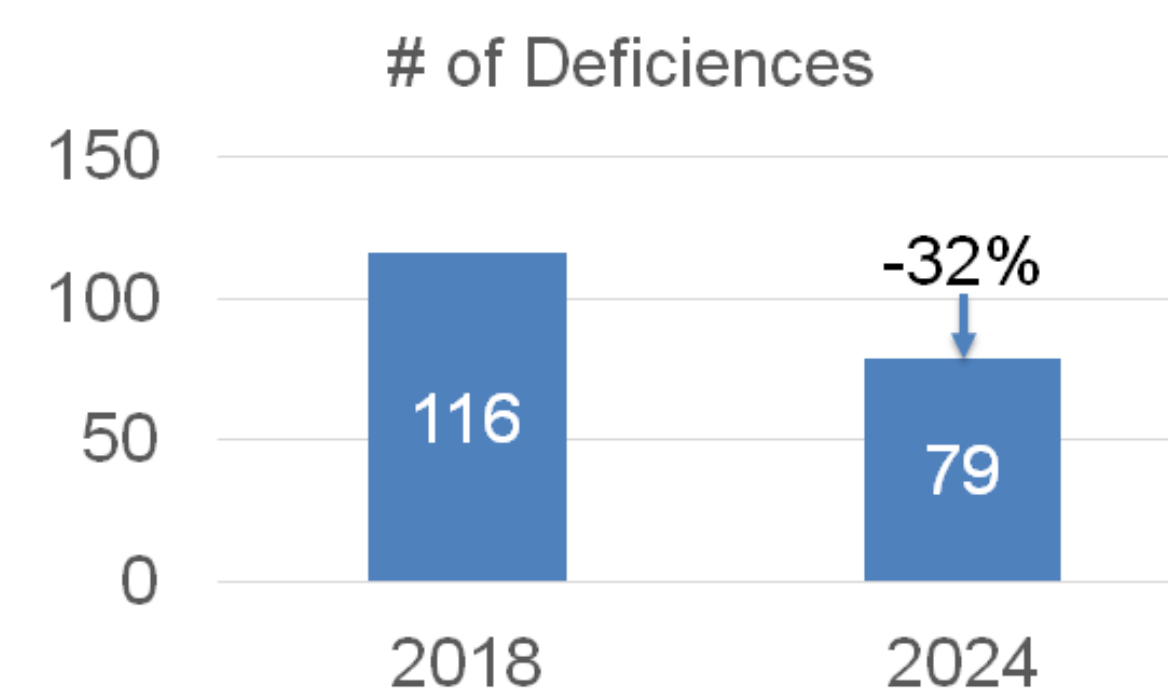
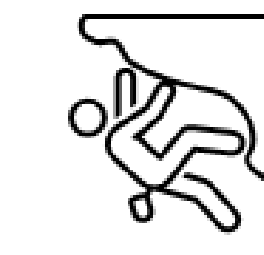


Figure 3: Internal quality assurance audit results



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- Steep and/or unique learning curves for each user group
- Resistance of users to change from traditional administrative and technological processes
- Cultural shift across the organization
- Marketing and promotion of advantages of CAI tool
- Regular turnover of staff

Benefits/Outcomes



Data Integrity

- Quality: Automated calculations
- Completeness: Fields of information required before sign-offs
- Record-keeping: Legibility, timestamps
- Privacy: Access granted to assessments by administrators
- Reduction in deficiencies found by internal quality assurance audits (Fig. 3)

Reduce Administrative Burden

- Automated back-end processes, such as automatically sending assessments to Epic
- Radiologist, Investigator, and Study Team user groups avoid using manual methods and sending them around for input and sign-offs
- Share data with sponsors more readily

Ease of Use

- Define a clear workflow among stakeholders to complete assessments (Fig. 1)
- Assessments housed in one location (accessibility for clinical staff and audit preparedness)
- Scalable to accommodate increase in assessment volume (Fig. 2) as well as new protocol criteria, unique protocol structures

Financial

- Bill more accurately for assessments
- An assessment is never 'lost' and has to be redone

Conclusions

The use of CAI for tumor response assessment, rather than manual methods, offers many benefits. However, the success of implementing such a tool at an institution requires a portfolio of resources that assists each user group with adopting the tool.