Abstract #2052: Novel artificial intelligence (AI)-based technology to improve oncology clinical trial fulfillment

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Background:

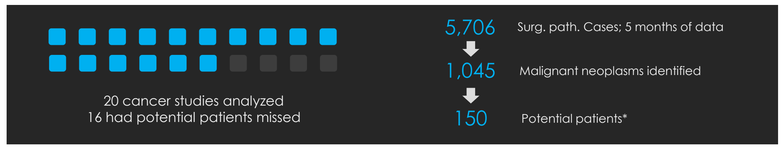
- Less than 5% of US adult cancer pts are enrolled on clinical trials. Challenges in clinical trial fulfillment limit available treatment options, slow enrollment and ultimately delay new therapies from reaching market.
- Patient screening requires multiple clinical team members to find pts that meet strict inclusion/exclusion criteria.
- We evaluated the impact of new technology, Deep Lens VIPER, in identifying more qualified pts for clinical studies, and reduction of staff burden.

Methods:

- 1 novice clinical research coordinator pre-screened 20 studies previously managed by 6 staff
- 4 months of retrospective data triaged in 3 weeks
- 150 previously unidentified potential patients for 16 out of 20 studies were identified
- 11 different tumor types included in analysis across 12 biomarkers (HER2, HER4, EGFR, MET, RET, MTC, ATM, ALK, ROS1, PD-1, RAS, and MSI high)
- 3 basket studies (multi-arm; multi-indication) were analyzed

An AI-based platform, VIPER, triaged study participants across 20 different cancer studies simultaneously, allowing identification of patients for interventional studies (previously not attempted at hospital due to resource constraints). 150 patients were identified for potential fit that were previously not identified over a four-month period.

Results:



VIPER identified 1,045 pts (18.3%) with malignant neoplasms that would qualify for further analysis for clinical trials enrollment. Further triage based on inclusion and exclusion criteria led to the identification of 150 previously unidentified pts for 16 of the 20 studies. The VIPER system increased monthly candidate pt catchment for 16 of the 20 studies under investigation, which is approximately 600 patients annually added for final triage for studies being conducted.

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Study module	**Patient count disease site only (bold)**	**Patient count w/ addtl filters (italics)**
ATM deficient **lung adenocarcinoma**	120	2
Metastatic **non-smal cell lung cancer**	120	29
ATM deficient **gastric adenocarcinoma**	42	0
ATM proficient **gastric adenocarcinoma**	42	3
Triple negative **breast cancer**	383	8
Metastatic **head & neck cancer**	25	2

Table 1: Example triage data indicating automated patient triage of 6 studies based on pathological diagnosis and molecular marker data can reduce workload for CRCs by eliminating the need to triage patients that would not qualify due to absence of correct molecular status for specific studies. Integration with laboratory information systems and molecular reporting allows this to be automated.

Future Directions for Research:

Scaling this platform to additional institutions and more studies is ongoing to further validate these findings. We will deploy this software free of charge to any healthcare providers interested in using it for cancer trial recruitment.

Please contact tj@deeplens.ai with any questions.