What are the clinical guidelines for the management of women with dense breast? A systematic review of breast screening guidelines around the world

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THE UNIVERSITY OF SYDNEY

Sydney Health Literacy Lab

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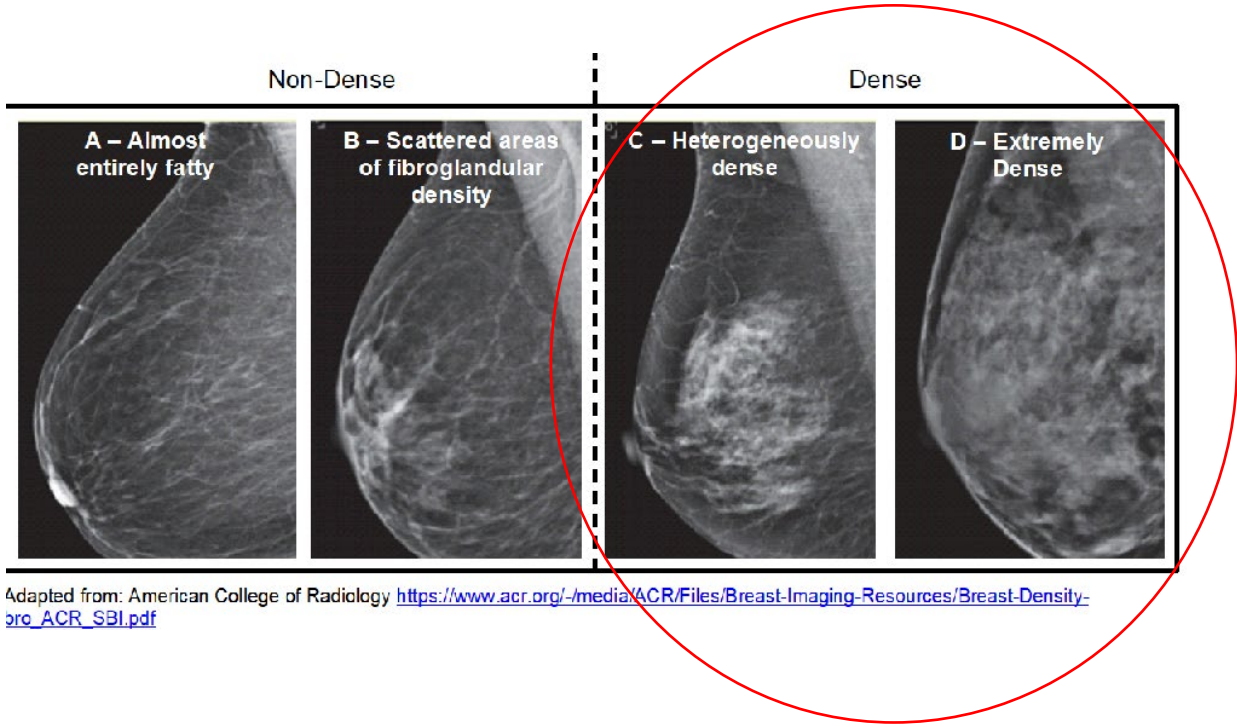
Collaboration, Translation, Impact

Why is breast density important?

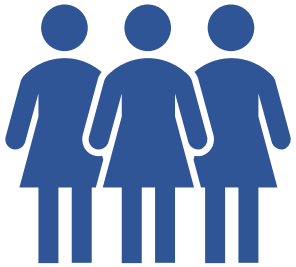
- Breast density is an independent risk factors for breast cancer
- Lowers sensitivity of mammography
- Estimates suggest that around 30-50% women in the breast screening population (aged 40-74 years) have dense breasts
- Women with dense breasts are more likely to have a breast cancer missed on mammography

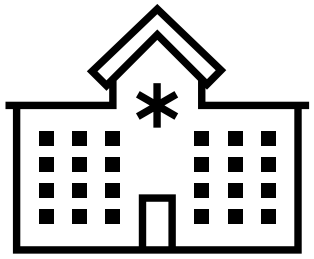


Adapted from: American College of Radiology https://www.acr.org/-/media/ACR/Files/Breast-Imaging-Resources/Breast-Density-bro_ACR_SBI.pdf

Aims:

- To synthesise existing data to comprehensively summarise clinical guidelines and evidence base behind supplemental screening recommendations in women with dense breasts internationally.





Methods

- **Electronic database:**
  - MEDLINE, Embase and CHINAL
- **Grey literature:**
  - International Guidelines Library, Open grey, Naitional Institute for Health and Care Excellence, Mednar, Global Index Medicus, Google
- **“breast”, “density”, “guidelines”** and their variations and synonyms
- Assessed **quality** with **Appraisal for Research Guidelines Evaluation-II (AGREE=II)**

Results

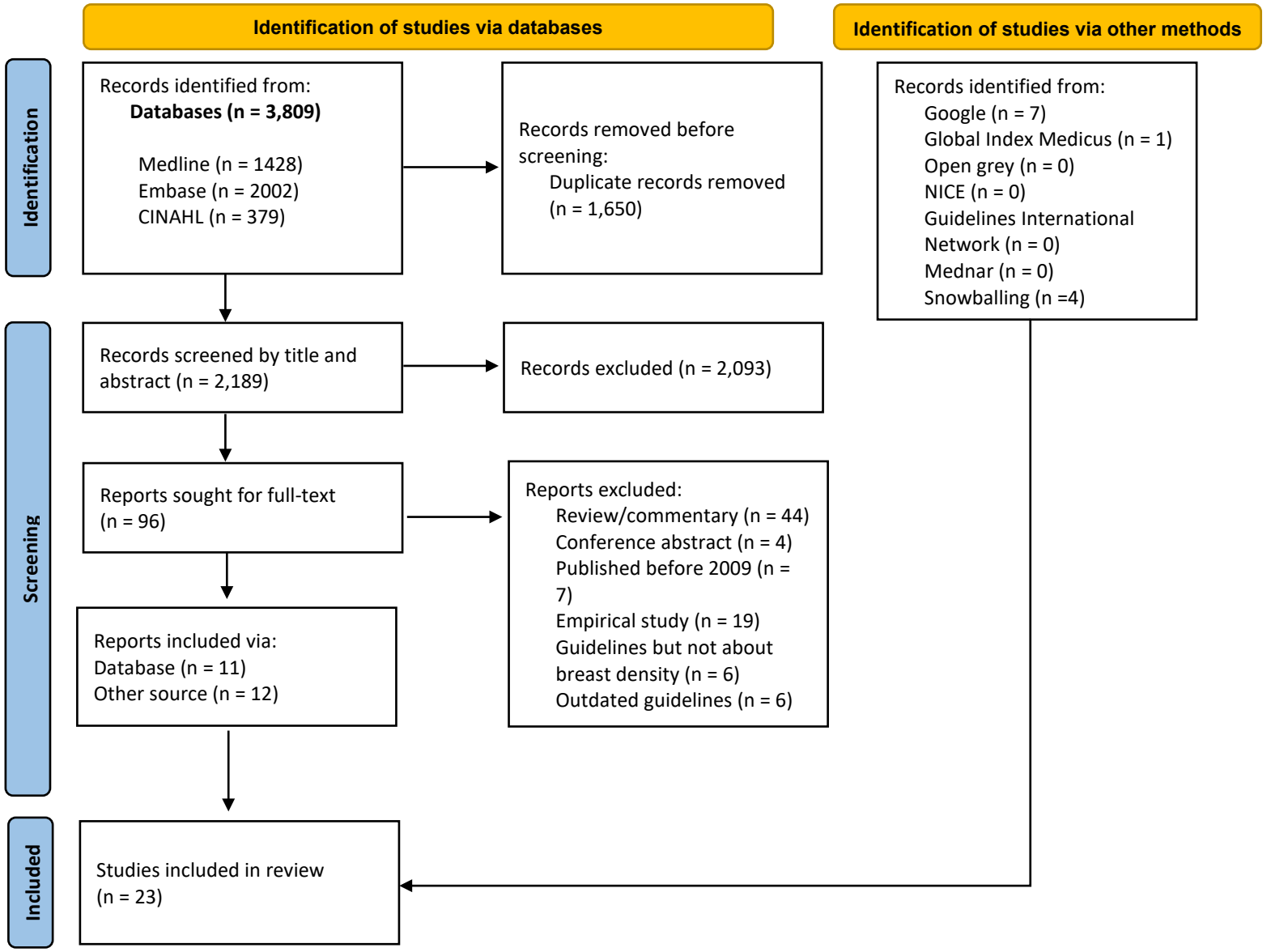


Figure 1: Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flow diagram

Results

- **Most** guidelines from **developed countries** (n=20)
- **Eight** of the guidelines were **updated versions**
- 2 guidelines currently being updated

Table 1. Country of origin of guidelines

	Number of guidelines
United States	8
Canada	2
Europe	4
Australia	3
New Zealand	1
United Kingdom	1
Brazil	1
China	1
Japan	1

Screening

Preferred screening modality

- **Mammogram (n=16)**

- **Breast tomosynthesis (DBT, n=3)**
  - Lower chance of being called back
  - Higher cancer detection rate

- **Magnetic resonance imaging (MRI, n=1)**
  - DENSE trial – Level 1 evidence for Extremely dense breasts
  - Lower interval cancer rates
  - Acknowledged implementation may be difficult

Supplemental Screening

- **Most recommended** supplemental screening (n=14)
  - All recommendation published in the past year recommended supplemental screening (n=5)
  - **Reason:** increase cancer detection rate

- **A third** of the guidelines **did not recommend** supplemental screening (n= 9)
  - **Reason:** lack of evidence linking increased breast cancer detection and improved breast cancer mortality

Modality Recommended

Table 2. Information in the guidelines on the benefits and harm of supplemental screening

	Benefit	Harm
Ultrasound (9 guidelines)	Increase cancer detection rate (n=5) No radiation (n=1) Reduction in interval cancer (n=1)	Higher false positive rate (n=3) Higher biopsy rate (n=2) Lower predictive value recall and biopsy (n=1) Lack of reproducibility (n=1)
MRI (6 guidelines)	High cancer detection (n=3) Mortality benefits (n=2) Lower interval cancer rate (n=2)	Lack of evidence (n=4) Resource contains (n = 4) Costs (n=1) False positives rate (n=1) Unproven mortality reduction (n=1)
Tomosynthesis (3 guidelines)	Lower recall rate (n= 3) Increase cancer detection rate (n=3)	May cost more than 2D mam (n=1) Higher radiation exposure (n=1)
Contrast-enhanced mammography (2 guidelines)	Not reported	Not reported

Quality of Guidelines

- Average AGREE II total score was **low at 58%** (range, 23% to 87%).
- Only **5 guidelines** involved patient representatives during the development
- **Most** guidelines **did not provide any level of evidence** for their recommendations (n=17, 74%)

Table 2. Quality Assessment Total Score using the AGREE-II*

Domain	Score (%)	Range
Scope and purpose	77	17 – 100
Clarity of presentation	77	36 – 100
Editorial independence	56	0 – 100
Stakeholder involvement	54	0- 94
Rigor of development	40	2 – 96
Applicability	27	0-87

*AGREE: Appraisal for Research Guidelines Evaluation

Implications for Australia

- Royal Australian and New Zealand College of Radiologist
  - Recommends mandating the reporting of breast density in screening setting is mandated in Australia and New Zealand
  - Recommends supplemental screening but vague on which modality to use

- BreastScreen Australia
  - Currently updating their position statement on Breast Density notification

Conclusion

- **No clear consensus** on the use of supplemental screening with women with dense breasts
- **Quality** of guidelines is **variable**
- Recommendation largely based on **low-quality evidence**
- Call for **more transparency in the development** of guidelines

Thank you & Questions?
Or Feedback

References

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