Integrating AI-Enabled Clinical Trials Matching into Operational Workflow

Authors: Robb Stillman, MA, RN, CPHIMS, FHIMSS, Catherine Schweitzer, BA, CCRC, Angela Campbell, MS, Kristina Humphries, MS

Institution: The Ohio State University, The James Comprehensive Cancer Center

The James
THE OHIO STATE UNIVERSITY
COMPREHENSIVE CANCER CENTER

Background

The Ohio State University, The James Comprehensive Cancer Center is an NCI-designated cancer center with an estimated 400 active industry, cooperative group, and investigator-initiated clinical trials. Enrolling patients in research studies is an integral part of the medical center's mission. However, the process of manually screening and identifying patients for clinical trials is increasingly time-consuming and inefficient due to the number of trials available and the complexity of eligibility. Increasing enrollment would be challenging without introducing technology to aid the effort. In preparation for the next CCSG grant renewal, CCC leadership began an extensive evaluation of clinical trials matching platforms available. After comprehensive review and vetting over a two-year period, a vendor was selected, and an artificial intelligence-driven clinical trials matching system was implemented in January 2023, with the first of seventeen disease teams to incorporate artificial intelligence-driven clinical trial matching into the patient screening workflow.

Goals:

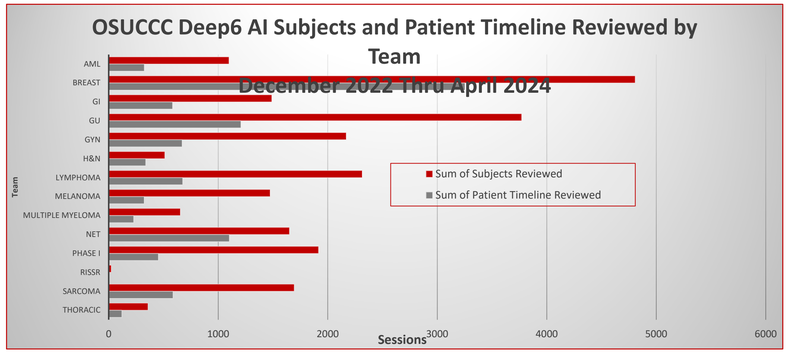
1. Implement a sustainable technology solution to increase efficiency in screening and matching patients to clinical trials.
2. Increase clinical trial enrollment, especially in women, minorities, and underserved patient populations.
3. Track pre-screening and user efforts.

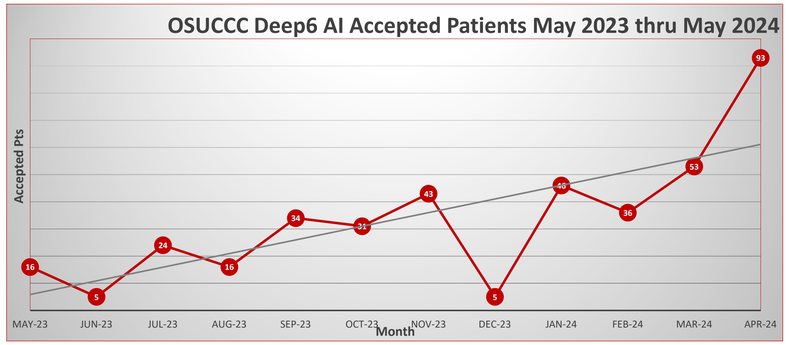
Implementation

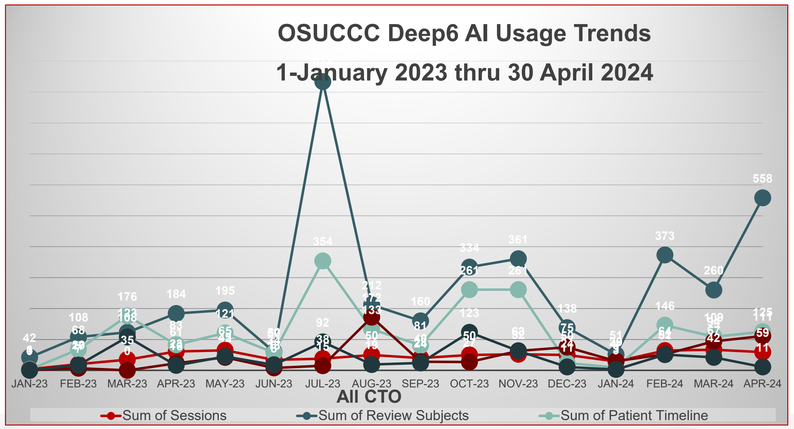
- Rolling implementation of the AI system across seventeen disease teams within the clinical trials office. Training and support are provided in close collaboration with the vendor.
- Continued development and incorporation of the matching system into day-to-day CRC workflows, communicating trial matches with treating physicians, following up on trial presentations to patients, and determining consent outcomes.
- Development of a data form (in REDCap) to capture all screening efforts in the AI system and Manual Chart Review. Piloted April 2024.
  - Tracking efficacy of AI system vs. other methods.
  - Tracking the total number of patients pre-screened.

15 Teams, 126 Active Users
332 Cancer Clinical Trials

Observations







Lessons Learned and Future Direction

Lessons Learned

- Augmented versus Artificial Intelligence.
  - Realistic expectations of system capability
- Limitations of the system
  - Scanned records and media
  - Epic Care Everywhere (outside records)
- Challenges due to nuance of eligibility in complex diseases and clinical trials
  - Staging
  - Lines of therapy
  - Progressive disease
- Selectivity of trials due to limitations of system and disease characteristics.
- Query validation and modification require ongoing study team effort and expertise.
  - *Increased effort = Increased utility*
- Workflow integration must be considered and incorporated into training.

Future Directions

AI System:

- Adding a Watchlist feature and scheduled reminders for those patients.
- Providing more extensive reporting options and a user-friendly interface.
- Integration with clinical trials management system for efficient tracking of patients enrolled in clinical trials.
- Integration with Epic software for ease of access to AI program.

Institution:

- Improving documentation so that data will be better picked up by the AI.
  - Example: lines of therapy
- Expanding to use to trials or diseases outside of cancer.
- Evaluating other data sources beyond EMR and Genomics, including Cancer Registry Data Clinical Trials Management System (OnCore) data.
- Evaluation and study of pre-screening data:
  - Are research staff identifying and enrolling more patients with the help of the AI-driven clinical trials matching application?
  - Does the Clinical Trials Matching System's AI and NLP accurately identify potential eligible patients?
  - Are there reasons patients are not consenting? (patient refusal, physician decision, deterioration due to disease, etc.)
  - Does the system capture a more diverse patient population?