Conclusions: This study highlights that higher tumor malignancy is associated with increased local recurrence and poorer outcomes. Tumor size, surgical approach, and history of fibroadenoma are significant factors in local recurrence risk. UGVAE can be consider for benign PT < 2cm. Recurrent PT, particularly borderline tumors, are at a higher risk of progressing to a more malignant grade, underlining the need for tailored management and long-term surveillance.

No conflict of interest

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117 (PB-117) **Poster**

Iodine-based contrast media induced risks in women recalled from screening scheduled for contrast-enhanced mammography

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Background: Contrast-enhanced mammography (CEM) is increasingly used to improve breast cancer detection. While the diagnostic performance of CEM has been well demonstrated, evidence on iodine-based contrast media (ICM)-related risks, such as acute kidney injury (AKI) and hypersensitivity reactions (HRs), in the context of breast imaging remains limited. This study evaluated the incidence and clinical relevance of these risks in a large cohort of women recalled from screening.

Material and methods: This single-centre retrospective study included women aged 50–75 years recalled from the Dutch National Breast Cancer Screening Programme to Maastricht University Medical Centre+ (2013–2022). Recalled women routinely underwent CEM, whereas those with contraindications or increased AKI risk underwent contrast-free imaging (full-field digital mammography or digital breast tomosynthesis). Pre- and post-imaging estimated glomerular filtration rate (eGFR) values were retrieved to assess renal safety, with a ≥25% eGFR decline defined as contrast-associated AKI. HRs were identified and graded according to the ACR classification. Descriptive and comparative analyses were performed.

Results: Among 2,712 recalled women, 2,441 (90.0%) underwent CEM. Kidney function data were available for 1,192 (48.8%) patients with both pre- and post-imaging eGFR measurements, with a median interval of 139 days. Among these, 31 patients (2.6%) showed a ≥25% eGFR decline at any follow-up interval, while contrast-associated AKI within 48 hours occurred in only 0.7%. Fourteen patients (0.6%) experienced, including 3 moderate (0.1%) and 11 mild (0.5%); all resolved without sequelae.

Conclusions: Both contrast-associated AKI and HRs were rare in this large screening-based CEM cohort, with all events being mild to moderate and self-limiting. These findings support the renal and allergic safety of ICM in women undergoing CEM and indicate that such risks should not limit its broader implementation in clinical practice.

No conflict of interest

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118 (PB-118) **Poster**

Combining MRI and Biological Risk in Premenopausal Women

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Background: Breast cancer is already the leading cause of cancer death in premenopausal women. Younger women often present with biologically aggressive subtypes and have dense breasts. We developed Bayesian Networks that combine information from MRI, tumour biology, demographics, and lifestyle.

Materials and Methods: We used multi-centre MRI datasets: *EA1141*: demographic, phenotypic and conventional MRI features for women <50; *ISPY2:* DWI sequences, ADC maps, receptor status (ER,PR,HER2) and pathological response data; and O*DeLIA*: multi-centre MRI dataset. We developed four BNs:

- BN1 EA1141: Demographics (age,race) →Lesion Detection
- BN2 EA1141: Family and reproductive history (parity, menarche, menopausal status) →Lesion Detection
- BN3 EA114: BN1+BN2+ MRI features (density, BPE, BI-RADS) → Lesion Detected
- BN4:

a) ISPY2: Advanced biomarkers + Demographics → ADC
b) ISPY2 + EA1141: BN4a + BN3 → Lesion Detected

The BNs progressively integrate demographic, phenotypic and MRI derived variables, quantifying the incremental contribution of MRI biomarkers, particularly ADC and BPE. We explored ADC as a biophysical mediator of receptor-defined biology testing pathway: Receptor status → Tissue Microstructure →ADC → Lesion Detectability.

All BNs were trained using bnlearn and pgmpy libraries. For ISPY2 mean ADC values were extracted for 79 lesions with receptor status (HR; HER2+; TNBC). Group comparisons used the Kruskal-Wallis and Dunn post-hoc tests.Mutual information (MI) quantified ADC- receptor subtype dependence, testing whether receptor-defined biology was associated with diffusion restriction.

Results: Demographic/history-only models (BN1–2) offered little predictive power (MI <0.1 bits), underscoring their limitations. Adding MRI features (BN3) improved discrimination (MI ≈0.8 bits), highlighting the diagnostic importance of tissue density, enhancement, and BI-RADS classification in dense breasts. The stable causal pathway "density → BPE → BI-RADS → lesion detection" mirrored known clinical patterns, confirming MRI's added value in this cohort.

When diffusion and receptor data were incorporated (BN4a+b), a biologically coherent link emerged between tumour subtype and lesion visibility. Lower ADC values were observed in triple-negative cancers ($0.76 \pm 0.25 \times 10^{-3}$ mm^2/s) compared with HR+ (0.85 ± 0.31) and HER2+ (0.87 ± 0.28) tumours, consistent with their higher cellularity and aggressiveness. These findings suggest that integrating biological and imaging biomarkers could refine which women truly require MRI screening or advanced imaging follow-up.

Conclusion: Bayesian Networks enable integration of Quantitative MRI, tumour biology, and demographic information. Validation across broader cohorts will determine real-world feasibility and support integration into personalised breast cancer prevention programmes.

No conflict of interest

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119 (PB-119) **Poster**

Establishing a breast cancer risk assessment clinic in a single-surgeon unit: Workflow, feasibility, and outcomes

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Background: Breast cancer risk assessment and preventive counseling are well established in clinical practice across high-income countries; however, their utilization remains limited in low-resource settings despite their value in early detection and risk reduction. This pilot study describes the implementation of a structured breast cancer risk assessment clinic within a single-surgeon breast unit, integrating multi-model risk prediction (Gail, Tyrer-Cuzick, BOADICEA, and Snehita) with immediate supportive care, including nutrition counseling, mental health support, and clinical breast examination.

Methods: A prospective two-room workflow was designed to streamline risk assessment and supportive interventions. Participants provided informed consent, completed standardized risk assessment questionnaires, and underwent detailed family history documentation to generate individualized risk estimates using four models. Optional supportive sessions with nutrition and mental health experts were offered alongside clinical breast examination. Individuals identified as high-risk were further referred to the genetic clinic for evaluation.

Results: Of 174 individuals approached, 97 (55.7%) consented to participate. Among these, four were classified as high-risk across three models. The Gail and Snehita models identified the largest proportion of high-risk participants, while fewer were identified using the Tyrer-Cuzick and BOADICEA models, reflecting inter-model variability. Four individuals were referred for genetic counseling. Comprehensive data comparing model-based risk categorization and participant characteristics will be presented.

Conclusion: This pilot demonstrates that a single-surgeon unit can effectively deliver an integrated, multidisciplinary breast risk assessment care model. While the internationally validated risk models applied in this study have not been specifically validated for the Indian population, the Snehita model represents one effort toward region-specific adaptation. Broader, pan-India validation of breast cancer risk assessment tools is essential to improve accuracy and applicability. Embedding immediate supportive care within this framework fosters holistic engagement and offers a scalable approach to breast cancer prevention in resource-limited settings.

No conflict of interest

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120 (PB-120) **Poster**

PAUS2: Does surgical site infection influence breast cancer outcomes? Insights from 20-year follow-up in a prospective randomised-control trial cohort

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Background: Post-operative complications (POCs) are associated with inferior outcomes in many cancer subtypes. However, association in breast cancer is less clear and all evidence thus far is retrospective. Using prospectively collected data on surgical site infection (SSI) from the PAUS (**P**rophylactic **A**ntibiotics **U**se in breast cancer **S**urgery) randomised-controlled trial, PAUS2 examined the long-term impact of SSI on breast cancer outcomes.

Methods: PAUS2 is a long-term observational cohort study. Clinical follow-up data were retrieved from clinical records as well as National death records and linked to the original PAUS trial dataset using individual study identifiers. All original PAUS participants (n = 871) were eligible; patients who moved out of the region, had no accessible records or had systemic disease diagnosed on staging imaging within 30 days post-operatively were excluded. The primary endpoint was disease-recurrence; secondary endpoints included overall survival (OS) and breast cancer-specific survival (BCSS). Regional ethical approval was granted (24/WS/0047), and PAUS2 was funded by the British Association of Surgical Oncology (BASO)~ACS/Rosetrees Trust.

Results: 807/871 patients (92.7%) were included in PAUS2. 145 patients had a surgical site infection (18.0%). Median follow-up was 20.7 years. Disease-recurrence occurred in 180 patients (22.3%), including 69 locoregional (7.8%) and 115 systemic (13.8%) events. There were 378 deaths (46.8%), of which 158 were owing to breast cancer (19.6%). No significant association was found between SSI and disease recurrence (Hazard ratio (HR) 0.78, 95% confidence interval (CI) 0.52-1.17, p = 0.228), OS (HR 1.25, 95% CI 0.98-1.58, p = 0.070) or BCSS (HR 0.93, 95% CI 0.62-1.41, p = 0.743). Locoregional recurrence was demonstrated to vary over time (proportional hazard assumption p = 0.028) with risk greatest in the first year after surgery, however overall, this was not significant [Table 1].

Table 1
Locoregional recurrence after surgical site infection at different time points. HR: Hazard Ratio, CI: Confidence Interval

Time point	HR (95% CI)	P value
1 year	4.44 (0.63-31.51)	p = 0.136
3 years	1.48 (0.41-5.47)	p = 0.556
5 years	0.99 (0.34-2.93)	p = 0.986
10 years	1.45 (0.71-2.95)	p = 0.312
15 years	1.31 (0.69-2.49)	P = 0.413