SCREENPOINT
Medical

List of abstracts, presentations and publications featuring Transpara® by ScreenPoint Medical

Updated June 2025

Contents

Peer-reviewed publications (total 38)

Key publications **HIGHLIGHTED & OUTLINED**

Confidence: helps to find more cancers (17)

1. Tiffany T Yu, Anne C Hoyt, Melissa M Joines, Cheryce P Fischer, Nazanin Yaghmai, James S Chalfant, Lucy Chow, Shabnam Mortazavi, Christopher D Sears, James Sayre, Joann G Elmore, William Hsu, Hannah S Milch (2025). **Mammographic classification of interval breast cancers and artificial intelligence performance.** *JNCI: Journal of the National Cancer Institute*
https://doi.org/10.1093/jnci/djaf103

   Conclusion: AI more frequently flagged and accurately localized IBC types that were mammographically visible at screening (missed or minimal signs), as compared to true interval or occult cancers.

   Author affiliation: US
   Data source: US

2. V Hernström, V Josefsson, H Sartor, D Schmidt, A-M Larsson, S Hofvind, I Andersson, A Rosso, O Hagberg, K Lång (2025). **Screening performance and characteristics of breast cancer detected in the Mammography Screening with Artificial Intelligence trial (MASAI): a randomised, controlled, parallel-group, non-inferiority, single-blinded, screening accuracy study**. Lancet Digital Health.
https://www.thelancet.com/journals/landig/article/PIIS2589-7500(24)00267-X/fulltext

   Conclusion: The findings suggest that Transpara contributes to the early detection of clinically relevant breast cancer and reduces screen-reading workload without increasing false positives.

   Affiliation of authors: Sweden
   Data source: Sweden

3. HW Koch, M Larsen, H Bartsch, MA Martiniussen, BM Styr, S Fagerheim, IHS Haldorsen, and S Hofvind (2024) **How do AI markings on screening mammograms correspond to**

cancer location? An informed review of 270 breast cancer cases in BreastScreen Norway. European Radiology
https://doi.org/10.1007/s00330-024-10662-2

Conclusion: Transpara markings corresponded to cancer location for all screen-detected cancers and 78% of the interval cancers with high AI score, indicating a potential for reducing the number of interval cancers. However, it is uncertain whether interval cancers with subtle findings in only one view are actionable for recall in a true screening setting.

Author Affiliation: Norway
Data source: Norway

4. L Celik and E Aribal (2024) **The Efficacy of AI in Detecting Interval Cancers in the National Screening Program of a Middle-Income Country.** Clinical Radiology
https://doi.org/10.1016/j.crad.2024.03.012

Conclusion: This study showed the potential of AI in detecting interval cancer in the initial mammograms and reducing human errors and undetected cancers.

Author affiliation: Turkey
Data source: Turkey

5. MT Elhakim, SW Stougaard, O Graumann, M Nielsen, K Lång, O Gerke, LB Larsen and BSB Rasmussen (2023) **Breast cancer detection accuracy of AI in an entire screening population: aa retrospective multicentre study.** *Cancer Imaging.*
https://doi.org/10.1186/s40644-023-00643-x

Conclusion: Replacing first reader in double reading with an AI could be feasible but choosing an appropriate AI threshold is crucial to maintaining cancer detection accuracy and workload.

Author affiliation: Denmark
Data source: Denmark

6. E Elías-Cabot, S Romero-Martín, JL Raya-Povedano, A-K Brehl and M Álvarez-Benito (2023) **Impact of real-life use of artificial intelligence as support for human reading in a population-based breast cancer screening program with mammography and tomosynthesis.** *Eur Radiology.*
https://doi.org/10.1007/s00330-023-10426-4

Conclusion: Transpara used as support for human double reading in a real-life breast cancer screening program with DM and DBT increases CDR and PPV of the recalled women.

Author affiliation: Spain, Netherlands
Data source: Spain

7. J Waugh, J Evans, M Miocevic, D Lockie, P Aminzadeh, A Lynch, and RJ Bell (2023) **Performance of artificial intelligence in 7533 consecutive prevalent screening mammograms from the BreastScreen Australia program**. *Eur Radiology*. https://doi.org/10.1007/s00330-023-10396-7

Conclusion: As the performance of AI was comparable to that of expert radiologists, future AI roles in screening could include replacing one reader and supporting arbitration, reducing workload and false positive results.

Author affiliation: Australia
Data source: Australia

8. S Weigel, A-K Brehl, W Heindel, and L Kerschke (2023) **Artificial Intelligence for Indication of Invasive Assessment of Calcifications in Mammography Screening**. *RoFo* (German journal). https://doi.org/10.1055/a-1967-1443

Conclusion: At the lowest threshold, Transpara yielded calcification-related PPV3 values that increased across categories, similar as seen in human evaluation. The strongest loss in AI-based breast cancer detection was observed for invasively assessed calcifications with the lowest suspicion of malignancy, yet with a comparable decrease in the false-positive rate.

Affiliation of authors: Germany
Data source: Germany

9. M Larsen, CF Aglen, C Lee, SR Hoff, H Lund-Hanssen, K Lång, J Nygård, G Ursin, S Hofvind. (2022). **Artificial Intelligence Evaluation of 122 969 Mammography Examinations from a Population-based Screening Program.** *Radiology.* https://doi.org/10.1148/radiol.212381

Conclusion: A total of 77.9% of all breast cancers (86.8% of screen-detected and 44.9% of interval cancers) had the highest Transpara exam score of 10. With a threshold that mirrors the average individual radiologist rate of positive interpretation, 80.1% of screen-detected and 30.7% of interval cancers were selected by Transpara.

This is currently [Sept 2022] the largest AI evaluation study to date, including more than 120 000 examinations (752 screen- detected and 205 interval cancers) from a real screening setting.

Affiliation of authors: Norway
Data source: Norway

10. S Romero-Martín, E Elías-Cabot, JL Raya-Povedano, A Gubern-Mérida, A Rodríguez-Ruiz, M Álvarez-Benito. (2022). **Stand-Alone Use of Artificial Intelligence for Digital Mammography and Digital Breast Tomosynthesis Screening: A Retrospective Evaluation.** *Radiology*. https://pubs.rsna.org/doi/10.1148/radiol.211590

    Conclusion: Transpara's stand-alone performance on 15999 DM and DBT was compared to single - reading and double-reading. Transpara archived noninferior sensitivity for both 2D and 3D compared to single or double reading. For DM, Transpara showed a 2% lower recall rate than the readers. For 3D recall rate of Transpara was higher (12.3%). Transpara could replace reader in screening, achieving a noninferior sensitivity.

    Affiliation of authors: Spain, the Netherlands
    Data source: Spain

11. SL van Winkel, A Rodríguez-Ruiz, L Appelman, A Gubern-Mérida, N Karssemeijer, J Teuwen, AJT Wanders, I Sechopoulos, RM Mann (2021). **Impact of artificial intelligence support on accuracy and reading time in breast tomosynthesis image interpretation: a multi-reader multi-case study.** *Eur Radiology*. https://doi.org/10.1007/s00330-021-07992-w

    *Conclusion: Radiologists improved their cancer detection accuracy **in digital breast tomosynthesis (DBT)** when using Transpara for support, while simultaneously reducing reading time.*

    Affiliation of authors: the Netherlands
    Data source: USA

12. MC Pinto, A Rodriguez-Ruiz, K Pedersen, S Hofvind, J Wicklein, S Kappler, RM Mann, I Sechopoulos. (2021). **Impact of Artificial Intelligence Decision Support Using Deep Learning on Breast Cancer Screening Interpretation.** *Radiology*. https://doi.org/10.1148/radiol.2021204432

    *Conclusion: Radiologists improved their cancer detection accuracy **in single-view digital breast tomosynthesis (DBT)** when using Transpara for support, at similar specificity values and reading times.*

    Affiliation of authors: Norway, the Netherlands
    Data source: Norway

13. L Kerschke, S Weigel, A Rodriguez-Ruiz, N Karssemeijer, W Heindel. (2021). **Using deep learning to assist readers during the arbitration process: a lesion-based retrospective evaluation of breast cancer screening performance.** *Eur Radiology*. https://doi.org/10.1007/s00330-021-08217-w

    Conclusion: Transpara has the potential to improve the discrimination between benign and malignant lesions, potentially reducing the number of unnecessary benign recalls during the arbitration process of screening.

    Affiliation of authors: Germany, the Netherlands
    Data source: Germany

14. K Lång, M Dustler, V Dahlblom, A Åkesson, I Andersson, S Zackrisson. (2020). **Identifying normal mammograms in a large screening population using artificial intelligence.** *European Radiology*. https://doi.org/10.1007/s00330-020-07165-1

    Conclusion: Transpara has the potential to improve mammography screening efficiency by correctly identifying a proportion of a screening population as cancer-free, and reducing false positives.

    Affiliation of authors: Sweden
    Data source: Sweden

15. M Sasaki, M Tozaki, A Rodríguez-Ruiz, D Yotsumoto, Y Ichiki, A Terawaki, S Oosako, Yasuaki Sagara, Yoshiaki Sagara. (2020). **Artificial intelligence for breast cancer detection in mammography: experience of use of the ScreenPoint Medical Transpara system in 310 Japanese women Breast Cancer.** *Breast Cancer*. https://doi.org/10.1007/s12282-020-01061-8

    Conclusion: Transpara showed a high performance in a study population of women with dense breasts.

    Affiliation of authors: Japan, the Netherlands
    Data source: Japan

16. A Rodriguez-Ruiz, E Krupinski, J-J Mordang, K Schilling, SH Heywang-Köbrunner, I Sechopoulos, RM Mann. (2019). **Detection of breast cancer using mammography: Impact of an Artificial Intelligence support system**. *Radiology*. https://doi.org/10.1148/radiol.2018181371

    Conclusion: Radiologists improved their cancer detection performance at mammography when using Transpara for support, without requiring additional reading time.

Affiliation of authors: Netherlands, USA, Germany
Data source: US, Germany

17. A Rodriguez-Ruiz, K Lång, A Gubern-Merida, M Broeders, G Gennaro, P Clauser, T Helbich, M Chevalier, T Tan, T Mertelmeier, W Wallis, I Andersson, S Zackrisson, RM Mann, I Sechopoulos. (2019). **Stand-alone artificial intelligence for breast cancer detection in mammography: Comparison with 101 radiologists**. *Journal of the National Cancer Institute.* *https://doi.org/10.1093/jnci/djy222*

Conclusion: Transpara achieved a cancer detection accuracy comparable to an average breast radiologist in this retrospective setting.

Affiliation of authors: the Netherlands, Switzerland, Italy, Austria, Spain, UK, Sweden, USA, Germany
Data source: the Netherlands, Sweden, Italy, Switzerland, Austria, Spain, Germany, USA

Workflow: Reduce workload / reduce reading time (8)

18. AD Lauritzen, M Lillholm, E Lynge, M Nielsen, N Karssemeijer, and I Vejborg (2024) **Early Indicators of the Impact of Using AI in Mammography Screening for Breast Cancer.** *Radiology* *https://doi.org/10.1148/radiol.232479*

Conclusion: In a population-based mammography screening program, using AI reduced the overall workload of breast radiologists while improving screening performance.

Author affiliation: Denmark, The Netherlands,
Data source: Denmark

19. T Tan, A Rodriguez-Ruiz, T Zhang, L Xu, RGH Beets-Tan, Y Shen, N Karssemeijer, J Xu, RM Mann, and L Bao. (2023). **Multi-modal artificial intelligence for the combination of automated 3D breast ultrasound and mammograms in a population of women with predominantly dense breasts**. *Insights into Imaging.* *https://doi.org/10.1186/s13244-022-01352-y*

Conclusion: Multimodal (ABUS+DM) AI systems for detecting breast cancer in women with dense breasts are a potential solution for breast screening in radiologist-scarce regions.

Author affiliation: China, Netherlands
Data source: China

20. SL van Winkel, A Rodríguez-Ruiz, L Appelman, A Gubern-Mérida, N Karssemeijer, J Teuwen, AJT Wanders, I Sechopoulos, RM Mann. (2021). **Impact of artificial intelligence support on accuracy and reading time in breast tomosynthesis image interpretation: a multi-reader multi-case study.** *Eur Radiology.* *https://doi.org/10.1007/s00330-021-07992-w*

    Conclusion: Radiologists improved their cancer detection accuracy ***in digital breast tomosynthesis (DBT)*** *when using Transpara for support, while simultaneously reducing reading time.*

    Affiliation of authors: the Netherlands
    Data source: USA

21. M Larsen, CF Aglen, SR Hoff, H Lund-Hanssen, S Hofvind. (2022). **Possible strategies for use of artificial intelligence in screen-reading of mammograms, based on retrospective data from 122,969 screening examinations.** *Eur Radiology.* *https://doi.org/10.1007/s00330-022-08909-x*

    Conclusion: Different scenarios using Transpara in combination with radiologists could reduce the screen reading volume by 50% and result in a rate of screen-detected cancer ranging from 0.59% to 0.60%, compared to 0.61% after standard independent double reading.

    The use of Transpara in combination with radiologists has the potential to identify negative screening examinations with high precision in mammographic screening and to reduce the rate of interval cancer.

    Affiliation of authors: Norway
    Data source: Norway

22. A Lauritzen, A Rodriguez-Ruiz, MC von Euler-Chelpin, E Lynge, I Vejborg, M Nielsen, N Karssemeijer, M Lillholm. (2022). **An Artificial Intelligence-based Mammography Screening Protocol for Breast Cancer.** *Radiology.* *https://doi.org/10.1148/radiol.210948*

    Conclusion: In this simulation study, normal mammograms (Transpara exam score < 5) were excluded from double human reading whereas suspicious mammograms would be recalled. AI-based screening sensitivity was noninferior to radiologist screening sensitivity, whereas AI-based screening specificity was higher than the radiologist's specificity. The number of false positives with Transpara was reduced with 25.1%, at the cost of 1.5% missed screen-detected cancers. AI-based screening performed consistently across all BI-RADS breast densities.

Affiliation of authors: Denmark
Data source: Denmark

23. JL Raya-Povedano, S Romero-Martín, E Elías-Cabot, A Gubern-Mérida, A Rodríguez-Ruiz, M Álvarez Benito. **AI-based Strategies to Reduce Workload in Breast Cancer Screening with Mammography and Tomosynthesis: a retrospective evaluation.** (2021). *Radiology*. https://doi.org/10.1148/radiol.2021203555

    Conclusion: Transpara breast AI can help reduce radiologists' workload by up to 70% in both 2D and 3D mammography, without reducing the quality of the screening program.

    Affiliation of authors: Spain, the Netherlands
    Data source: Spain

24. A Rodriguez-Ruiz, K Lång, A Gubern-Merida, J Teuwen, M Broeders, G Gennaro, P Clauser, T Helbich, M Chevalier, T Mertelmeier, MG Wallis, I Andersson, S Zackrisson, I Sechopoulos, RM Mann**.** (2019). **Can we reduce the workload of mammographic screening by automatic identification of normal exams with artificial intelligence? A feasibility study**. *European Radiology*. https://doi.org/10.1007/s00330-019-06186-9R

    Conclusion: It is possible to automatically pre-select exams using Transpara to significantly reduce the breast cancer screening reading workload without affecting screening outcomes.

    Affiliation of authors: the Netherlands, Sweden, Italy, Switzerland, Austria, Spain, Germany, UK Data source: the Netherlands, Sweden, Italy, Switzerland, Austria, Spain, Germany, USA

Risk assessment: Personalized screening and reduction of interval cancers (9)

25. M Larsen, CF Olstad, CI Lee, T Hovda, SR Hoff, MA Martiniussen, KØ Mikalsen, H Lund-Hanssen, HS Solli, M Silberhorn, ÅØ Sulheim, S Auensen, JF Nygård, and S Hofvind (2024) **Performance of an Artificial Intelligence System for Breast Cancer Detection on Screening Mammograms from BreastScreen Norway.** *Radiology: Artificial Intelligence* https://doi.org/10.1148/ryai.230375

    Conclusion: Transpara showed high performance in detecting breast cancers within 2 years of screening mammography and a potential for use to triage low-risk mammograms to

reduce radiologist workload.

Author affiliation: Norway, US
Data source: Norway

26. M Burns Bergan, M Larsen, N Moshina, H Bartsch, HW Koch, HS Aase, Z Satybaldinov, IHS Haldorsen, CI Lee. And S Hofvind (2024) AI performance by mammographic density in a retrospective cohort study of 99,489 participants in BreastScreen Norway. European Radiology
https://doi.org/10.1007/s00330-024-10681-z

Conclusion: Transpara performed well according to cancer detection across all density categories, especially for extremely dense breasts. The highest proportion of screen-detected cancers with an AI score of 10 was observed for women classified as Volumetric density grade 4.

Author affiliation: Norway, US
Data source: Norway

27. M Larsen, CF Olstad, HW Koch, MA Martiniussen, SR Hoff, H Lund-Hanssen, HS Solli, KØ Mikalsen, S Auensen, J Nygård, K Lång, Y Chen, S Hofvind (2023). **AI Risk Score on Screening Mammograms Preceding Breast Cancer Diagnosis.** *Radiology*
https://doi.org/10.1148/radiol.230989

Conclusion: More than one in three cases of screen-detected and interval cancers had the highest AI risk score at prior screening, suggesting that the use of AI in mammography screening may lead to earlier detection of breast cancers.

Author affiliation: Norway, Sweden
Data source: Norway

28. AD Lauritzen, MC von Euler-Chelpin, E Lynge, I Vejborg, M Nielsen, N Karssemeijer, M Lillholm. (2023). **Assessing Breast Cancer Risk by Combining AI for Lesion Detection and Mammographic Texture.** *Radiology.*
https://doi.org/10.1148/radiol.230227

Conclusion: Combining a diagnostic AI system and mammographic texture model resulted in improved risk assessment for interval cancers and long-term cancers and enabled identification of women at high risk.

Author affiliation: Denmark, Netherlands

Data source: Denmark

29. CM Vachon, CG Scott, AD Norman, SA Khanani, MR Jensen, CB Hruska, KR Brandt, SJ Winham, K Kerlikowske. (2023) **Impact of artificial intelligence system and volumetric density on risk prediction of interval, screen-detected, and advanced breast cancer.** *Journal of Clinical Oncology* https://doi.org/10.1200/JCO.22.01153

    Conclusion: Retrospective study on 2D exams, one unit increase in the Transpara score between the prior and the current exam was associated with 20% greater risk for aversive breast cancer. Transpara coupled with an automated volumetric breast density measurement independently contribute to long-term risk prediction of invasive breast cancers, in particular, advanced cancer.

    Affiliation of authors: US, Mayo clinic
    Data source: US

30. HW Koch, M Larsen, H Bartsch, KD Kurz, S Hofvind (2023). **Artificial intelligence in BreastScreen Norway: a retrospective analysis of a cancer-enriched sample including 1254 breast cancer cases.** *Eur Radiology.* https://doi.org/10.1007/s00330-023-09461-y

    Conclusion: The high proportion of cancers with Transpara score 10 indicates a promising performance of Transpara, particularly for women with dense breasts. Results on prior mammograms with Transpara score 10 illustrate the potential for earlier detection of breast cancers by using AI in screen-reading.

    Affiliation of authors: Norway
    Data source: Norway

31. M Larsen, C F Aglen, C Lee, SR Hoff, H Lund-Hanssen, K Lång, J Nygård, G Ursin, S Hofvind. (2022). **Artificial Intelligence Evaluation of 122 969 Mammography Examinations from a Population-based Screening Program.** *Radiology.* *https://doi.org/10.1148/radiol.212381*

    Conclusion: A total of 77.9% of all breast cancers (86.8% of screen-detected and 44.9% of interval cancers) had the highest Transpara exam score of 10. With a threshold that mirrors the average individual radiologist rate of positive interpretation, 80.1% of screen-detected and 30.7% of interval cancers were selected by Transpara.

    This is currently the largest AI evaluation study to date, including more than 120 000 examinations (752 screen- detected and 205 interval cancers) from a real screening

setting.

Affiliation of authors: Norway
Data source: Norway

32. A Wanders, W Mees, P Bun, N Janssen, A Rodriguez-Ruiz, MU Dalmas, N Karssemeijer, C van Gils, I Sechopoulos, RM Mann, CJ van Rooden. (2022). **Interval Cancer Detection Using a Neural Network and Breast Density in Women with Negative Screening Mammograms.** *Radiology*.
https://doi.org/10.1148/radiol.210832

Conclusion: The combined assessment of Transpara and breast density measurements enabled identification of a larger proportion of women who would develop interval cancer compared with either method alone.

Affiliation of authors: the Netherlands
Data source: the Netherlands

33. K Lång, S Hofvind, A Rodríguez-Ruiz, I Andersson. (2021). **Can artificial intelligence reduce the interval cancer rate in mammography screening?** *European Radiology*.
https://doi.org/10.1007/s00330-021-07686-3

Conclusion: The use of AI in screen reading has the potential to reduce the rate of interval cancer without supplementary screening modalities.

Affiliation of authors: Sweden, Norway, the Netherlands
Data source: 4 screening sites in Sweden

Other topics / use cases (5)

Version comparison

34. L Çelik, D Can Güner , Ö Özçağ layan, R Çubuk and ME Arıbal. (2023). **Diagnostic performance of two versions of an artificial intelligence system in interval breast cancer detection**. *Acta Radiologica* (comparison of two Transpara versions)
https://doi.org/10.1177/02841851231200785

Conclusion: The present study showed that Transpara v1.7 has a higher specificity, sensitivity and diagnostic performance in IBC determination than v1.6. AI systems can be used in breast screening as a secondary or third reader in screening programs.

Author affiliation: Turkey

Data source: Turkey

Multi-vendor robustness analysis

35. M Riveira-Martin, A Rodríguez-Ruiz, R Martí, and M Chevalier. (2023). **Multi-vendor robustness analysis of a commercial artificial intelligence system for breast cancer detection**. *SPIE journal of Medical Imaging* https://doi.org/10.1117/1.jmi.10.5.051807

    Conclusion: The results suggest that the AI system analyzed in our work has a robust diagnostic capability, and that its accuracy is independent of the parameters studied.

    Author affiliation: Spain, Netherlands
    Data source: Spain

Ultrasound + AI in dense breast

36. T Tan, A Rodriguez-Ruiz, T Zhang, L Xu, RGH Beets-Tan, Y Shen, N Karssemeijer, J Xu, RM Mann, and L Bao. (2023). **Multi-modal artificial intelligence for the combination of automated 3D breast ultrasound and mammograms in a population of women with predominantly dense breasts**. *Insights into Imaging* https://doi.org/10.1186/s13244-022-01352-y

    Conclusion: Multimodal (ABUS+DM) AI systems for detecting breast cancer in women with dense breasts are a potential solution for breast screening in radiologist-scarce regions.

    Author affiliation: China, Netherlands
    Data source: China

Algorithm comparison

37. SE Hickman, NR Payne, RT Black, Y Huang, AN Priest, S Hudson, B Kasmai, A Juette, M Nanaa, MI Aniq, A Sienko, FJ Gilbert. (2023). **Mammography Breast Cancer Screening Triage Using**
    Deep Learning: A UK Retrospective Study. *Radiology*
    (comparison between 3 deep learning algorithms)
    https://doi.org/10.1148/radiol.231173

    Conclusion: Rule-out and rule-in Deep learning-adapted triage workflows can improve the efficiency and efficacy of mammography breast cancer screening.

    Author affiliation: UK
    Data source: UK

38. Hee Jeong Kim, Woo Jung Choi, Hye Yun Gwon, Seo Jin Jang, Eun Young Chae, Hee Jung Shin, Joo Hee Cha and Hak Hee Kim (2023). **Improving mammography interpretation for both novice and experienced readers: a comparative study of two commercial artificial intelligence software.** *Eur Radiology* https://doi.org/10.1007/s00330-023-10422-8

    Conclusion: Transpara improved the diagnostic performance of both novice and experienced readers. The type of AI software used did not significantly impact performance changes.

    Author affiliation: South Korea
    Data source: South Korea

Publications in international conference proceedings (total 6)

- C Balta, A Rodriguez-Ruiz, C Mieskes, N Karssemeijer, SH Heywang-Köbrunner. **Going from double to single reading for screening exams labeled as likely normal by AI: what is the impact?** Proc. SPIE 11513, 15th International Workshop on Breast Imaging (IWBI2020), 115130D (22 May 2020); doi: 10.1117/12.2564179

  Conclusion: Transpara can improve breast cancer screening efficiency by pre-selecting likely normal exams where double reading can be safely replaced by single reading resulting in 32.6% reading workload reduction.

  Author affiliation: the Netherlands, Germany
  Data source: Germany

- M Dustler, V Dahlblom, A Tingberg, S Zackrisson. **The effect of breast density on the performance of deep learning-based breast cancer detection methods for mammography.** Proc. SPIE 11513, 15th International Workshop on Breast Imaging (IWBI2020), 1151324 (22 May 2020); doi: 10.1117/12.2564328

  Conclusion: Transpara risk categorization is not affected by density. Transpara has the potential to improve screening sensitivity even for women with high breast density.

  Author affiliation: Sweden
  Data source: Sweden

- V Dahlblom, A Tingberg, S Zackrisson, M Dustler. **Personalised breast cancer screening with selective addition of digital breast tomosynthesis through artificial intelligence.**

Proc. SPIE 11513, 15th International Workshop on Breast Imaging (IWBI2020), 115130C (22 May 2020); doi: 10.1117/12.2564344

Conclusion: Using DBT only for cases marked as highly suspicious by Transpara in mammography could be an alternative to a complete DBT screening. If adding DBT for women with Transpara Score 10 in mammography, 12% of the women would have DBT added and 26% more cancers would be detected, with a 21% increase in false positives.

Author affiliation: Sweden
Data source: Sweden

- A Rodríguez-Ruiz, K Lång, A Gubern-Merida, M Broeders, G Gennaro, P Clauser, T Helbich, T Mertelmeier, M Chevalier, M Wallis, I Andersson, S Zackrisson, R M Mann, I Sechopoulos. **Can AI serve as an independent second reader of mammograms? A simulation study.** Proc. SPIE 11513, 15th International Workshop on Breast Imaging (IWBI2020), 115130O (22 May 2020); doi: 10.1117/12.2564114

  Conclusion: Using Transpara as a second reader in a double reading setting, workload could be reduced by 44%, without an impact in sensitivity and with a possible specificity increase by 5.3%.

  Affiliation of authors: the Netherlands, Switzerland, Italy, Austria, Spain, UK, Sweden, USA, Germany Data source: the Netherlands, Sweden, Italy, Switzerland, Austria, Spain, Germany, USA

- Bejnö, G. Hellgren, A. Rodriguez-Ruiz, P. R. Bakic, S. Zackrisson, A. Tingberg, M. Dustler. **Artificial intelligence together with mechanical imaging in mammography.** Proc. SPIE 11513, 15th International Workshop on Breast Imaging (IWBI2020), 1151320 (22 May 2020); doi: 10.1117/12.2564107

  Conclusion: Mechanical imaging (MI) estimates the relative stiffness of suspicious breast abnormalities by measuring the distribution of pressure on the compressed breast. MI combined with Transpara has the potential to increase the accuracy of mammography screening.

  Author affiliation: Sweden, the Netherlands, USA
  Data source: Sweden

- K Dercksen, M Kallenberg, J Kroes. **Robust multi-vendor breast region segmentation using deep learning.** Proc. SPIE 11513, 15th International Workshop on Breast Imaging (IWBI2020), 115131A (22 May 2020); doi: 10.1117/12.2564108

  Conclusion: Transpara can provide robust breast region segmentations in a multimodal multi-vendor setting.

Author affiliation: the Netherlands
Data source: the Netherlands

International scientific abstracts and presentations

ECR 2024 (total 7)

- A Rodriguez-Ruiz, N Karssemeijer, I Sechopoulos, RM Mann. **How much has mammography breast AI improved over the last 5 years? A benchmark evaluation of different versions of the same AI system in comparison to performance of the Dutch radiologist**

  Conclusion: Breast AI systems are continuously improving their detection performance. In the evaluated system, the current detection performance has improved over time to match and surpass that of a single radiologist.

  Author affiliation: NL
  Data source: NL

- E Elias-Cabot, S Romero Martin, JL Raya Povedano, A Rodriguez Ruiz, M Álvarez Benito. **Is it worth reading low-risk breast cancer screening mammograms as determined by an Artificial Intelligence (AI) system? A prospective, population-based study for DM and DBT (AITIC trial)**

  Conclusion: AI-based triaging, excluding low risk mammograms from human reading leads to a substantial reduction in reading workload in breast cancer screening without negatively affecting performance.

  Author affiliation: Spain
  Data source: Spain

- HW Koch, M Larsen, S Hofvind. **Are AI-detected interval cancers actionable for recall in a real screening setting? An informed review of 120 interval cancer cases with high AI scores in breast screen Norway**

  Conclusion: Our results indicate that the true effect of AI in screen reading regarding earlier detection of interval cancers is still uncertain. Although 49% of interval cancers in extremely dense breasts had AI score 10, none were considered actionable for recall in an informed

consensus review.

Author affiliation: Norway
Data source: Norway

- V Hernström, V Josefsson, H Sartor, D Schmidt, A-M Larsson, I Andersson, A Rosso, O Hagberg, K Lång. **Cancer detection in relation to type and stage in the randomised Mammography Screening with Artificial Intelligence trial (MASAI).**

  Conclusion: AI-supported screening resulted in a 28% increase in cancer detection compared to double reading without AI, which comprised increased detection of both invasive and in-situ cancers.

  Author affiliation: Sweden
  Data source: Sweden

ECR Scientific posters:

- A-K Brehl, A Rodriguez-Ruiz, D Sperber, N Karssemeijer, R Brem, RM Mann. **Using AI to automatically compute volumetric breast density and BIRADS density grade in mammography and breast tomosynthesis images.**

  Conclusion: A newly developed AI system for automated computation of volumetric breast density and BIRADS 5th Ed. density grade in DM and DBT shows high accuracy, while only requiring for-presentation images.

  Author affiliation: NL
  Data source: NL

- S Laos, M Kock, D Dieckens. **AI breast cancer detection as decision-support tool in mammography: what is the added value in a clinical population?**

  Conclusion: Including Transpara software for patients with BI-RADS 4 scores potentially leads to improved breast cancer detection.

  Author affiliation: NL
  Data source: NL

- Adarsh Bhandary Panambur, Hoang Dinh Au, LeDuy Chung, Le Tuan Linh, Andreas Maier, Nyugen Minh, Toan, Kaja Beitat, Matt Andrews, Alejandro Rodriguez Ruiz, Benjamin Schmitt,

Siming Bayer. **Enhancing Mammography Screening Sensitivity with AI-Assistance: Evidence from a Vietnamese Study Cohort**

Conclusion: AI assistance in mammography screening showed heightened sensitivity, especially beneficial for the Vietnamese and broader southeast Asian populations, where dense breasts and inconclusive ultrasounds are common.

Author affiliation: Vietnam, Germany, NL
Data source: Vietnam

RSNA 2023 (total 4)

- Roger Yang. **Performance of an Artificial Intelligence system on Screening Digital Breast Tomosynthesis Cases.**

  Conclusion: AI score 8-10 has a strong predictive value for cancer. This system can be used to aid radiologists when evaluating screening mammograms.

  Author affiliation: US / URG
  Data source: US

- Tiffany Yu, Anne Christine Hoyt, Melissa Marie Joines, Cheryce Poon Fischer, Nazanin Yaghmai, James Stewart Chalfant, Lucy Chow, Shabnam Mortazavi, Christopher Sears; James William Sayre, William Hsu, Hannah Milch. **Exploring the Missed: Classifying Interval Breast Cancers in a U.S. Based Screening Population to Unlock the Potential Clinical Utility of AI**

  Conclusion: The majority of interval cancers were classified as minimal signs, and both minimal signs and reading error misses had the greatest proportion correctly flagged by AI. Thus, AI can potentially aid in identifying and reducing the interval cancer rate in US-based screening programs.

  Author affiliation: US
  Data source: US

- Andreas D. Lauritzen, Martin Lillholm, Mads Nielsen, and Ilse Vejborg. **Preliminary Results of Implementing AI into Breast Cancer Screening in the Capital Region of Denmark**

  Conclusion: Screening with AI in the Capital Region of Denmark increased CDR while the recall and false positive rates decreased. Small invasive cancers were more often diagnosed. Rates of invasive and node negative cancers did not significantly change. Our findings suggest

that AI improved screening quality while considerably reducing radiologists' workload.

Author affiliation: Denmark
Data source: Denmark

- Federica Zanca, Natalie Heracleous, Anna Maria Rosano, Chris de Wolf, Cyril Thouly, Benoit Dufour, Benoit Rizk, Hugues Brat. **Artificial intelligence-based triage of breast cancer screening mammograms in a Swiss region: possible impact of AI region's score cutoff on radiologist workload**

  Conclusion: Preliminary data suggests that a cutoff score of 42 would allow triaging breast cancer screening mammograms with a 99.9% negative predicted value (NPV) into a one-click reporting. A threshold of 49% would enable a triage with a NPV similar to the Swiss cancer screening program in the Valais Canton (0.3%).

  Author affiliation: Switzerland / 3R
  Data source: Switzerland

EUSOBI 2023 (total 4)

- S. Hickman, N. Payne, R. Black, Y. Huang, A. Priest, B.Kasmai, A.JuePe, M.Nanaa, F.J. Gilbert **Distribution of deep learning cancer detection in mammography screening tasks**

  Conclusion: DL algorithms detect and miss different cancers. Monitoring cancer type distributions is vital in ongoing studies to ensure key important cancers are detected.

  Author affiliation: UK
  Data source: UK

- Santiago Pires, R. Peeters, J. Kroes, N. Janssen, N. Karssemeijer. **Leveraging Prior Mammograms to Optimize AI Performance in Breast Cancer Detection**

  Conclusion: prior mammograms into the Transpara breast cancer detection system has shown potential to decrease false positives. These encouraging results require further validation with other independent sets to fully understand the impact of this approach to improve breast cancer detection. The integration of information from prior mammograms into an existing AI system shows a significant reduction in false positives, indicating a promising method for improving screening accuracy and advancing AI in clinical radiology.

  Author affiliation: SP/ The Netherlands

Data source: UK, The Netherlands, Germany, Argentina

- Santiago Pires, S. van Winkel, J. Peters, J. Teuwen, J. Kroes, M. Broeders, R. Mann, N. Karssemeijer. **Comparison of the performance of two versions of an AI system with single and double reading in 22,961 screened women with long-term follow up**

  Conclusion: A new version of a commercial AI system has better performance than its predecessor and significantly outperforms single reading

  Author affiliation: SP/ The Netherlands
  Data source: The Netherlands

- Mohammad Talal Elhakim, Sarah Wordenskjold Stougaard, Ole Graumann, Mads Nielsen, Kristina Lång, Oke Gerke, Lisbet Brønsro Larsen & Benjamin Schnack Brandt Rasmussen. **Can AI replace first reader in double reading? A large-scale, Danish multicentre study**

  Conclusion: Replacing first reader in double reading with an AI could be feasible but choosing an appropriate AI threshold is crucial to maintaining cancer detection accuracy and workload. Prospective clinical trials are warranted to study effects of workflow changes, reading assistance, and unconfound first reader from reference standard definition.

  Author affiliation: Denmark, Sweden
  Data source: Denmark

San Antonio Breast Cancer Symposium 2023 (total 1)

- Celine M. Vachon1, Christopher Scott1, Imon Banerjee2, Ramon Correa-Medero2, Dan Hursh1, Matt Jensen1, Yvonne Wang1, Kathleen Brandt1, Aaron Norman,1 Karla Kerlikowske3, Sandhya Pruthi1, Fergus Couch1, Stacey Winham1 **Contribution of a Breast Cancer Polygenic Risk Score to Mammography Artificial Intelligence Models and Breast Density for Long Term Breast Cancer Risk Prediction**

  Conclusion: BC-PRS contributed to long-term BC risk prediction beyond AI models and breast density measures. Imaging and genetic risk factors appear complementary for long-term BC risk.

  Author affiliation: 1Mayo Clinic, Rochester, MN; 2Mayo Clinic, Phoenix, AZ; 3University of California San Francisco, San Francisco, CA
  Data source: US

ECR 2023 (total 7)

- K. Lång et al. **First results from the randomised controlled Mammography Screening with Artificial Intelligence trial (MASAI).**

  Conclusion:
  This randomised-controlled trial has shown that mammography screening with Transpara can be performed at maintained low rates of consensus meetings, recalls and false positives, and with a potential increase in the cancer-detection rate, whilst substantially reducing the screen reading workload.

  Author affiliation: Sweden
  Data source: Sweden

- V. Dahlblom, M. Dustler, S. Zackrisson, A. Tingberg. **Workload reduction of digital breast tomosynthesis screening using artificial intelligence and synthetic mammography.**

  Conclusion:
  In a DBT-based screening programme, AI could be used to select high-risk cases where reading of DBT is valuable, while SM is sufficient for low-risk cases. Substantially more cancers could be detected compared to DM only, with only a limited increase in reading workload. Prospective studies are necessary.

  Author affiliation: Sweden
  Data source: Sweden

- E. Elías Cabot, S. Romero Martin, JL. Raya Povedano, A. Gubern-Merida, AK. Brehl, M. Álvarez Benito. **Artificial Intelligence (AI) in Breast Cancer Screening Programs in Cordoba (AITIC): Introduction and first interim results.**

  Conclusion:
  Triaging with Transpara safely reduces workload and increases the overall effectiveness in breast cancer screening.

  Author affiliation: Spain
  Data source: Spain

- E. Elías Cabot, S. Romero Martin, JL. Raya Povedano, A. Gubern-Merida, M. Álvarez Benito.

Artificial Intelligence (AI) improves breast cancer screening performance for both digital mammography and digital breast tomosynthesis.

Conclusion: Using Transpara concurrently in screening practice contributes to an increase in CDR and PPV for both DM and DBT. A larger improvement is observed for DM. Artificial Intelligence can improve breast cancer screening performance in both DM and DBT.

Author affiliation: Spain
Data source: Spain

- K. Hamm, D. Hellingman, AK. Brehl, B. Vetter, T. Jordan, C. Entrup, M. Engelke, B. Schubotz. **AI-decision support for double reading in breast cancer screening with digital mammography: A pseudo prospective evaluation.**

  Conclusion: The implementation of AI-based decision support in a double reading setting significantly improved the quality of breast cancer screening in terms of cancer detection.

  Author affiliation: Germany
  Data source: Germany

- HW. Koch, M. Larsen, H. Bartsch, S. Hofvind. **Artificial intelligence (AI) and extremely dense breasts in BreastScreen Norway: Can AI increase cancer detection?**

  Conclusion: Our results indicate promising performance of Transpara for women with extremely dense breasts. The cost of an increased number of false positive cases selected for consensus needs to be further explored in prospective studies.

  Author affiliation: Norway
  Data source: Norway

- J. Waugh et al. **Performance comparison of artificial intelligence (AI) to double reading in the Australian BreastScreen Program**.

  Conclusion:Only 2/54 prevalent IBCs were not scored 9 or 10 by Transpara and this AI group included some interval cancers and cancers from the subsequent round that were not identified by the radiologists. A proposed protocol for the incorporation of AI into a screening protocol will be discussed which includes all images being read by at least one radiologist plus Transpara, with no loss of sensitivity. Potential benefits include reducing the number of women recalled for benign lesions, interval cancers and workload.

  Author affiliation: Australia
  Data source: Australia

RSNA 2022 (total 2)

- A. Lauritzen, N. Janssen, A-K. Brehl, I. Vejborg, M. Lillholm. **A prospective study of breast cancer screening with AI as first reader for likely normal mammographies.**

  Conclusion:
  Initial results of screening with Transpara as first reader, in cases of likely normal FFDMs, reduced the reader workload by 29% and resulted in a lower recall rate, however not significantly so. More time is needed to collect additional data and to detect whether recall rate will safely decrease without sacrificing cancer detection rate. An ongoing study for future publication is currently monitoring rate of consensus conferences, level of reader agreement, interval cancer rate, and cancer detection rate.

  Author affiliation: Denmark
  Data source: Denmark

- P. Gialis, A-K. Brehl, H. Gustafsson. **Artificial intelligence (AI) allows safe workload reduction in breast cancer screening: a retrospective study.**

  Conclusion:
  Replacing one reader in a breast cancer screening workflow with Transpara for the low risk cases could safely reduce the workload by 33.8% with no cancers being missed.

  Author affiliation: Sweden
  Data source: Sweden

ECR 2022 (total 4)

- K. Hamm, D. Hellingman, L. Kotrini, B. Vetter, T. Jordan, C. Entrup, M. Engelke, N. Janssen, B. Schubotz. **AI based strategy to reduce the recall rate and consensus meeting workload of double reading in breast cancer screening with digital mammography: a retrospective evaluation**

  Conclusion:
  Not reading exams with Transpara score 1-6 can reduce radiologists' recall rate and workload in screening at the cost of missing some screen-detected cancers. However, recalling the top 1% might compensate this loss in missed cancers. Transpara-assisted double reading of all exams can potentially lower the recall rate and increase the cancer detection rate, but prospective studies should confirm this.

Author affiliation: Germany
Data source: Germany

- E. Elías Cabot, S. Romero Martin, J.L. Raya Povedano, A. Gubern-Mérida, M.A.B. Álvarez Benito. **Evaluation of the performance of artificial intelligence (AI) after the first six months of use in breast cancer screening practice: Is the promise being delivered?**

  Conclusion:
  Using Transpara concurrently in clinical practice allows to stratify examinations according to probability of cancer. Transpara increases cancer detection rate and positive predictive value of recalled women.

  Author affiliation: Spain
  Data source: Spain

- L. Celik, C. Guner, A-K. Brehl, N. Janssen, M.E. Aribal. **Evaluate performance of two different versions of an artificial intelligence (AI) system for predicting the risk of developing interval cancer (IC) within 6 to 24 months after negative screening exam.**

  Conclusion:
  Transpara has the potential to reduce the stable high rate of interval cancer in case AI is applied as a second or third independent reader within a national breast cancer screening program. Moreover, further developments of Transpara promise increasing performance towards the prediction of interval cancer.

  Author affiliation: Turkey
  Data source: Turkey

- M. Larsen, C. F. Aglen, C. Lee, S.R. Hoff, H. Lund-Hanssen, K. Lång, J. Nygård, G. Ursin, S. Hofvind. **Reduced workload for breast radiologists: results from a retrospective study using artificial intelligence in mammographic screening.**

  Conclusion:
  Transpara acting as a second reader in the 50% least suspicious exams would have no impact on cancer detection rate, but would lead to 25% reduced workload at the same time.

  Author affiliation: Norway
  Data source: Norway

RSNA 2021 Presentations (total 5)

- E Aribal, L Celik, N Janssen. **The Potential Of AI To Reduce Interval Cancer In A Middle**

Income Country Breast Cancer Screening.

Conclusion: Transpara has the potential to reduce the rate of interval cancers, in case AI is applied as a second or third independent reader within a national breast cancer screening program.

Author affiliation: Turkey
Data source: Turkey

- S van Winkel, N Janssen, N Karssemeijer, R Mann. **Replacing a radiologist by AI in Dutch population based breast cancer screening and the impact of breast density on performance.**

  Conclusion: Transpara provides a higher sensitivity than a reader and is independent of breast density, but an effective arbitration process is necessary.

  Author affiliation: the Netherlands
  Data source: the Netherlands

- CM Vachon, CG Scott, S Winham, A Norman, CB Hruska, KR Brandt, K Kerlikowske. **Commercially available AI system for breast cancer detection shows promise for risk prediction, including among women with dense breasts.**
  Conclusion: Transpara's imaging-based measures combined with volumetric density improved discrimination of invasive breast cancer. Including these measures in risk models could better inform tailored screening and supplemental imaging strategies.

  Author affiliation: USA
  Data source: USA

- S Romero-Martín, JL Raya-Povedano, E Elías-Cabot, A Gubern-Mérida, A Rodríguez-Ruíz, M Álvarez-Benito. **Can artificial intelligence (AI) completely replace human reader in mammography screening program? A retrospective evaluation with digital mammography (DM) and digital breast tomosynthesis (DBT).**

  Conclusion: Transpara could be used alone in screening programs with DM but with DBT it would be necessary to increase the recall rates to achieve similar sensitivity

  Author affiliation: Spain
  Data source: Spain

- M Larsen, CF Aglen, SR Hoff, H Lund-Hanssen, J Nygard, SS Hofvind. **Artificial Intelligence as a support to the radiologists' screen reading of mammograms - A retrospective study.**

  Conclusion: Transpara marks a substantial number of screen-detected and interval cancer and could potentially aid radiologists in their screen-reading and increase the sensitivity of

the screening program.

Author affiliation: Norway
Data source: Norway

EUSOBI 2021 Presentations (total 2)

- Suzanne van Winkel, Natasja Janssen, Nico Karssemeijer, Ritse Mann. **AI as second radiologist in population-based breast cancer screening and the impact of breast density on AI performance.**

  Conclusion: AI has potential as second reader, but an effective arbitration process is necessary. The AI performance seems independent of breast density.

  Author affiliation: the Netherlands
  Data source: the Netherlands

- Natasja Janssen, Suzanne van Winkel, Nico Karssemeijer, Ritse Mann. **The potential of AI to triage high risk women that benefit from shorter screening intervals.** [POSTER]

  Conclusion: AI has the potential to triage high-risk women for presenting with breast cancer at the next screening round, that could benefit from shorter screening intervals.

  Author affiliation: the Netherlands
  Data source: the Netherlands

ECR 2021 Presentations (total 8)

- Janssen N, Rodriguez-Ruiz A, Mieskes C, Karssemeijer N, Heywang-Köbrunner S H. **The potential of AI to replace a first reader in a double reading breast cancer screening program: a feasibility study**

  Conclusion: Replacing a radiologist with Transpara in a double reading screening program could be an effective and safe strategy to reduce workload by 50% without missing cancers.

  Author affiliation: Germany, the Netherlands
  Data source: Germany

- Raya-Povedano J L , Romero-Martín S , Elías-Cabot E, Gubern-Merida A, Rodríguez-Ruiz A, Alvarez-Benito M. **Replacing double reading in mammography screening with single reading and artificial intelligence: a large retrospective screening evaluation**

  Conclusion: Transpara can replace one radiologist in a double reading screening program,

allowing for workload reduction of 50% and improved sensitivity of 6.7% and reduced recall rate of 8.8%.

Author affiliation: Spain, the Netherlands
Data source: Spain

- Raya-Povedano J L , Romero-Martín S , Elías-Cabot E, Gubern-Merida A, Rodríguez-Ruiz A, Alvarez-Benito M. **Using Artificial Intelligence to transition from digital mammography screening to digital breast tomosynthesis screening: a retrospective evaluation**

  Conclusion: Screening programs can use Transpara to transition from 2D screening to 3D screening + AI, increasing sensitivity by 25%, reducing recall rate by 27%, and even reducing workload by 30% using 3D+AI in comparison to 2D only.

  Author affiliation: Spain, the Netherlands
  Data source: Spain

- van Winkel S, Janssen N, Rodriguez-Ruiz A, Karssemeijer N, Sechopoulos I, Mann R M. **The potential for AI to replace a reader in a double reading breast cancer screening program.**

  Conclusion: Transpara can replace a radiologist in a double reading screening program, resulting in a reduced workload of 50% and improved sensitivity of 12.5%.

  Author affiliation: the Netherlands
  Data source: the Netherlands

- Jarraya H, Damiens Y, Amrane Y, Vendel C, Legros M, Brochart C, Rais J, Medjahdi M, Petit T, Rodríguez Ruiz A. **Using AI to identify very likely normal cases that may not need a second reader assessment in a French breast cancer screening program (BCSP): a retrospective evaluation.**

  Conclusion: Transpara can be used in the French screening program as an aid to the first reader, to identify 30% of very likely normal mammograms where double reading is not necessary. Combined with breast density, this volume could be increased to 43%.

  Author affiliation: France, the Netherlands
  Data source: France

- Janssen N, van Winkel S, Rodríguez-Ruiz A, Karssemeijer N, Sechopoulos I, Mann R M. **Using AI with single reading in screening: a simulation of the impact on tumour characteristics of detected cancers**

  Conclusion: Transpara can replace a radiologist in a double reading screening program,

resulting in similar tumor characteristics compared to double reading and potential higher cancer detection rates.

Author affiliation: the Netherlands
Data source: the Netherlands

- Wanders A J T, Mees W, Janssen N, Dalmis M U, Rodriguez-Ruiz A, Sechopoulos I, van Gils C H, Karssemeijer N, Mann R M, van Rooden J-K. **Using an AI system and breast density to quantify the short-term risk of interval cancer in screening: a large retrospective evaluation**

  Conclusion: Transpara findings combined with breast density significantly improves detection of interval cancers.

  Author affiliation: the Netherlands
  Data source: the Netherlands

- Lauritzen A D, Rodriguez-Ruiz A, von Euler-Chelpin M C, Lynge E, Vejborg I, Nielsen M, Karssemeijer N, Lillholm M. **Measuring short- and long-term breast cancer risk by combining mammographic texture models, an AI-based CAD system, and established risk factors**

  Conclusion: Transpara can power short and long-term cancer prediction together with breast density, texture and other biomarkers.

  Author affiliation: Denmark, the Netherlands
  Data source: Denmark

RSNA 2020 Presentations (total 6)

- A.J.T. Wanders, W. Mees, N. Janssen, A. Rodriguez-Ruiz, I. Sechopoulos, J.K. van Rooden, Ritse M. Mann. **The potential of AI for improving early detection in breast cancer screening to reduce interval cancer rates**

  Conclusion: AI has the potential to reduce interval cancer rates, whether by being used as an independent reader or as a pre-selection tool to determine which cases could benefit from additional screening imaging.

  Author affiliation: the Netherlands
  Data source: the Netherlands

- C. Balta, N. Janssen, A. Rodriguez-Ruiz, C. Mieskes, N. Karssemeijer, S. H. Heywang-Köbrunner. **Using AI to triage which screening mammograms benefit from a double reading strategy.**

Conclusion: AI can be used to triage screening mammograms that would benefit most from double reading, reducing workload and improving screening performance.

Author affiliation: Germany, the Netherlands
Data source: Germany

- S. J. Vinnicombe, O. Parr, R. Sidebottom, D. Godden, E. Cornford, I. D. Lyburn. **What impact could AI based computer aided detection have on the number and biological relevance of interval cancers in a population-based screening programme?**
  Conclusion: AI-based CAD localised some cancers on prior screens that were missed by readers, mostly low/intermediate grade ER positive cancers.

  Author affiliation: UK, the Netherlands
  Data source: U

- C. Balta, N. Janssen, A. Rodriguez-Ruiz, C. Mieskes, N. Karssemeijer, S. H. Heywang-Köbrunner. **Can AI help to increase the PPV of screen-recalled biopsies on calcifications?**

  Conclusion: When only lesions in exams with an Exam-Score of 10 had been biopsied only one low-grade DCIS would have been missed while the number of benign biopsies would have been reduced by 23.1%.

  Author affiliation: Germany, the Netherlands
  Data source: Germany

- M. Pinto, A. Rodriguez-Ruiz, K. Pedersen, S. Hofvind, R. Mann, S. Kappler, J. Wicklein, I. Sechopoulos. **Impact of AI decision support on breast cancer screening interpretation with single-view wide-angle DBT**

  Conclusion: Radiologists improved their cancer detection performance at DBT when using an AI system for decision support. Furthermore, AI support results in a more optimal distribution of reading time, with readers spending less time in normal cases and more time in suspicious cases.

  Author affiliation: Norway, the Netherlands
  Data source: Norway

- S. Romero Martín, J. Luis Raya Povedano, E. Elías Cabot, A. Gubern-Merida, A. Rodríguez-Ruiz, M. Álvarez Benito. **Using autonomous AI to reduce the workload of breast cancer screening with breast tomosynthesis: a retrospective validation**

  Conclusion: Transpara can confidently identify very likely normal 3D exams in screening that

could be prevented from double reading, therefore reducing workload up to 70% without reducing sensitivity by 5% or more.

Author affiliation: Spain, the Netherlands
Data source: Spain

ECR 2020 Presentations (total 3)

- Kristina Lång, Solveig Hofvind, Alejandro Rodriguez Ruiz, Ingvar Andersson. **Can artificial intelligence reduce the interval cancer rate in mammography screening?**
  Findings: Transpara was able to detect a substantial number of interval cancers on prior screening exam. Applying an AI-derived recall rate recommendation for the most suspicious cases to, e.g., a 3rd reader or a consensus discussion, might provide means to help radiologist reduce the interval cancer rate.

  Author affiliation: Sweden, the Netherlands
  Data source: Sweden

- D. Lauritzen, A. Rodriguez-Ruiz, M. C. von Euler-Chelpin, E. Lynge, I. Vejborg, M. Nielsen, N. Karssemeijer, M. Lillholm **Reducing Radiologist Workload by Detecting Normal Mammograms with an AI System**
  Findings: The results show that Transpara can successfully identify normal mammographies with very few missed screen-detected cancers. Furthermore, a substantial amount of false positive studies was identified as normal. The results suggest that potentially AI systems could effectively and safely reduce the number of studies that radiologists would have to examine by a considerable amount, and several false positives could be avoided.

  Author affiliation: Denmark, the Netherlands
  Data source: Denmark

- Ritse M. Mann, Alejandro Rodriguez-Ruiz, Albert Gubern-Merida, Nico Karssemeijer, I. Sechopoulos **Reading breast tomosynthesis examinations with an AI decision support system: improving cancer detection accuracy**

  Findings: Radiologists improved their cancer detection in breast tomosynthesis examinations when using Transpara for support, while simultaneously reading time is reduced.

  Author affiliation: the Netherlands
  Data source: the Netherlands

ECR 2019 (total 2)

- K. Lång, M. Dustler, V. Dahlblom, I. Andersson, S. Zackrisson. **Can artificial intelligence**

identify normal mammograms in screening?

Conclusion: Transpara can reduce the screen-reading workload. With further improvement of the software an even greater exclusion of normal mammograms seems possible since the majority of the cancers with low-risk scores were clearly visible.

Author affiliation: Sweden
Data source: Sweden

- Rodriguez-Ruiz, M. Kallenberg, A. Gubern-Merida, N. Karssemeijer, R. M. Mann. **Artificial intelligence detecting breast cancer on mammography: does breast density play a role?**

  Conclusion: Transpara Score may be considered as an independent tool to estimate the likelihood of the presence of cancer on mammograms, to stratify screening populations, and to potentially fasten the reading process by reassuring readers on mammograms that are likely normal, irrespective of breast density.

  Author affiliation: the Netherlands
  Data source: the Netherlands

EUSOBI 2019 Posters (total 1)

- A Rodríguez-Ruiz, K Lång, A Gubern-Mérida, M Broeders, G Gennaro, P Clauser, T Helbich, T Mertelmeier, M Chevalier, T Tan, M G Wallis, I Andersson, S Zackrisson, R M Mann, I Sechopoulos **Using AI as a pre-screening tool to replace double with single reading for likely normal mammography cases. A simulation study on the impact on sensitivity, specificity, and workload**

  Conclusion: In a simulation study, replacing double reading by single reading for mammograms labelled as most likely normal by Transpara shows potential to reduce workload in screening, with minimal effect in sensitivity and a moderate increase in specificity.

  Author affiliation: the Netherlands, Austria, Sweden, Italy, Germany, Spain, UK, Switzerland Data source: the Netherlands, Austria, Sweden, Italy, Germany, Spain, Switzerland, USA

BSBR 2019 (total 1)

- Dr W Teh. **Duty of Candour in Interval Cancer Review: Does AI add transparency?**
  Consultant Radiologist, Northwick Park Hospital, London North West University Healthcare NHS Trust, UK

Conclusion: Transpara could help to reduce the false negative exams in the UK screening program and as an aid in the interval cancer review process.

Author affiliation: UK
Data source: UK

RSNA 2019 (total 1)

- M Halling Brown, A Rodriguez-Ruiz, N Karssemeijer, MG Wallis, KC Young. **Artificial Intelligence for breast cancer detection in mammographic screening: does it detect the cancers that matter? And can it detect cancers earlier?**

  Conclusion: Transpara has the highest sensitivity for high grade and invasive cancers. It has potential to detect high grade cancers 3 years earlier. Additionally, it could be used to segment 50% of the screening population as being almost certainly normal with less than <1% error.

  Author affiliation: UK, the Netherlands
  Data source: UK