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Supplementary Material

Familiarity, confidence and preference of artificial intelligence feedback and prompts by Australian breast cancer screening readers

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AI in breast screening survey

Start of Block: Default Question Block

Please click on the file to view the Patient Information Statement (PIS).

By submitting your responses in this survey, this will be considered as giving your consent. Thank you in advance for your time.

The aim of this survey is to explore the experience that Breastscreen readers might have with using AI in clinical practice. This also helps us have an insight into the AI outputs that readers wish to use in the daily work to assist with the radiological interpretation and increase the effectiveness in breast cancer detection on mammograms.

Before you begin survey, could you please tell us your current position?

- ○ Radiology registrar/trainee (1)
- ○ Radiologist (2)
- ○ Breast Physician (3)
- ○ Other, please specify (4) _____

Q1. Have you ever had experience with integration of AI-based algorithms into your radiology system to assist with your image reporting?

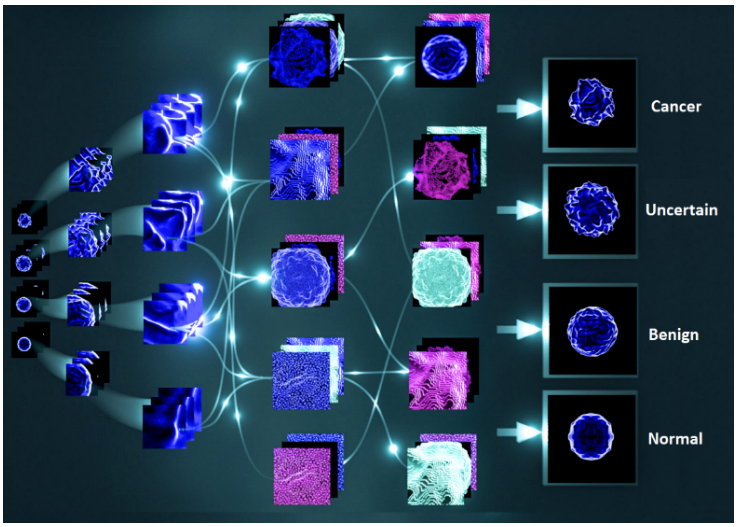
- ○ Yes (1)
- ○ No (2)

Skip To: Q3 If Q1. Have you ever had experience with integration of AI-based algorithms into your radiology syst... = No

Q2. What type of AI product(s) have you had experience with in your work practice or clinical routine? (Multiple answers possible)

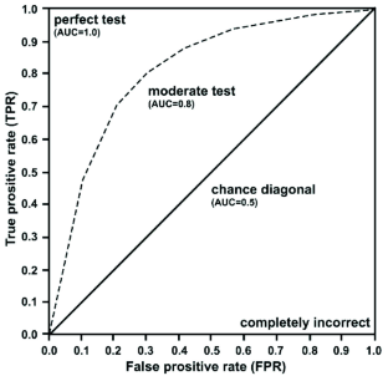
- ☐ Densita -DensityAI (Automatice density measurement) (1)
- ☐ Hologic - Quantra - Density (Automatic density measurement) (2)
- ☐ Volpara Solutions - VolparaDensity (Automatic density measurement) (3)
- ☐ Hera-Mi Breast SlimView (Display suspicious areas) (4)
- ☐ iCAD - Profound AI for Digital Breast Tomosynthesis and 2D mammography (Display suspicious areas) (5)
- ☐ Kheiron Medical Technologies - MiaReader (Independent/Concurrent reader) (6)
- ☐ Merantix Healthcare - Vara (Decision referral) (7)
- ☐ ScreenPoint Medical - Transpara (Display suspicious areas) (8)
- ☐ Other (please provide the name or the information about the products that you have tried) (9) _____

Q3. Thinking about your overall knowledge of AI, how familiar are you with the following AI outputs?



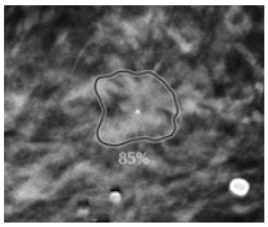
3a) Automatic mammogram classification (normal, benign, cancer, uncertain). Please see image above as an example.

- Not familiar at all (1)
- Slightly familiar (2)
- Moderately familiar (3)
- Very familiar (4)
- Extremely familiar (5)

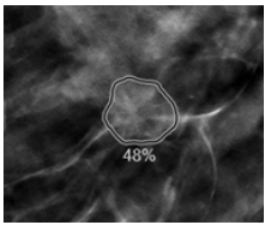


b) Displaying the ROC curve of cancer possibility for mammograms. Please see image above as an example.

- ○ Not familiar at all (1)
- ○ Slightly familiar (2)
- ○ Moderately familiar (3)
- ○ Very familiar (4)
- ○ Extremely familiar (5)



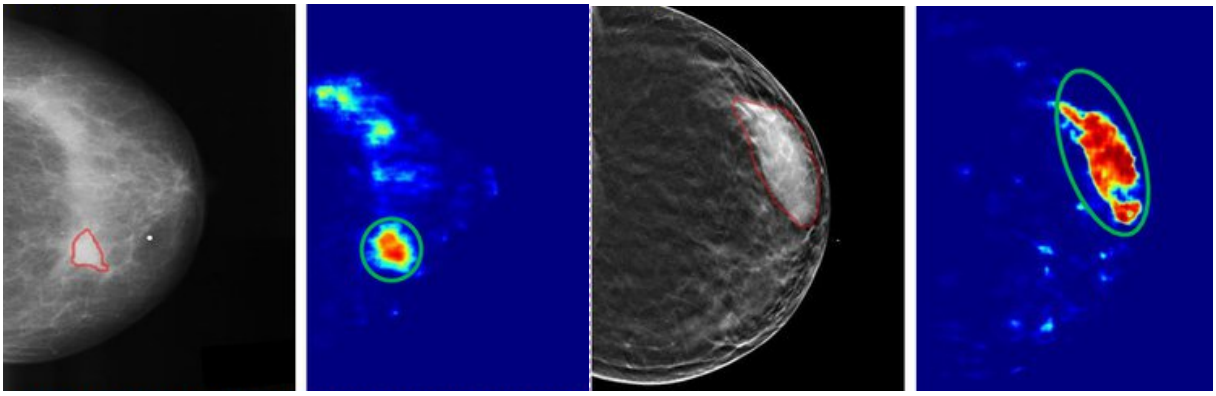
85% Certainty of Finding



48% Certainty of Finding

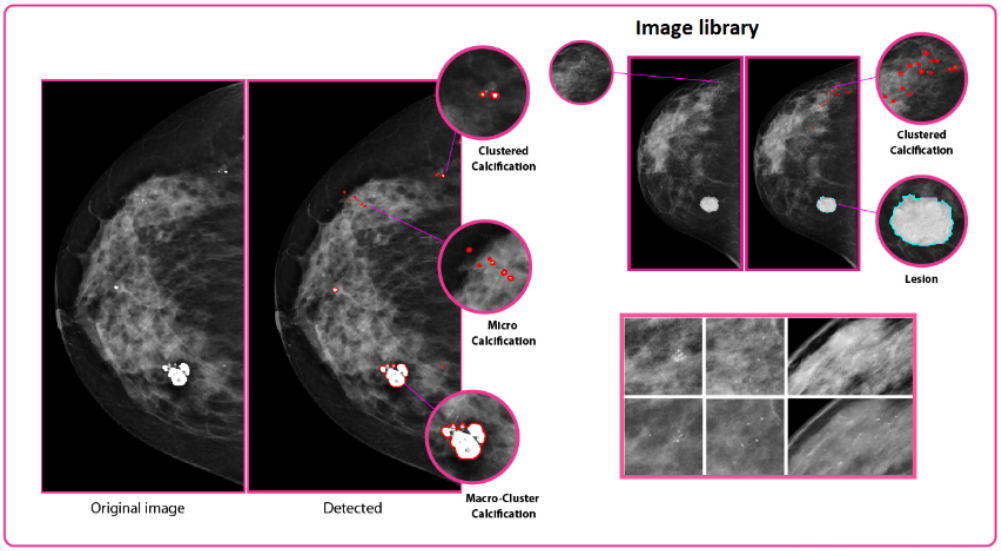
c) Displaying suspicious areas on mammograms with the percentage of cancer possibility. Please see image above as an example.

- ○ Not familiar at all (1)
- ○ Slightly familiar (2)
- ○ Moderately familiar (3)
- ○ Very familiar (4)
- ○ Extremely familiar (5)



d) Displaying suspicious areas on mammograms with heat map. Please see image above as an example.

- Not familiar at all (1)
- Slightly familiar (2)
- Moderately familiar (3)
- Very familiar (4)
- Extremely familiar (5)



e) Displaying suspicious areas on mammograms with a link to image library of similar lesions. Please see image above as an example.

- ○ Not familiar at all (1)
- ○ Slightly familiar (2)
- ○ Moderately familiar (3)
- ○ Very familiar (4)
- ○ Extremely familiar (5)

Q4. How confident are you with receiving the following AI outputs?

a) Automatic mammogram classification (normal, benign, cancer, uncertain), as illustrated in Q3a above.

- ○ None at all (1)
- ○ A little (2)
- ○ A moderate amount (3)
- ○ A lot (4)
- ○ A great deal (5)

b) Displaying the ROC curve of cancer possibility for mammograms, as illustrated in Q3b above.

- ○ None at all (1)
- ○ A little (2)
- ○ A moderate amount (3)
- ○ A lot (4)
- ○ A great deal (5)

c) Displaying suspicious areas on mammograms with the percentage of cancer possibility, as illustrated in Q3c above.

- ○ None at all (1)
- ○ A little (2)
- ○ A moderate amount (3)
- ○ A lot (4)
- ○ A great deal (5)

d) Displaying suspicious areas on mammograms with heat map, as illustrated in Q3d above.

- ○ None at all (1)
- ○ A little (2)
- ○ A moderate amount (3)
- ○ A lot (4)
- ○ A great deal (5)

e) Displaying suspicious areas on mammograms with a link to image library of similar lesions, as illustrated in Q3e above.

- ○ None at all (1)
- ○ A little (2)
- ○ A moderate amount (3)
- ○ A lot (4)
- ○ A great deal (5)

Q5. Which mode would you prefer the AI to assist with your diagnosis?

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a) First-reader mode:
AI shows findings → Human reader's report incorporating with AI results

- ○ Extremely unhappy (1)
- ○ Somewhat unhappy (2)
- ○ Neither happy nor unhappy (3)
- ○ Somewhat happy (4)
- ○ Extremely happy (5)

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b) Second-reader mode:
Human reader's report without AI → AI shows findings → Human reader's final report

- ○ Extremely unhappy (1)
- ○ Somewhat unhappy (2)
- ○ Neither happy nor unhappy (3)
- ○ Somewhat happy (4)
- ○ Extremely happy (5)

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c) Triage mode:
AI sorts cases → Human reader interprets the prioritized worklist of cases

- ○ Extremely unhappy (1)
- ○ Somewhat unhappy (2)
- ○ Neither happy nor unhappy (3)
- ○ Somewhat happy (4)
- ○ Extremely happy (5)

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d) Pre-screening mode:
AI identifies Normal cases → Human reader interprets remaining cases 'Unknown' by the AI

- ○ Extremely unhappy (1)
- ○ Somewhat unhappy (2)
- ○ Neither happy nor unhappy (3)
- ○ Somewhat happy (4)
- ○ Extremely happy (5)

Q6. In regards to suspicious regions on mammograms, how would you prefer the AI findings to be displayed?

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a) Automatically show all suspicious regions/lesions that AI finds on the mammograms

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

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b) Only show AI finding when human reader clicks on the region of interest on the mammogram?

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

End of survey.

Please hit the arrow button to submit.

End of Block: Default Question Block