Multicentre qualitative validation of AI lung nodule detection software (Aidence)

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Introduction

- Aidence lung nodule detection software is an AI tool that aids in the assessment of lung nodules in thoracic CT studies.
- The software aids with
  - **Nodule detection:** >= 3mm and <=30mm
  - **Quantification:** diameter and volume
  - **Growth assessment:** growth percentage, VDT
  - **Classification:** solid & sub-solid[1]
- Used by a number of Radiology departments in the South-West of England.

Methods

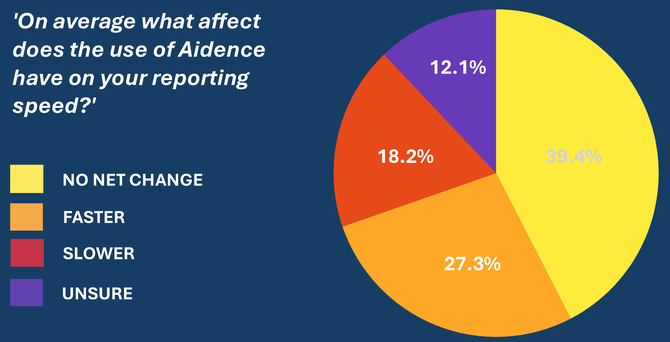
- User survey was designed using Google Forms
  - 12 multiple choice questions
  - <5 minutes to complete
- Distributed via email to all Radiology Consultants across 3 NHS Trusts.
- Prior to survey, the departments involved had trialled Aidence for at least 6 months.
- Responses were gathered during a 2-week period in December 2023.

Results

- 33 responses

1.Reporting speed

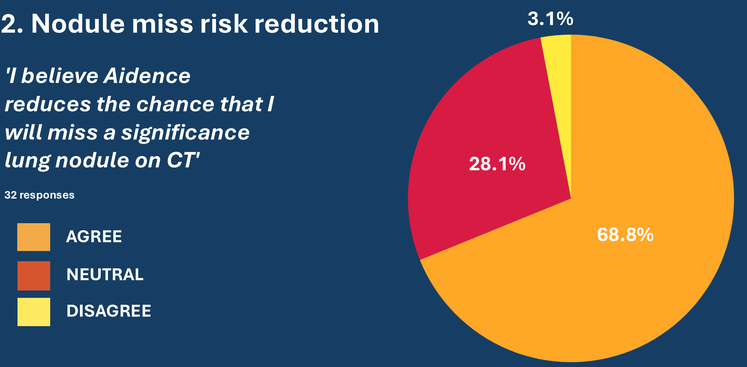
'On average what affect does the use of Aidence have on your reporting speed?'



2. Nodule miss risk reduction

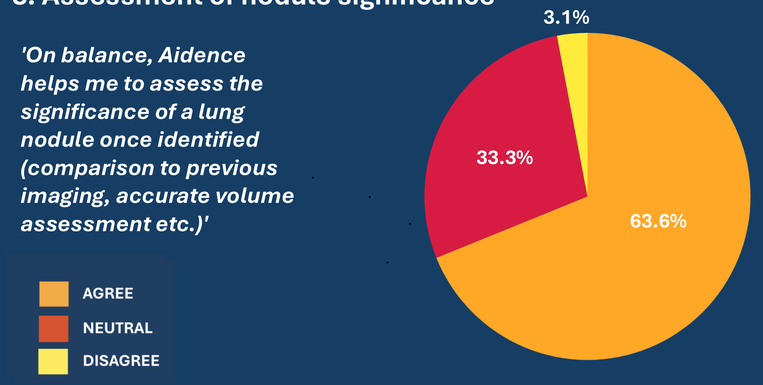
'I believe Aidence reduces the chance that I will miss a significance lung nodule on CT'

32 responses



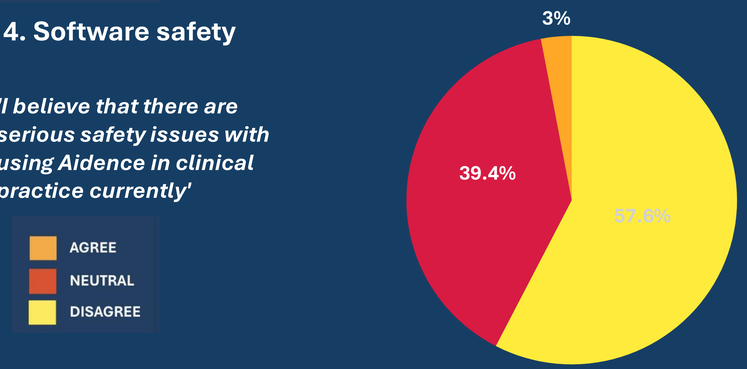
3. Assessment of nodule significance

'On balance, Aidence helps me to assess the significance of a lung nodule once identified (comparison to previous imaging, accurate volume assessment etc.)'



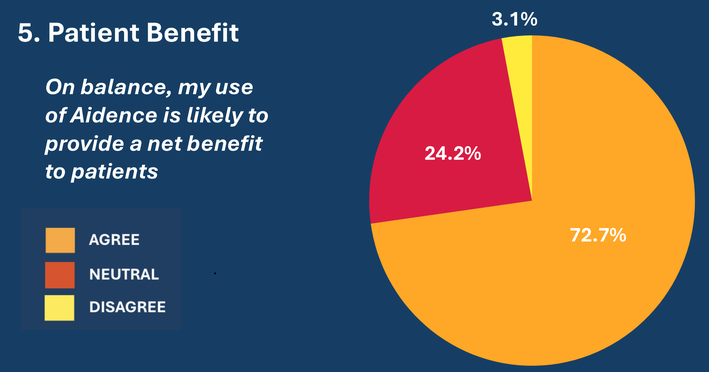
4. Software safety

'I believe that there are serious safety issues with using Aidence in clinical practice currently'



5. Patient Benefit

On balance, my use of Aidence is likely to provide a net benefit to patients



Users' Opinions

'We are better with Aidence than without it'

'An essential tool'

'...a really useful adjunct'

'I think it gives false reassurance that it has seen everything'

'I am concerned that the software interferes with my reporting flow'

'There have been some spectacular overcalls such as right inferior pulmonary vessels'

Conclusion

In summary, the data demonstrates four key opinion trends;

- ✓ It is considered beneficial to patients
- ✓ It is generally neutral to reporting speed
- ✓ It is safe to use
- ✓ It is beneficial to nodule detection and analysis

The assessment of NICE is that there is currently **insufficient evidence** from cost-benefit analysis to recommend the purchase of Aidence.[2]

References: [1] Aidence 2024 *'Veye lung nodules; clinical features'* Accessed at https://www.aidence.com/veye-lung-nodules/, [2]NICE 2023 *'AI-derived computer-aided detection (CAD) software for detecting and measuring lung nodules in CT scan images'* Accessed at https://www.nice.org.uk/guidance/dg55/chapter/1-Recommendations