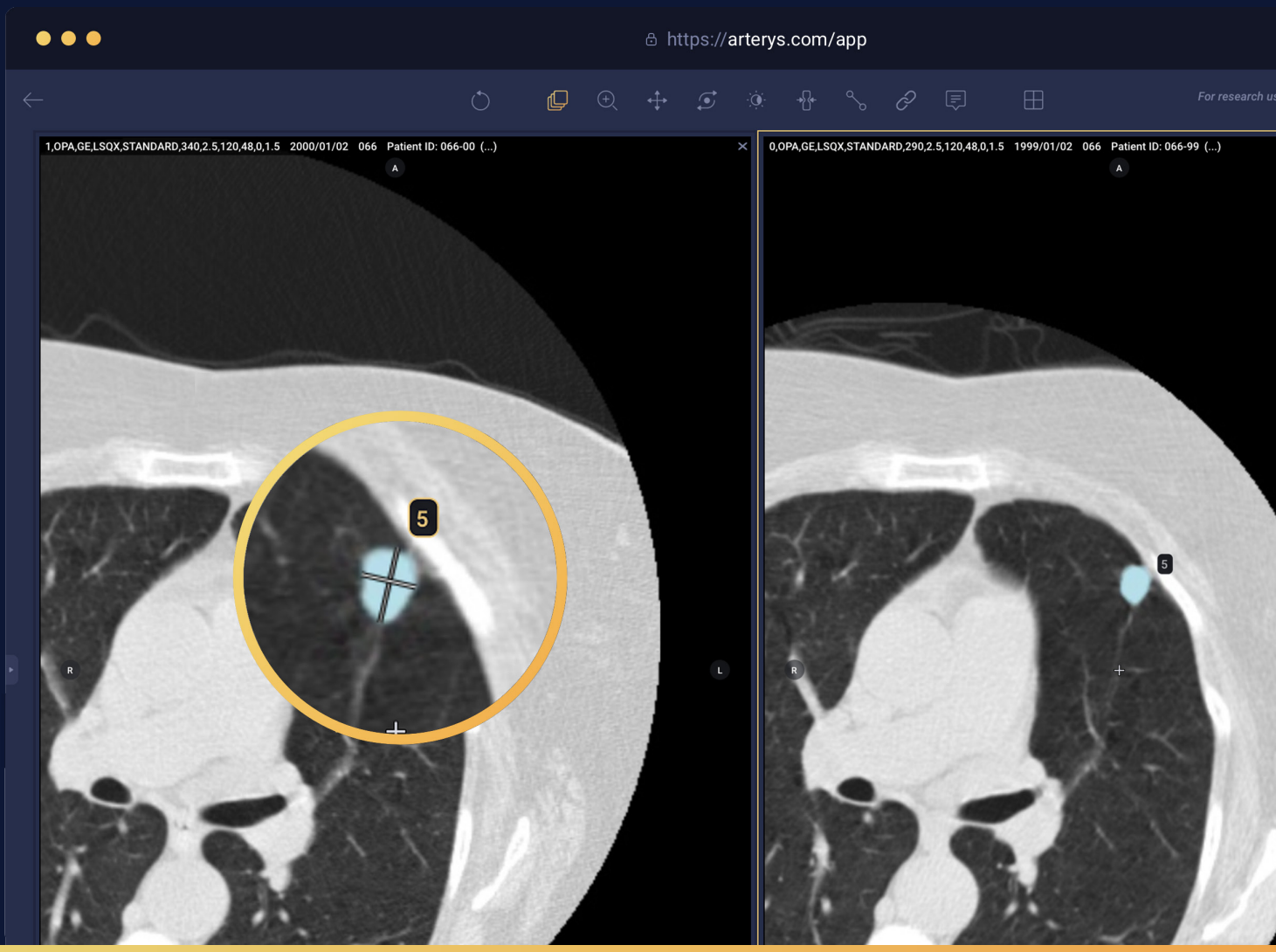

ARTERYS

AI has your back

How Arterys Lung AI reduces false negative rates

Introduction

A clinical assessment was designed to evaluate the rate of reduced missed lung nodule detections when radiologist reads are augmented using Arterys Lung AI.[1]

Materials and Methods

Four blinded reads per scan were collected for 150 thoracic CT examinations. The studies were split into 100 biopsy confirmed lung cancer LDCT examinations (screening) and 50 pulmonary embolism examinations (incidental). Each radiologist was asked to annotate all lung nodules in the studies. The annotations of an individual radiologist were compared against the three other counterpart radiologists. The total number of false negatives for each radiologist was determined against a ²⁄₃ consensus from the counterpart radiologist.

To measure the impact of Arterys Lung AI, radiologist reads were augmented using the additional nodule detections. The number of missed detections was then reevaluated.

Results

The total number of annotated lung nodules for each radiologist ranged between 4.8 and 7.6 nodules per scan on the screening population and between 1.8 and 2.5 nodules per scan for incidental findings.

The total number of false positives (FP) and false negatives (FN) was determined by comparing against the ²⁄₃ consensus counter radiologist reads. The rate of FP over all radiologists was found to range between 1.1 and 1.8 FP/scan for screening and between 0.5 and 1.2 FP/scan for incidental findings. There were between 89 and 190 false negatives for screening and between 21 and 33 false negatives for incidental findings.

For the screening population, the rate of reduced missed detections was between 60-70% with 1.6 additional detections per scan. For the incidental population, the reduced missed detections was 42-66% with 1.6 additional detections per scan. The impact of Arterys Lung AI for individual radiologists is shown in Figure 1.0.

Conclusion

Radiologist reads augmented by Arterys Lung AI for lung nodule detection show a significant reduced rate of missed detections in both screening and incidental populations. Arterys Lung AI has the potential to improve consistency in nodule detection in both screening and incidental populations.

1. Arterys Lung AI v19.03

Figure 1.0
The impact of augmenting radiologist reads with additional detections from Arterys Lung AI

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