Symposium Mammographicum 2018

ACC Liverpool
8-10 July 2018

Conference Handbook

www.sympmamm.org.uk

In partnership with the Association of Breast Clinicians
featuring an Association of Breast Surgery session

The Association of Breast Clinicians

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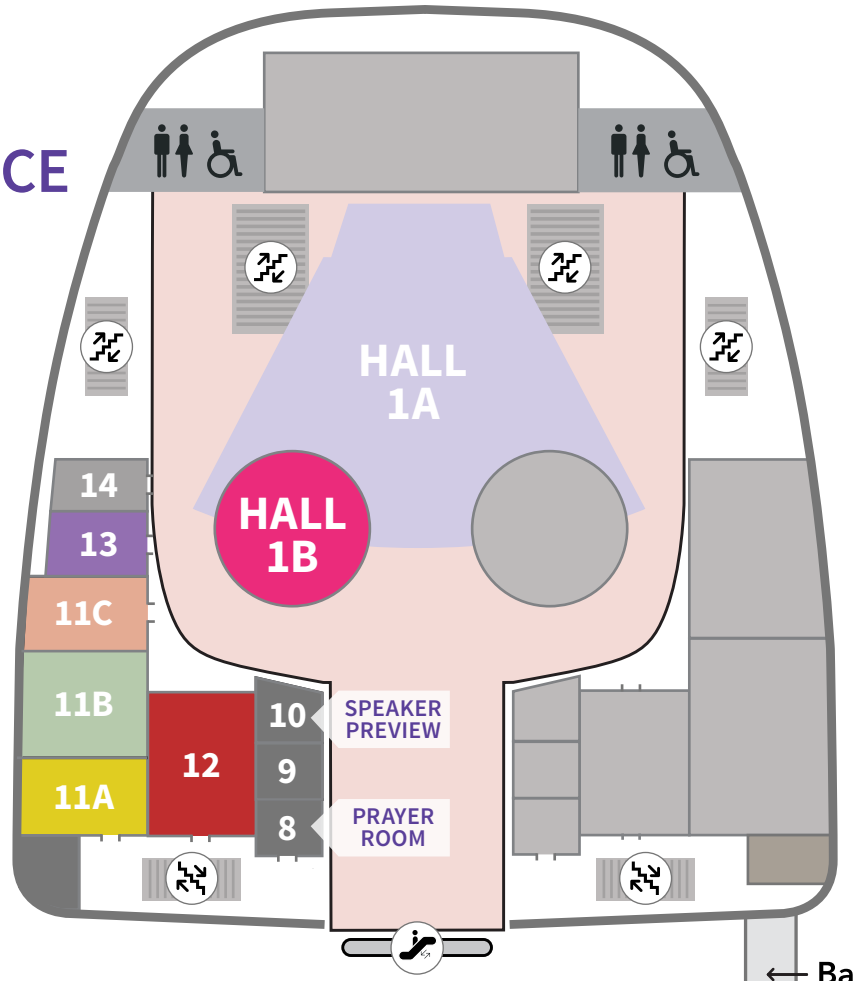
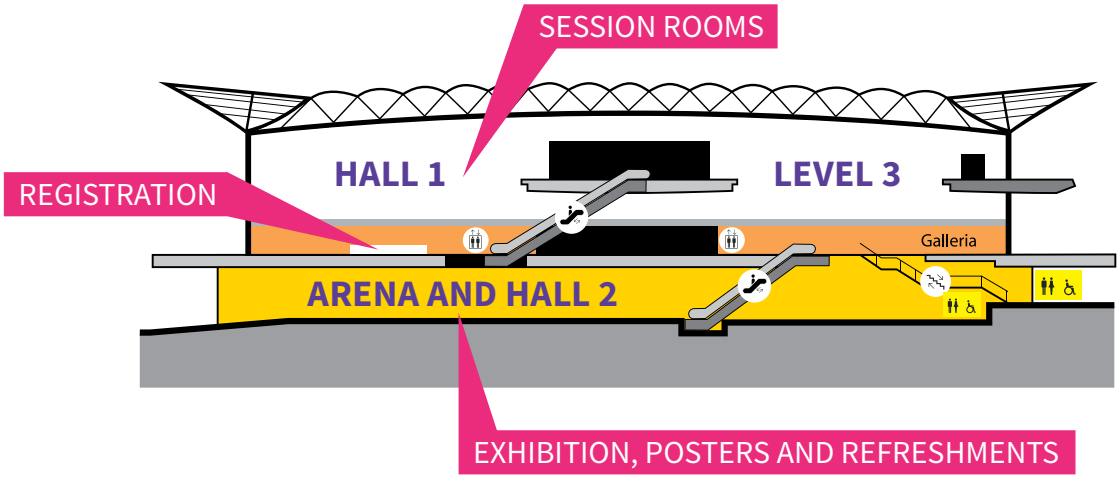


TO GALLERIA



Chair's welcome

Dear Colleagues,

Welcome to the 19th Symposium Mammographicum at ACC, Liverpool. The Organising Committee has used your feedback to help develop an outstanding and packed programme.

Symposium Mammographicum has become the UK's largest educational forum dedicated to breast imaging. The conference in 2018 offers an exciting, cutting-edge programme of UK and international speakers. This year's meeting particularly reflects the importance of close multi-disciplinary team-working to optimise care for individual patients, as both diagnostic and therapeutic techniques continue to advance.

Our important and longstanding collaboration with our physics colleagues continues and we have a session on Artificial Intelligence and how we can use it in breast imaging. Our new partnership with the Association of Breast Clinicians in 2016 was a great success and we are delighted to be working together again. New for this conference is a session being hosted by the Association of Breast Surgery on newer techniques for pre-operative localisation of impalpable lesions.

We think you will be inspired by both our Stebbings Lecture on Monday and our Keynote Lecture on Tuesday. Dr Andy Cope, Founder of 'The Art of Being Brilliant' has been asked for tips on how we can stay happy and healthy at work despite the burgeoning workloads we are all experiencing. Liz O'Riordan is a breast surgeon with personal experience of breast cancer. With delegate feedback emphasising the importance our audiences place on the patient perspective, Liz' unique insights are most welcome. We have also invited the charity Independent Cancer Patients' Voice to give the patient's perspective in the sessions on Duty of Candour and getting started in research.

We have Dr Chris Comstock from New York speaking about MRI screening, and Prof. Thomas Helbich from Vienna addressing pre-operative MRI and ultrasound as a screening tool. We have dedicated sessions on optimising mammographic technique and on how we can all drive up standards of patient care by getting involved in audit and research. The programme is guaranteed to excite, stimulate and motivate!

There will be ample breaks to enable networking and poster viewing, and we have not neglected the social programme. There is a welcome reception and informal supper on the Sunday from 5pm in the Exhibition Hall, The Tenovus choir is performing again by popular request, and dinner on Monday is a Titanic-themed evening of dinner and dancing.

We do hope you will join us for education and entertainment, and we wish you a very enjoyable time.

Your sincerely,

Dr Barbara Dall, *Chair, Organising Committee Symposium Mammographicum 2018*

Contents

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1. Data on file and from public sources, 2017. **2.** Results from Friedewald, SM, et al. "Breast cancer screening using tomosynthesis in combination with digital mammography." JAMA 311.24 (2014): 2499-2507; a multi-site (13), non-randomized, historical control study of 454,000 screening mammograms investigating the initial impact of the introduction of the Hologic Selenia® Dimensions® on screening outcomes. Individual results may vary. The study found an average 41% increase and that 1.2 (95% CI: 0.8-1.6) additional invasive breast cancers per 1000 screening exams were found in women receiving combined 2D FFDM and 3D™ mammograms acquired with the Hologic 3D™ Mammography System versus women receiving 2D FFDM mammograms only. **3.** In an internal study comparing Hologic's standard compression technology to the SmartCurve™ system (18 x 24cm).

SUNDAY 8 JULY

13.00 - 19.00 **Registration open**

15.00 - 16.00 **SOCIETY AND COLLEGE OF RADIOGRAPHERS WORKSHOP** ROOM 12

What's in a job title?

- *Sue Johnson and Tracy O'Regan, Professional Officers, Society and College of Radiographers*
- *Claire Borrelli, Organising committee and Education & Training Manager / Principal Lecturer, Radiographic Advisor to the NHSBSP/PHE, Breast Screening Training Centre, St. George's University Hospitals, London*

16.00 - 17.00 **GE HANDS-ON-WORKSHOP** ROOM 11A

Contrast enhanced spectral mammography; making a difference in moments that matter

Dr Ruxandra Pietrosanu, Consultant Radiologist, Guy's Hospital, London

Limited numbers

16.00 - 17.00 **HOLOGIC SPONSOR'S SYMPOSIUM** HALL 1B

Technological advances in mammography: The impact of tomosynthesis on the patient pathway

Moderator: Dr Nisha Sharma, Director of Breast Screening and Clinical Lead for Breast Imaging, Leeds Teaching Hospitals NHS Trust

- Prospects Trial: Digital breast tomography within breast screening – a consideration for the future - *Dr Michael Michell, Consultant Radiologist, King's College Hospital NHS Foundation Trust, London*
- Tomosynthesis in the assessment setting: Benefits and considerations - *Dr Nisha Sharma, Director of Breast Screening and Clinical Lead for Breast Imaging, Leeds Teaching Hospitals NHS Trust*
- Stratifying tomosynthesis screening results by breast density: implications for clinical practice - *Dr Giovanna Romanucci, Consultant Radiologist, UOSD Breast Unit ULSS9, Marzana Hospital, Verona, Italy*

17.00 - 19.00 **Welcome reception and buffet supper in exhibition hall**

Performance from Aberystwyth Tenovus Choir

19.00 **Optional walking tour of Liverpool (pre-booked)**

About the Aberystwyth Tenovus Choir

Our Sing with Us choirs are fun, uplifting and friendly, and are open to anyone affected by cancer whether you're a patient, survivor, carer or someone who has been bereaved through cancer. We are very proud to be one of the 17 choirs across Wales and England, supporting nearly 1,500 singers every week.

The Aberystwyth choir began back in April 2014 and has gone from strength to strength with amazing concerts and opportunities; performing in St David's Hall in Cardiff with all of the other Sing with Us choirs (900 voices) in 2015, singing with Paul Potts in Llandudno in 2016, and a pharmaceutical conference in Vienna last year, to name a few.

In 2015 Tenovus Cancer Care teamed up the Royal College of Music in London to test 193 choir members from five of our Sing with Us choirs. We took saliva samples from each choir member before and after a one-hour choir rehearsal. We also asked them to complete questionnaires about how they felt, before and after. This research has shown that our Sing with Us choirs are effective at reducing peoples' anxiety and depression, and have a positive impact on biological markers related to stress, immune function and inflammatory response, and also found that the level of choir members' cortisol (a stress hormone) was lower after the rehearsal.

This is the choir's second visit to this amazing symposium and we are thrilled to perform for you again.

MONDAY 9 JULY

07.30 - 08.50 Registration, exhibition and early poster viewing

08.00-08.50 FUJIFILM Value from Innovation

FUJIFILM CLINICIAN LED SYMPOSIUM

ROOM 11B

Contrast Enhanced Digital Mammography - our experiences of establishing and trialling CEDM and a case study review exploring the advantages and limitations of CEDM

Dr Andrew Gash, Consultant Radiologist and Karen Hopkins, Lead Breast Radiographer, Ysbyty Gwynedd Hospital, Bangor

SESSION 1: PLENARY

HALL 1A

08.50 - 09.00 **Welcome and introductions**
Dr Michael J Michell, President, Symposium Mammographicum

09.00 - 09.30 **Sir John Stebbings Lecture: Increasing demands at work for everyone – can we still be happy?**
Dr Andy Cope, Founder of 'The Art of Brilliance'

09.30 - 10.30 **ARTIFICIAL INTELLIGENCE** HALL 1A
Chairs: Prof Kenneth Young and Dr Anna Murphy, Conference Organising Committee

09.30 **Overview of AI potential in imaging**
Dr Alan Karthikesalingam, Clinical Scientist, DeepMind

09.45 **AI applied to imaging including breast imaging**
Dr Hugh Harvey, Consultant Radiologist, Clinical Lead, Kheiron Medical

10.00 **AI an aid to risk prediction / screening**
Dr Martin Fergie, School of Health Sciences, University of Manchester

10.15 **Panel discussion**

10.30 – 11.15 Refreshments, exhibition and poster viewing

Meet the speakers at Speakers' Corner

SESSION 2: PARALLEL

11.15 - 12.45 **2A MANAGING HARM** HALL 1A
Chairs: Ms Patsy Whelehan and Dr Ros Given-Wilson

11.15 **Introduction**
Prof Andy Evans, Professor of Breast Imaging, University of Dundee

11.30 **Variation in recall and biopsy rates nationally (benefit versus harm)**
Dr Roger Blanks, Senior Epidemiologist, University of Oxford

11.45 **Update on Age Extension Trial**
Prof Julietta Patnick, Visiting Professor, Cancer Screening, University of Oxford

12.00 **B3 guidelines - practical update and new data**
Dr Nisha Sharma, Director of Breast Screening and Clinical Lead for Breast Imaging, Leeds Teaching Hospital NHS Trust

12.15 **AXILLA - minimising intervention**
Prof Michael Douek, Professor of Surgical Oncology, King's College London & Guy's and St Thomas' Hospitals

12.30 **Panel discussion**

11.15 - 12.45 **2B PROFFERED PAPERS** HALL 1B
Chairs: Jenny Rusby and Dr Anna Murphy

11.15 **NHSBSP survey of radiation dose in breast tomosynthesis 2017**
Jennifer Oduko, Consultant Physicist, NCCPM, Royal Surrey County Hospital

11.30 **Symptomatic recall in the fatty breast: is it necessary?**
Sarah Savaridas, SCREDS Clinical Lecturer in Radiology, University of Dundee, NHS Tayside

11.45 **Variations of mammographic breast density in patients diagnosed with Invasive Ductal Carcinoma with or without ductal carcinoma in-situ component on core biopsy undergoing primary breast conservation surgery or subsequent re-operation - a case control study**
Georgi Georgiev, Cancer Clinical Trials Data Manager, NHS Tayside

MONDAY 9 JULY

12.00 **Predicting axillary node metastases in breast cancer: sonographic features and tumour characteristics**
Nikhil Patel, Radiology Registrar, King's College Hospital, London

12.15 **Ultrasound accuracy in predicting residual tumour size after neoadjuvant chemotherapy (NACT) in different breast cancer subtypes**
Tania Policastro, Honorary Observer, Royal Marsden Hospital, London

12.30 **Mammographic image quality: Do radiographers and radiologists demonstrate comparable knowledge and preferences for positioning standards and criteria?**
Rhonda-Joy Sweeney, PhD candidate, The University of Sydney, Australia

11.15 - 12.45 HOLOGIC

HOLOGIC HANDS-ON-WORKSHOP

ROOM 11C

High resolution tomosynthesis and synthesized 2D
Dr Aron Belfer, Consultant Radiologist, Lisbon, Portugal

Advanced hands-on workshop for experienced readers
Limited numbers

12.45-14.00 **Lunch, exhibition and poster viewing**

Meet the speakers at Speakers' corner

LUNCHTIME SESSIONS

12.45-13.30 FUJIFILM Value from Innovation

FUJIFILM CLINICIAN LED SYMPOSIUM

HALL 11B

Performing DBT and tomo-guided biopsy as routine procedures in a clinical breast unit
Prof Müller-Schimpfle, Head of Breast Centre (Diagnosis), Frankfurt Hospital, Germany

13.05 - 13.50

ASSISTANT PRACTITIONER NETWORKING SESSION

ROOM 12

Chairs: Mrs Claire Borrelli, Ms Zebby Rees Conference Organising Committee and Ms Marilyn O'Connell

- **Band 4 – Assistant Practitioner scope of practice**
  Ms Rebecca Stevens, Dorset Breast, Screening Unit, Poole NHS Foundation Trust
- **Band 5 – Assistant Practitioner scope of practice**
  Ms Joanne Essex, Ex Assistant Practitioner and now Programme Manager, University Hospital Coventry and Warwickshire NHS Trust
- **A manager's perspective on the positive advantages of assistant practitioners**
  Ms Nicola Ward Radiology Services Manager, King's Lynn Hospital
- **Accreditation, apprenticeships and career pathways for assistant practitioners**
  Ms Sue Johnson, Society of Radiographers
- **Discussion – training pathways, workforce issues etc**

13.50 – 15.50 BD

BARD HANDS-ON-WORKSHOP: VACUUM BIOPSY

ROOM 13

2 hour practical hands-on workshop with ultrasound
Limited numbers

SESSION 3: PARALLEL

14.00 - 15.30

3A HOT TOPIC: TARGETING BREAST CANCER CARE WITH MRI

HALL 1B

Chairs: Dr Sarah Vinnicombe and Dr Zoe Goldthorpe, President, ABC

14.05 **MRI in Screening: Abbreviated MRI**
Dr Christopher Comstock, Sloan-Kettering Cancer Center, USA

14.30 **Preoperative MRI in targeting breast cancer care**
Prof Thomas Helbich, Professor, Medical University of Vienna, Austria

14.55 **Radiogenomics personalising treatment - where are we?**
Overview
Dr Liz O'Flynn, Consultant Radiologist, St George's University Hospitals NHS Foundation Trust

15.15 **Panel discussion**

MONDAY 9 JULY

14.00-15.30 — **3B MAMMOGRAPHY PRACTICE: STATE OF THE ART AND BEYOND - EVIDENCE BASED TECHNIQUES AND IMAGE QUALITY** — HALL 1A

Chairs: Mrs Claire Borrelli and Ms Sue Garnett

14.05 — **Evidence based techniques for positioning and compression - how does this link with PGMI?**
Dr Claire Mercer, Interim Director of Radiography, Programme Leader Advanced Medical Imaging, University of Salford

14.20 — **Image quality in interpretation of FFDM**
Ms Judith Kelly, Deputy Clinical Director / Consultant Radiographer, Breast Screening Unit, Chester

14.35 — **Tomosynthesis practices for mammographers**
Ms Helen Yule, Consultant Radiographer, Breast Test Wales and Cwm Taf University Health Board, Royal Glamorgan Hospital

14.50 — **The significance of breast density, and my mission working as a Consultant Radiographer in Ghana**
Ms Dawn McDonald, Consultant Radiographer and Independent Practitioner, NHS and Private Hospitals

15.10 — **Discussion**

14.00-14.45 — FUJIFILM Value from Innovation — **FUJIFILM CLINICIAN LED SYMPOSIUM** — ROOM 11B
Performing DBT and tomo-guided biopsy as routine procedures in a clinical breast unit
Prof Müller-Schimpfle, Head of Breast Centre (Diagnosis), Frankfurt Hospital, Germany

15.30-16.10 — **Refreshments, exhibition and poster viewing**

Meet the speakers at Speakers' Corner

SESSION 4: PLENARY

16.10-17.30 — **STAY ON THE RIGHT SIDE OF THE LAW** — HALL 1A

Chair: Dr Michael J Michell

16.15 — **The law, what's new?**
Mr Richard Furniss, Barrister, 42 Bedford Row, London

16.30 — **Lessons from the Paterson Case**
Mr Mark Sibbering, Consultant Breast Surgeon, Derby & President, Association of Breast Surgery

16.45 — **Duty of candour and the breast team - guidelines and toolbox**
Dr Ros Given-Wilson, Consultant Radiologist, St George's University Hospitals NHS Foundation Trust

17.00 — **Panel discussion – innocent or guilty?**
Dr Ros Given-Wilson, Mr Richard Furniss, Prof Michael Douek, Mrs Claire Borrelli and Mrs Elizabeth Benns, Representative, Independent Cancer Patients' Voice

17.30-18.30 — **Exhibition and poster viewing**

EVENING SESSIONS

17.30-18.15 — **CASE STUDIES** — HALL 1B
Local Liverpool Radiologists present interesting case studies
Dr Sheetal Sharma

17.30-18.30 — GE Healthcare — **GE HANDS-ON-WORKSHOP** — ROOM 11A
Contrast enhanced spectral mammography; making a difference in moments that matter
Dr Ruxandra Pietrosanu, Consultant Radiologist, Guy's Hospital, London
Limited numbers

17.30-18.30 — FUJIFILM Value from Innovation — **FUJIFILM CLINICIAN LED SYMPOSIUM** — ROOM 11B
Evaluation of tomosynthesis for screening at East Lancashire Breast Imaging Unit – what we have learned and our expectations for the future
Dr Rabea Haq, Consultant Radiologist and Liz Reid, Breast Imaging Manager, East Lancashire Breast Imaging Unit

17.30 – 18.30 — **Association of Breast Clinicians Annual General Meeting** — ROOM 12

19.30-24.00 — **Conference Dinner, Titanic Hotel and Rum Warehouse - Entrance by ticket only**

TUESDAY 10 JULY

07.30-08.50	**Registration, exhibition and early poster viewing**
08.00-08.45	**Guided poster tours in the exhibition hall with breakfast** *Limited numbers*

SESSION 5: JOINT PLENARY WITH ASSOCIATION OF BREAST CLINICIANS

HALL 1A

08.55-09.00	**Welcome and introductions** *Dr Anna Murphy, Trustee and Conference Committtee, Symposium Mammographicum*
09.00-09.30	**Inaugural Dr Audrey Tucker Lecture: It's the little things that matter** *Ms Liz O'Riordan, Consultant Oncoplastic Breast Surgeon*

SESSION 6: PARALLEL

09.35-10.35	**6A PROFFERED PAPERS** — HALL 1B *Chairs: Dr Liz O'Flynn and Ms Anna Burch*
09.35	**Evaluating the impact of the NHS Breast Screening Programme on mortality from breast cancer in England: a case-control study** *Roberta Maroni, Statistician, Centre for Cancer Prevention Wolfson Institute of Preventive Medicine Queen Mary University of London*
09.45	**Women's experiences of mammography: analysis of 1196 free-text comments from a questionnaire study** *Patsy Whelehan, Radiographer, NHS Tayside and Universities of Dundee and St Andrews*
09.55	**5 year prospective follow up of patients with B3 lesions** *Nerys Forester, Consultant Radiologist, Newcastle Hospitals*
10.05	**Difference in tumour characteristics between true interval and screen-detected breast cancers** *Alan Tan, Radiology Registrar, Southend University Hospital NHS Foundation Trust*
10.15	**Comparison of performance of mammogram readers with breast magnetic resonance imaging (MRI) readers at an abbreviated breast MRI (FAST MRI) interpretation task: Results from a single centre multi-reader study using an enhanced data-set** *Dr Lyn Jones, Consultant Radiologist, Bristol Breast Care Centre North Bristol NHS Trust*
09.35-10.30	**6B ASSOCIATION OF BREAST CLINICIANS** — HALL 1A **Introduction and chair's welcome** *Dr Zoe Goldthorpe, President, ABC*
09.40	**Population screening with MRI: is it the future?** *Dr Christopher Comstock, Sloan-Kettering Cancer Center, USA* **Discussion**
10.05	**What challenges face the NHSBSP in introducing MRI** *Prof Kate Gower Thomas, Consultant Radiologist, Dept of Clinical Radiology, Royal Glamorgan Hospital* **Discussion**
09.35 - 10.35	**HOLOGIC HANDS-ON-WORKSHOP** — ROOM 11C HOLOGIC **High resolution tomosynthesis and synthesized 2DTM** *Dr Aron Belfer, Consultant Radiologist, Lisbon, Portugal* **Advanced hands-on workshop for experienced readers** *Limited numbers*
10.30–11.15	**Refreshments, exhibition and poster viewing**

TUESDAY 10 JULY

SESSION 7: PARALLEL

11.15-12.45	**7A ASSOCIATION OF BREAST SURGERY: TECHNIQUES FOR LESION LOCALISATION**	HALL 1A
	Chairs: Dr Sarah Tennant and Mr Mark Sibbering, President, Association of Breast Surgery	
11.15	**Radio-guided isotope occult lesion localisation (ROLL)** *Miss Leena Chagla, Honorary Secretary of ABS, Consultant Surgeon, St Helens and Knowsley Teaching Hospitals*	
11.35	**Radioactive seed localisation (RSL)** *Mr Henry Cain, Consultant Oncoplastic Breast Surgeon, Newcastle upon Tyne Hospitals NHS Foundation Trust*	
11.50	**Magnetic seed localisation** *Miss Jenny Rusby, Consultant Oncoplastic Breast Surgeon, The Royal Marsden NHS Foundation Trust*	
12.05	**Panel discussion about the techniques**	
12.25	**No innovation without evaluation** *Prof Chris Holcombe, Breast Surgeon, Royal Liverpool Hospital*	
11.15-12.45	**7B ASSOCIATION OF BREAST CLINICIANS**	ROOM 12
	Chair: Dr Di Dalgliesh, Vice-President, ABC	
11.15	**Mistakes happen we are all human – the human factor** *Dr Zoe Goldthorpe, President ABC* **Discussion**	
12.00	**Breast Screening Information System (BSIS): what it means and how to use it to be even better** *Dr Jim Steel, Director of Breast Screening, Consultant Radiologist, Plymouth Hospitals NHS Trust* **Discussion**	
11.15-12.45	**7C CHANNELLING YOUR INNER INVESTIGATOR: HOW WE CAN ALL DRIVE UP STANDARDS THROUGH RESEARCH**	HALL 1B
	Chairs: Dr Claire Mercer and Ms Patsy Whelehan	
11.30	**Why do research – a view from the SCoR** *Ms Sue Johnson, College of Radiographers*	
11.45	**Why do research – a view from the BSBR** *Dr Anthony Maxwell, Chair, BSBR*	
	Case studies: How I got started in research	
11.45-11.55	• *Ms Sue Williams, Consultant Radiographer in Breast Imaging, Shrewsbury and Telford NHS Trust*	
11.55-12.05	• *Dr Sarah Savaridas, Clinical Lecturer in Radiology, University of Dundee*	
12.05-12.15	• *Ms Beverley Scragg, Operations Lead for Mammography, East Lancashire Hospitals NHS Trust*	
12.15-12.25	**Public and patient involvement in research** *Mrs Maggie Wilcox, Independent Cancer Patients' Voice*	
12.25-12.45	**Panel discussion** *Ms Patsy Whelehan, Dr Claire Mercer, Ms Sue Johnson, Dr Anthony Maxwell and Mrs Maggie Wilcox*	
11.15-12.45	**GE Hands-on-Workshop**	ROOM 11A
	Contrast enhanced spectral mammography; making a difference in moments that matter *Dr Ruxandra Pietrosanu, Consultant Radiologist, Guy's Hospital, London* *Limited numbers*	
12.45-14.00	**Lunch, exhibition and poster viewing** Research surgery for 1:1 questions	

TUESDAY 10 JULY

LUNCHTIME SESSIONS

12.45-13.45 — ROOM 11B

FUJIFILM CLINICIAN LED SYMPOSIUM

Contrast Enhanced Digital Mammography - our experiences of establishing and trialling CEDM and a case study review exploring the advantages and limitations of CEDM

Dr Andrew Gash, Consultant Radiologist and Karen Hopkins, Lead Breast Radiographer, Bangor Hospital

13.05-13.50 — ROOM 12

CONSULTANT RADIOGRAPHERS NETWORKING SESSION

Chairs: Ms Zebby Rees and Ms Sue Williams, Chair, Consultant Radiographer Advisory Group (CRAG)

- Update on CRAG meeting from UKRC
- Explain about glasscubes forum with SoR
- Topic of interest to consultant radiographers
- AOB: Accreditation, scope of practice, VABs/ tomos etc.

A chance to network and catch up

SESSION 8: PARALLEL

14.00-15.20 — HALL 1A

8A STRATIFIED SCREENING AND SURVEILLANCE: THE WAY FORWARD

Chairs: Dr Liz O'Flynn and Prof Sarah Pinder

14.00 **What do we know about personalised screening & what do we not know?**
Prof Fiona J Gilbert, Professor of Radiology, University of Cambridge School of Clinical Medicine

14.15 **Breast density and texture imaging markers**
Dr Sarah Vinnicombe, Consultant Radiologist, Thirlestaine Breast Centre, Cheltenham and Honorary Senior Lecturer, Cancer Imaging, University of Dundee

14.30 **What's the evidence for using ultrasound as a screening test?**
Prof Thomas Helbich, Professor, Medical University of Vienna, Austria

15.00 **Surveillance following breast cancer - Mammo 50**
Prof Andy Evans, Professor of Breast Imaging, University of Dundee
Panel discussion

14.00-15.20 — HALL 1B

8B ASSOCIATION OF BREAST CLINICIANS

Chair: Dr Catherine Coleman, Secretary, ABC

14.00 **Single Nucleotide Polymorphisms (SNPs) – who will benefit and who will lose out?**
Prof Gareth Evans, Professor of Medical Genetics, Regional Genetics, St Mary's Hospital, Manchester
Discussion

14.40 **Update on antibody therapies and the effects of Rapid BRCA testing on the choice and timings of chemotherapy regimens**
Prof Andrew Wardley, Clinical Director, The Christie NIHR / CRUK Clinical Research Facility, Consultant & Honorary Senior Lecturer in Medical Oncology and Lead for The Christie Manchester Breast Centre Research Team, Manchester
Discussion

14.00-15.00 — ROOM 11B

FUJIFILM CLINICIAN LED SYMPOSIUM

Contrast Enhanced Digital Mammography - our experiences of establishing and trialling CEDM and a case study review exploring the advantages and limitations of CEDM

Dr Andrew Gash, Consultant Radiologist and Karen Hopkins, Lead Breast Radiographer, Bangor Hospital

15.20-16.00 **Refreshments, exhibition and poster viewing**

16.00 **Exhibition closes**

TUESDAY 10 JULY

SESSION 9: PLENARY

16.00-17.30	**JOINT CLOSING PLENARY**	HALL 1A
16.00	**Prize giving** - *Dr Michael Michell, President* **MDT Approach to difficult cases** *Chairs: Dr Sarah Tennant, Consultant Radiologist, Nottingham Breast Institute and Dr Michael Michell, Consultant Radiologist, King's College Hospital, London*	
16.10	Several interesting and difficult cases will be presented with interactive voting and a panel of expert speakers Panel: • *Miss Leena Chagla, Honorary Secretary of ABS, Consultant Surgeon, St Helens and Knowsley Teaching Hospitals* • *Prof Andy Evans, Professor of Breast Imaging, University of Dundee* • *Prof Chris Holcombe, Breast Surgeon, Royal Liverpool Hospital* • *Mrs Sue Holcombe, Nurse Specialist, Royal Liverpool Hospital* • *Prof Sarah Pinder, Professor of Breast Pathology, King's College London* • *Dr Nisha Sharma, Director of Breast Screening and Clinical Lead for Breast Imaging, Leeds Teaching Hospitals NHS Trust* • *Prof Andrew Wardley, Clinical Director, The Christie NIHR / CRUK, Clinical Research Facility, Consultant & Honorary Senior Lecturer in Medical Oncology and Lead for The Christie Manchester Breast Centre Research Team, Manchester* Please check the screens out around the exhibition to see the cases in advance.	
17.30	**Close and depart**	

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* An evaluation of the MAMMOMAT Revelation for use in the NHSBSP is being carried out.

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Conference information

Access

The ACC is fully accessible by wheelchair to all public areas by ramp or lift. If you have any access requirements, specifically in the auditorium, then do please let a member of the organising team know. Alternatively, you may ask any member of staff at the ACC.

Accreditation

The event has been endorsed by both the College of Radiographers and the Royal College of Radiologists.

Admission to conference sessions

Admission to conference sessions is strictly by badge only. Please ensure you are in your seat at least five minutes prior to the start of each session and that any phones or other electronic devices are turned to silent.

App

The free conference app is available to download by visiting the app store on your device and searching for 'SympMamm'. The app contains all the information including biographies, abstracts and photos so you can access everything you need to know about the conference at any time, easily and quickly.

Attendee list

A full list of participants is available from the registration desk (subject to the delegates' permission).

Badges

In the interests of security, please make sure that your name badge is clearly visible at all times. If you lose your badge, please ask staff at the registration desk for a replacement as soon as possible. We would be grateful if you would return your badge to registration at the end of the conference for recycling.

Cash

There is an ATM located on the lower level of the concourse at the Riverside entrance adjacent to the toilets.

Certificates of attendance

Certificates will be emailed to delegates within two weeks of the conference taking place. The certificate will reflect the days attended.

Cloakroom

There is a cloakroom for general use on the ground floor of the ACC. Additional space will be made available for luggage on Tuesday. The cloakrooms are attended by a member of ACC staff at all times; please note, however, that items are left at your own risk.

Conference presentations

Presentations from the conference will be available to download from http://sympmamm.org.uk after the conference (subject to agreement by speakers). There will be webcasts of all the parallel sessions taking place to enable delegates to attend the parallel sessions and still access the content from other sessions at a later date.

Delegates' poster prize

We are asking delegates to vote for their favourite poster by text message. Text SMPOSTER followed by the three digit poster number to 82228 to submit your choice. Voting will close on Tuesday 10 July at 13.00. The prize will be presented in the final plenary session at 16.00.

Emergencies

In the event of an emergency please contact a member of staff from Profile Productions or a member of the ACC security staff, whom you will see throughout the building. In all other instances, please dial 999.

Exhibition

The exhibition is an integral part of this conference and the support of all the organisations at the event is greatly appreciated. Please take time to visit the exhibition on the lower ground floor in Hall 2A.

Hearing loop

All of the rooms have infrared induction loops. Should you require this service please visit the registration desk so we can advise.

Lunch

Lunch and refreshments will be available from all catering points in Hall 2A during the refreshment breaks indicated on the programme. There are several catering points available so please use them all to avoid congestion. Water coolers are also located around the ACC.

Poster presentations

Posters will be on display in Hall 2A throughout the duration of the symposium.

Please refer to the poster section in this handbook for full details of all the presentations. The abstracts have been published on the BIR website.

The conference committee will be leading guided poster tours at 08.00 on Tuesday 10 July. Breakfast pastries will be served and all the tours must be pre-booked as there are limited spaces on each tour.

Prayer room

If you require a quiet space to pray, we have allocated a room for your use. Please speak to the registration staff who will direct you.

Conference information

Registration desk

If you have any enquiries please make your way to the registration desk on the main concourse where staff from Profile Productions will be on hand to answer any questions or deal with concerns that you may have. Official opening times are:

Sunday 8 July	13.00 – 19.00
Monday 9 July	07.30 – 18.45
Tuesday 10 July	07.30 – 18.00

Security

In the interests of security, security personnel will be located in different areas of the ACC. Should you wish to report anything please talk to one of the security staff or contact a member of the conference team at the registration desk.

Speaker preview and lounge

The speaker preview room is located in Room 10. Speakers are kindly asked to visit the preview room at least an hour prior to their session to upload their presentation and check it through with the technical team. Speaker preview is open throughout the duration of the Symposium and refreshments will be available.

Twitter

Delegates are strongly encouraged to Tweet ideas, debate and chat or to send comments at #SympMamm2018 during the conference.

Wi-Fi

The conference is offering delegates access to a free Wi-Fi service throughout the venue.

Social events

SUNDAY 8 JULY

Welcome reception and buffet supper

The welcome reception and buffet supper will take place in the exhibition from 17.00-19.00 on Sunday evening following the workshops and symposia. There will be a performance from the Tenovus Choir (See page 4). The reception offers a great opportunity to catch up with colleagues and old friends and to make new acquaintances.

Walking tour of Liverpool

Meet your tour guides after the reception for a guided tour around the docklands and the city before finishing up outside the famous Cavern Club.

Pre booked only

MONDAY 9 JULY

Conference dinner

The conference dinner will be held at the Rum Warehouse at the Titanic Hotel at 19.30. Enjoy a drinks reception followed by a three-course dinner with wine and a live band to dance away the evening.

The Titanic theme offers a chance to dress up in a glamorous style and get a selfie with your friends on the grand staircase.

A limited number of tickets are available from the registration desk at £55.

Prizes and awards

This year Symposium Mammographicum has introduced two new named Awards.

The Caroline Roney Award for Excellence

Caroline was appointed as Symposium's conference manager and Company Secretary for the 1996 event. Through her dedication and commitment, Caroline professionalised the charity, resulting in the event becoming the leading conference on mammography in the UK and being internationally recognised. The current Trustees of Symposium Mammographicum have created an award in Caroline's memory, which will recognise a poster presentation which truly excels in every detail.

The Dr Audrey Tucker Lecture

Audrey originally qualified as a radiographer but later entered medical school, ultimately becoming an eminent consultant radiologist. She was one of the founding members of Symposium Mammographicum when it was established in the late 1970s and is still a serving Trustee. In celebration of Audrey's immense contribution to raising standards of mammography, through Symposium Mammographicum and other major achievements in her career, the Trustees decided to mark her 90th birthday by naming a keynote lecture in her honour.

NEW FEATURES

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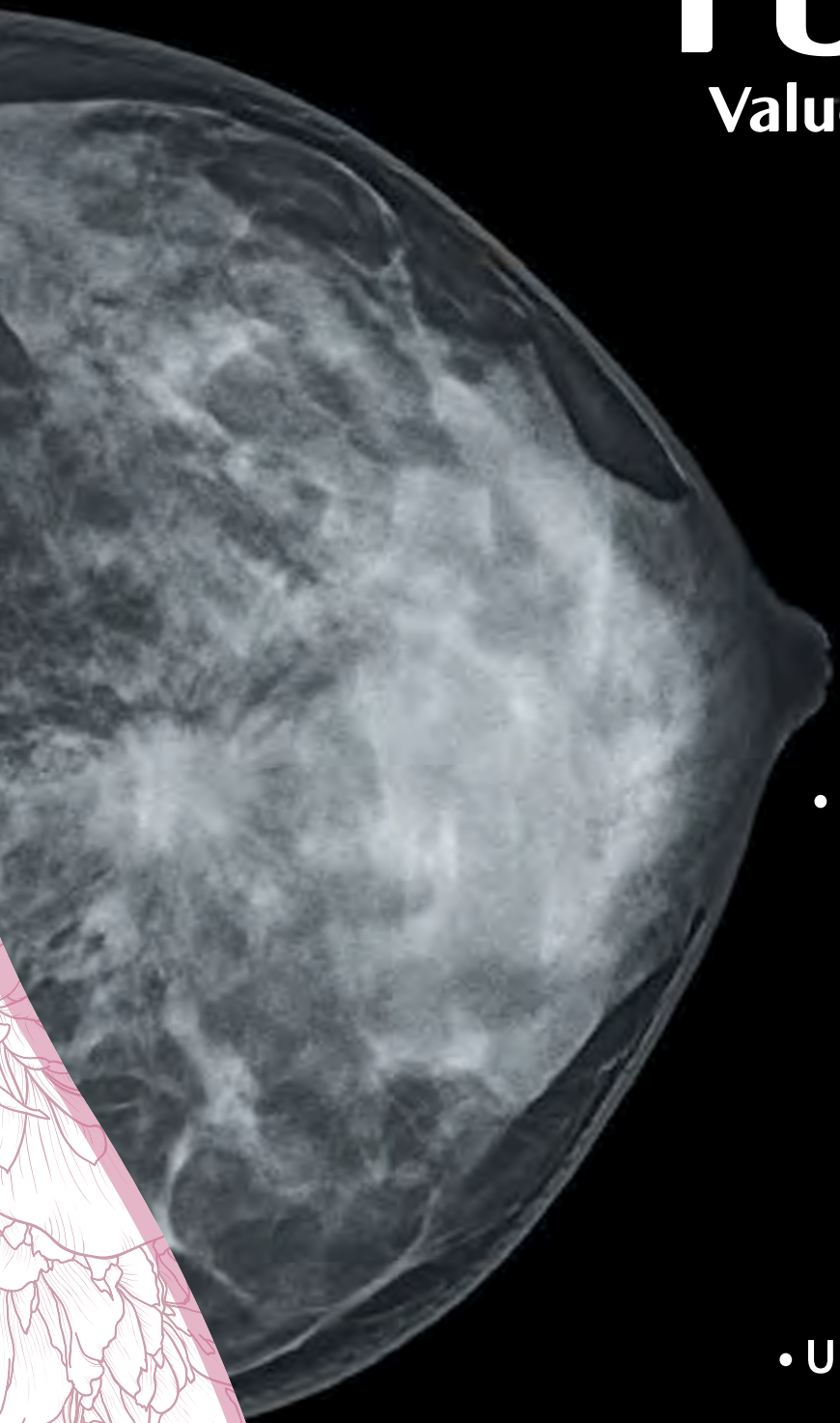

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Abstracts and biographies

MONDAY 9 JULY

SESSION 1: PLENARY

Sir John Stebbings Lecture: Increasing demands at work for everyone – Can we still be happy?

Learning outcomes:

- Dr Andy Cope, Founder of 'The Art of Brilliance'
- Learn how to retain your sparkle (when those around you may have lost theirs)
- Understand that life is too precious to be counting down to the weekend
- Learn how to feel amazing, even on a Monday!

Dr Andy Cope

Founder of 'The Art of Brilliance'

Dr Andy Cope is a qualified teacher, author, happiness expert and self-confessed learning junkie. He has spent 12 years studying positive psychology, happiness & flourishing, culminating in a Loughborough University PhD. In times of rising depression and an epidemic of 'busyness', Andy believes there has never been a more appropriate time to raise the happiness agenda.

Andy is also a best-selling author. He has written several personal development books for adults and moonlights as a children's author. His 'Spy Dog' series has sold in excess of a million copies worldwide. Andy bigs himself up by telling everyone he is world famous, if you're 7.

ARTIFICIAL INTELLIGENCE

Overview of AI potential in imaging

The session will be broadly on 'AI in Healthcare'. In his talk, Dr Karthikesalingam will discuss his time as a surgeon and how the work currently being carried out at DeepMind is aimed at using AI to transform the healthcare sector - from building algorithms to detect eye disease, to designing technology that detects patient deterioration. It will look at the challenges and opportunities of using advanced technologies in the healthcare landscape and explore in detail our key projects.

Dr Alan Karthikesalingam

Clinical Scientist, DeepMind

Alan Karthikesalingam is a senior clinician scientist at DeepMind Health, leading the translation between our Health Research and Streams teams. After studying medicine at the University of Cambridge, Alan trained in vascular and endovascular surgery in London, Lille and New York. At St George's University of London, he completed his PhD and led a successful research group investigating neural networks for medical imaging, new approaches to randomised trials, and the use of routine data to understand care. Alongside clinical practice, he published over 125 peer-reviewed papers, including award-winning first-author studies in the Lancet and the New England Journal of Medicine. Prior to joining DeepMind, he co-launched an app still in use across the London Ambulance Service in a study of vascular emergency triage.

AI applied to imaging including breast imaging

Learning outcomes:

- Understanding of the day-to-day process in clinical workflow that can benefit from technological augmentation
- Examples of companies working in AI across the globe
- Overview of deep learning in breast screening, and why next generation CAD may fulfil unkept promises

Dr Hugh Harvey

Consultant Radiologist, Clinical Lead, Kheiron Medical

Dr Harvey is a consultant radiologist and academic. He completed his post-graduate MD thesis in segmentation and volumetry of prostate MR, and was twice awarded Science Writer of the Year at the ICR.

He sits on the Royal College of Radiologists informatics committee as well as the Artificial Intelligence working group, and is a board advisor to AI start-up companies in the radiology space, including Algomedica and Smart Reporting GMBH.

He has practiced in the NHS as a consultant radiologist at Guy's & St Thomas' in London, and is currently Clinical Lead at Kheiron Medical. He has also worked at Babylon Health, the UK's leading digital health company, where he leads the regulatory affairs team, gaining world-first CE marking for an AI-supported triage service.

Abstracts and biographies

A1 An aid to risk prediction / screening

Dr Martin Fergie

School of Health Sciences, University of Manchester

Martin Fergie is a computer science researcher at the University of Manchester in the Division of Informatics, Imaging and Data Sciences. After completing his PhD in 2012, he became the Chief Technology Officer of DigitalBridge, a start-up applying deep learning technology for image understanding of indoor scenes. In March 2017 he moved to the University of Manchester to apply his experience in machine learning and computer vision to help develop novel imaging biomarkers. Current projects include predicting breast cancer risk from mammograms, and follicular lymphoma survival from histology data.

PARALLEL SESSION 2A - MANAGING HARM

Introduction

Prof Andy Evans

Professor of Breast Imaging, University of Dundee

Andy Evans is the Professor of Breast Imaging at Dundee University and his research interests include screening, shear wave elastography, imaging patients undergoing neoadjuvant chemotherapy and imaging derived prognostic markers.

Variation in recall and biopsy rates nationally (benefit versus harm)

Learning outcomes:

- There is widespread variation in recall rates used in Holland, the UK and the USA.
- The minimum standard recall rate in England is less than 10% at prevalent screens and less than 7% at incident screens.
- There is a need for detailed analysis of cancer detection rates of all types and grades and the association with recall rates.
- Such an analysis could lead to the setting of recall rate ranges that optimise the detection of life-threatening cancers whilst minimising the problem of overdiagnosis and false positive recalls.
- The talk will show recent information from a study of 11.3 million screening tests and how such target ranges could be produced.

Dr Roger Blanks

Senior Epidemiologist, University of Oxford

Dr Blanks has a PhD in epidemiology and a background in medical physics. He has worked in screening research since 1994, first at the Institute of Cancer Research and more recently the University of Oxford. In the 1990s he worked on breast screening evaluation and developed the SDR along with studies of two view mammography, double reading and film density. Since 2000 he has worked mainly on cervical screening and bowel cancer screening but, has recently been involved again in breast screening. He is currently working on research associated with recall rates, digital mammography and studies to help maximise screening efficiency. His current interests are breast screening performance evaluation and bowel cancer aetiology.

Update on Age Extension Trial

Prof Julietta Patnick

Visiting Professor, Cancer Screening, University of Oxford

Julietta was responsible for overseeing the NHS Breast Screening Programme in England until she left Public Health England in August 2015. She had first joined the NHS in 1979 and been involved in screening since the establishment of the Breast Screening Programme in 1987. In 1990 she was appointed National Coordinator of the Breast Screening Programme and gradually took on increased responsibilities.

She was appointed Visiting Professor in Cancer Screening at the University of Oxford in April 2008 following increasing involvement in research there and an honorary fellowship. Her chief research interest is as principal investigator of the breast screening Age Extension Trial which randomises about 500,000 women per year.

B3 guidelines - practical update and new data

The management of B3 lesions is a complex area, which currently is a cause of angst for many radiologists and pathologists. In this session I am hoping to explain the new guidance on how to manage B3 lesions and explain the changes that will be taking place on NBSS to allow for accurate recording of lesions. Data will be presented from the Breast Screening Surgical audit. I will also spend some time defining the meaning of vacuum assisted biopsy and vacuum assisted excision. It is also important to recognise the importance of standardising processes and to ensure that robust data can be collected going forward to ensure pathways are evidence based and patient centered.

Abstracts and biographies

Dr Nisha Sharma

Director of Breast Screening and Clinical Lead for Breast Imaging, Leeds Teaching Hospital NHS Trust

Dr Nisha Sharma is a consultant breast radiologist and the Director of Breast Screening for Leeds/ Wakefield Breast Screening Programme. She is also a professional clinical advisor for the Screening Programme.

She has a strong interest in research that can impact on the patient pathway. She was part of the team that developed the B3 guidelines for Breast Screening Programmes and the guidelines will be published in September 2018. She has also been involved in developing the NHS BSP guidelines for assessment, technical MRI guidelines and toolkit for Duty of Candour. She is also a committee member of Sloane and ABS surgical audit.

AXILLA - minimising intervention

Locoregional control and survival are unaffected following omission of axillary lymph node dissection (ALND) in patients with a low axillary burden undergoing initial breast-conserving surgery (BCS) with radiation and systemic therapy. This means that axillary imaging must evolve to distinguish between low and high axillary burden. Routine axillary ultrasound imaging was not required in any of the original randomized controlled trials of sentinel lymph node biopsy (SLNB) nor in the ACOSOG Z0011. Current practice of routine biopsy of indeterminate nodal features, such as cortical thickening, fast tracks patients to axillary clearance because it does not provide sufficient staging information. This matters because selected patients with low burden axillary disease should be considered for axillary radiotherapy or no further treatment as alternatives to completion axillary clearance.

The appropriate use of axillary ultrasound and limiting biopsy to abnormal nodes only, will increase SLNB rate and avoid axillary overtreatment.

Prof Michael Douek

Professor of Surgical Oncology, King's College London & Guy's and St Thomas' Hospitals

Michael Douek is Professor of Surgical Oncology at King's College London and Consultant Surgeon at Guy's and St Thomas' Hospitals. He is an oncoplastic breast surgeon with a research interest in developing and evaluating novel techniques for cancer surgery, including a novel magnetic technique for sentinel node biopsy and lesion localization, which he developed. In 2015, he was awarded a prestigious Hunterian Professorship by the Royal College of Surgeons of England.

Michael is a Member of Council of Breast Surgery International (BSI), Meetings Secretary of the British Association of Surgical Oncology (BASO) and a committee member of the British Breast Group.

PARALLEL SESSION 2B - PROFFERED PHYSICS PAPERS

NHSBSP survey of radiation dose in breast tomosynthesis 2017

Jennifer Oduko; Kenneth Young
Royal Surrey County Hospital

Background: National surveys of doses in mammography have been carried out for the NHS Breast Screening Programme at 3-yearly intervals since 2021[2]. These surveys are part of the quality system. As tomosynthesis is now used for assessment in many screening centres, it became feasible in 2017 to carry out a survey of mean glandular dose (MGD) in breast tomosynthesis.

Methods: Physics services sent data, from breast dose surveys already conducted, to a central point for collation and analysis. Details of exposures had been recorded by radiographers during examinations, or extracted from image DICOM headers with software. Data on X-ray set performance were available from physics services' measurements. All data was recorded with the same dose software to facilitate analysis.

Results: Data were recorded for approximately 15,000 images, acquired on 41 X-ray sets. Data was submitted for 35 Hologic, [1] GE and 5 Siemens X-ray sets. The overall average MGD for oblique views of breasts of all thicknesses was 2.5mGy for the Hologic systems, 2.1mGy for Siemens systems and 1.6mGy for the GE system. For oblique views of 50-60mm thick breasts the average MGD was 2.1mGy for the Hologic systems, 1.7mGy for Siemens systems and 1.4 mGy for the GE system. Further data will be included in the final presentation, including some 2D image data.

Conclusions: Measured MGDs for 50-60mm breasts were well below the national diagnostic reference level of 3.5mGy, which has been proposed for tomosynthesis[3] as well as for 2D imaging.

[1] Young KC, Oduko JM. Radiation doses received in the United Kingdom breast screening programme in 2010 to 2012. Br J Radiol, 2016 89: 20150831
[2] JM Oduko, KC Young. Patient Dose Survey of Mammography Systems in the UK in 2013-2015. Proc IWDM 2016, LNCS 9699: 1-8
[3] van Engen RE, Bosmans H, Bouwman RW et al. Protocol for the Quality Control of the Physical and Technical Aspects of Digital Breast Tomosynthesis Systems. Version 1.01. www.eurefor.org 2016

Dr Jennifer Oduko

Consultant Physicist, NCCPM, Royal Surrey County Hospital

Dr Jenny Oduko is a consultant physicist at NCCPM, the National Coordinating Centre for the Physics of Mammography, in Guildford, UK. She joined NCCPM in 2003, to specialise in mammography physics, after working in diagnostic radiology physics in London and Bristol. She lectures on mammography physics to radiologists, radiographers and physicists. She leads and supports evaluations of mammography equipment for Public Health England, who run the NHS Breast Screening Programme in England. Other interests include contrast-enhanced imaging, and national surveys of dose and equipment performance. She received MSc and PhD degrees in medical physics from the University of Surrey in Guildford, UK.

Abstracts and biographies

Symptomatic recall in the fatty breast: is it necessary?

Sarah Savaridas; Janet Litherland
NHS Greater Glasgow and Clyde

Purpose: Currently all women with reported or observed symptoms at screening are recalled for assessment, irrespective of breast density. Mammographically occult cancers were considered unlikely within an entirely fatty breast, assuming the symptomatic area was imaged. Therefore, the recall of these patients maybe causing unnecessary patient anxiety and clinical workload. This retrospective review was performed to establish whether these women could be returned to routine recall without assessment.

Materials and methods: All women coded as symptomatic were identified from assessment clinic sheets between 01/01/17 – 01/10/17. This was confirmed on Scottish Breast Screening Service software and the symptom classified as 'lump', 'skin dimpling' or 'nipple changes'. Axillary symptoms were excluded. The M (mammogram), U (ultrasound) and E (examination) and any B (pathology) scores were recorded. Imaging was reviewed on PACS and breast density assessed according to BI-RADS criteria, from A (almost entirely fatty) to D (extremely dense).

Results: 195 women were identified. Of these 163 cases were included. 56 patients (34.3%) had almost entirely fatty breasts, of these only 13 had additional imaging. The vast majority (39, 74%) were considered entirely normal on imaging and examination whilst a quarter (14, 26%) had benign changes. None had suspicious findings and no biopsies were performed. In the same period four indeterminate or malignant lesions were found in symptomatic women recalled with non-fatty breasts.

Conclusion: Symptomatic recall in patients with mammographically normal fatty breasts may be unnecessary.

Sarah Savaridas

SCREDS Clinical Lecturer in Radiology, University of Dundee, NHS Tayside

Sarah studied Medicine at the University of Edinburgh where she first became interested in research; both presenting and publishing student projects. During radiology training in Newcastle she developed her subspecialist interest in breast radiology. Completing the RCR Research Certificate crystallised her research interests. In Perth, Australia she built relationships with the Perth Royal Infirmary and BreastScreen Western Australia (BSWA) publishing and presenting two research projects and is actively involved in a further on-going study. On returning to the UK she took an academic training job in Dundee where she is currently completing an MD in breast imaging.

Variations of mammographic breast density in patients diagnosed with Invasive Ductal Carcinoma with or without ductal carcinoma in-situ component on core biopsy undergoing primary breast conservation surgery or subsequent re-operation - a case control study

Georgi Georgiev; Andrew Evans; Jane Macaskill; Sarah Vinnicombe;
NHS Tayside

Objectives: The aim of this retrospective study was to examine how mammographic breast density (MBD) varies in patients diagnosed with invasive ductal carcinoma (IDC) with or without ductal carcinoma in-situ (DCIS) component on core biopsy who underwent primary breast conservation surgery (BCS) or subsequent re-operation.

Methods: Data was obtained from a local cancer audit database and electronic patient records for patients diagnosed with IDC who underwent primary BCS between January 2014 and June 2017 at a single institution. Patients undergoing re-operation for positive radial margins (<1mm) were matched for age (within 3 years) and referral type with controls having a single operation (clear margins) in a 1:2 ratio. MBD was assessed using BIRADS 4th edition score by a radiologist blinded to outcomes. Approval was obtained from the local Caldicott guardian for use of patient data. Data were analysed based on re-operation status, presence of DCIS on core biopsy and BIRADS.

Results: Of 573 patients undergoing BCS for IDC, 55 (9.6%) underwent re-operation for positive radial margins. There was a weak positive correlation between presence of DCIS on core biopsy and higher BIRADS (Spearman's R=0.22, p=0.004). Patients having re-operation for positive margins with DCIS on core biopsy had the highest mean BIRADS.

Conclusion: The presence of DCIS on core biopsy is correlated with a higher BIRADS MBD score on mammography. Further study is needed to assess whether presence of DCIS on core biopsy and higher diagnostic MBD pre-operatively are associated with an increased risk of repeat surgery.

Georgi Georgiev

Cancer Clinical Trials Data Manager, NHS Tayside

Georgi Georgiev attended St Andrews University and graduated with BSc (Hons) in Medicine and subsequently attended Manchester Medical school before deciding to move into the administrative side of healthcare with a focus on data in clinical research. He started his current position of Clinical Trials Data Manager in February 2018. His interests include use of data to guide clinical practices, use of machine learning algorithms and big data in healthcare, and statistical analysis. He is currently working on statistical analysis for a novel HPLC assay which detects thymidine kinase in blood samples to aid early cancer diagnosis.

Abstracts and biographies

Predicting axillary node metastases in breast cancer: sonographic features and tumour characteristics

Nikhil Patel; Clare Peacock; Juliet Morel; Rema Wasan; Rumana Rahim; Shalini Wijesuriya; Bhavna Batohi; Michael Michell; Keshthra Satchithananda
King's College Hospital

Purpose: To evaluate axillary ultrasound (AUS) in identifying nodal metastases and disease burden in patients with breast cancer and to assess axillary lymph node (ALN) features and primary tumour characteristics associated with ALN metastases.

Methods: Retrospective single centre study of symptomatic and screen detected primary breast cancers (n= 119) with clinically negative axilla diagnosed between April and September 2017. Node characteristics on AUS (cortical thickness, loss of morphology, long-short [LS] ratio) were compared with sentinel lymph node biopsy or axillary node clearance histopathology. Tumour type, size and grade obtained from post-operative histopathology.

Statistical analysis using univariate chi-square and receiver operator characteristic (ROC) curve.

Results: 38/119 (32%) of breast cancers had nodal metastases. In univariate analysis, lymphovascular invasion, Grade 2/3 tumours, LS ratio ≤2 and symptomatic presentation were significantly associated with ALN metastases. ROC curve analysis found cortical thickness to be a reliable discriminator of nodal disease with an optimal cut off identified as ≥ 3mm (sensitivity 65.7%, specificity 95.6%, PPV 88.5%, NPV 84.5% and accuracy of 85.44%). Subgroup analysis of T1/2 cancers demonstrated low volume axillary disease with only 3.5% (3/84) having >2 lymph nodes involved - all detected on AUS. AUS did not identify low volume (≤2 nodes) axillary disease in 11.9% (10/84) of cases.

Conclusion: Cortical thickness remains a reliable discriminator of ALN metastases and adoption of a threshold of ≥3mm should be considered. Where AUS fails to identify ALN metastasis is in low volume disease which recent studies suggest may not be significant in 10-year survival outcomes[1].

[1] Giuliano AE, Ballman KV, McCall L, Beitsch PD, Brennan MB, Kelemen PR, Ollila DW, Hansen NM, Whitworth PW, Blumencranz PW, Leitch AM. Effect of axillary dissection vs no axillary dissection on 10-year overall survival among women with invasive breast cancer and sentinel node metastasis: the ACOSOG Z0011 (Alliance) randomized clinical trial. JAMA. 2017,Sep, 12;318(10):918-26.

Dr Nikhil Patel

Radiology Registrar, King's College Hospital, London

Dr Nikhil Patel is a senior registrar subspecialising in breast radiology at King's College Hospital. He has previously trained in thoracic radiology at University College Hospital. Apart from an active role in undergraduate teaching and service improvement, he is interested in the role and impact of machine learning on the field of radiology. Outside interests of his include hiking and nature photography.

Ultrasound accuracy in predicting residual tumour size after neoadjuvant chemotherapy (NACT) in different breast cancer subtypes

Tania Policastro; Katerina Micha; Anastasia Peppe; Francesca Muscara; Marios Konstantinos Tasoulis; Pooja Padmanabhan; Peter Barry; Fiona MacNeill; Jennifer Rusby
Royal Marsden Hospital

Background: Response to NACT varies according to subtype. Imaging is used after NACT to evaluate residual disease and to tailor surgical plans. Ultrasound is of similar accuracy to MRI [Vriens Eur J Cancer 2016]. Although Vriens reported by subtype, the numbers were small. We sought to evaluate ultrasound performance in our own cohort, compared with the gold standard of histopathological tumour size.

Methods: Patients who underwent surgery after NACT between January 2010 and December 2015 were included. Ultrasound was performed towards the end of NACT. Data collection was retrospective, from prospectively maintained electronic patient records. Results were examined according to whether a complete response was reported on ultrasound (uCR) and further categorised according to ER and Her^2 status.

Results: 597 patients were included. The most clinically relevant findings were:

- uCR has the potential to miss large volume residual disease (max>40mm in all subtypes); most likely in ER+ Her2- disease (upper quartile pathological size 30mm).
- uCR was reported in only 24 of 213 ER+ Her2- cases, and in only 8 (33%) did this correspond to a pCR.
- Conversely, 57% of patients with residual ER- Her2+ disease on ultrasound, achieved a pCR.
- Of ultrasound measurements of residual disease, approximately 1/3 were within 10mm of pathological size, 1/3 undersized by >10mm and 1/3 oversized by >10mm.

Conclusions: Despite careful imaging, prediction of pCR and quantitation of residual disease remain problematic. Additional imaging / biopsy may be warranted in ER+Her2- and ER-Her2+ disease to avoid under- and over-treatment respectively.

1. Vriens BE, de Vries B, Lobbes MB, van Gastel SM, van den Berkmortel FW, Smilde TJ, van Warmerdam LJ, de Boer M, van Spronsen DJ, Smidt ML, Peer PG. Ultrasound is at least as good as magnetic resonance imaging in predicting tumour size post-neoadjuvant chemotherapy in breast cancer. European Journal of Cancer. 2016 Jan 1;52:67-76.

Tania Policastro

Honorary Observer, Royal Marsden Hospital, London

Tania Policastro qualified in 2014 at Università Federico II in Naples, Italy and she started her surgical training in Parma and Piacenza, Italy. She is currently the SHO in the Breast Unit at the Royal Marsden Hospital, in Sutton. Her main interests are in breast oncoplastic techniques and reconstructive options in patients who underwent cancer surgery.

Abstracts and biographies

Mammographic image quality: Do radiographers and radiologists demonstrate comparable knowledge and preferences for positioning standards and criteria?

Rhonda-Joy Sweeney; Sarah Lewis; Mark McEntee
Discipline of Medical Radiation Science
University of Sydney, Australia

Background and purpose: Inadequate positioning together with inconsistent criteria can lead to unnecessary repeat imaging and perhaps missed breast cancers. Image quality is evaluated by both radiographers and radiologists, however, it is unclear how image quality and positioning criteria are applied and validated.

Method: Australian and New Zealand certified breast imaging radiologists (n=27) and mammographic radiographers (n=125) participated in a bespoke questionnaire via paper and online dissemination. The questionnaire rated the importance of known positioning criteria for both mediolateral and craniocaudal (CC) projections, focusing on knowledge and the frequency of application for the CC projection in clinical practice.

Preliminary results: Radiographers were considered the most responsible practitioner for the assessment of positioning image quality by 92% of radiographers and 63% of radiologists. The '1 cm rule' was known by 76% of radiographers and 48% of radiologists, indicating lack of familiarisation with this criterion. For the CC projection there was a general agreement on importance of inclusion of the pectoral muscle, medial bias when positioning, and visualisation of retroglandular fat. Conversely inclusion of postero-lateral tissue, even if medial tissue is compromised, was rated as more important by radiologists (35%) than by radiographers (21%). Radiographers' rated the '1 cm rule' to be more useful in considering positioning accuracy. Inferential analysis between the two groups is currently being undertaken.

Conclusion: There are variations in published positioning criteria and differences are identified in radiologists' and radiographers' knowledge and preferences for applying positioning criteria.

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Ministry of Health. BreastScreen Aotearoa Policy and Quality Standards. Wellington, New Zealand.: Ministry of Health; 2016.

Mount J. Reject analysis: A comparison of radiographer and radiologist perceptions of image quality. Radiography. 2016;22(2):e112-e7.

Public Health England. Quality assurance guidelines for mammography including radiographic quality control. Fulwood House, Old Fulwood Road, Sheffield, S10 3TH, UK: National Health Service Cancer Screening

Sweeney R-JI, Lewis SJ, Hogg P, McEntee MF. A review of mammographic positioning image quality criteria for the craniocaudal projection. The British Journal of Radiology. 2017;91(1082):20170611.

Rhonda-Joy Sweeney

PhD candidate, The University of Sydney, Australia

Rhonda-Joy Sweeney is a PhD candidate in Medical Imaging Radiation Sciences with the University of Sydney, Australia. Her area of research is focussed on mammographic image quality positioning criteria for the craniocaudal projection. Her interest arises from mammographic, and diagnostic radiography, clinical and teaching experience. She is also a professional teaching fellow with the postgraduate Medical Imaging programme, Department of Anatomy and Medical Imaging, at the University of Auckland in New Zealand. Her teaching is evidence-based to facilitate in the student a reflective and critical approach to best practice in order to provide optimal outcomes for the patient.

PARALLEL SESSION 3A - HOT TOPIC: TARGETING BREAST CANCER CARE WITH MRI

MRI in screening: abbreviated MRI

Objectives:

- Review the current standard for breast cancer screening in women with dense breasts.
- Describe the concept of abbreviated breast MRI (AB-MR).
- Review the current data on AB-MR for breast cancers screening.
- Compare AB-MR versus whole breast screening ultrasound (WBUS) in terms of sensitivity, false positives and cost for breast cancer screening in women with dense breasts.
- Summarize the current NCI multicenter trial (EA1141) evaluating AB-MR in women with dense breasts undergoing screening digital breast Tomosynthesis (DBT).
- Describe possible future directions for AB-MR

Dr Christopher Comstock

Radiologist, Sloan-Kettering Cancer Center, USA

Dr Christopher Comstock is an attending radiologist and director of Breast Imaging Postgraduate Education at Memorial Sloan-Kettering Cancer Center. Dr Comstock is co-author of "Abbreviated Breast MRI: A Practical Guide" published this year. He is currently the Imaging Co-Chair of the ECOG-ACRIN Breast Committee and is chair of the ACR Committee on BI-RADS Breast MRI. Dr Comstock is Co-PI of an active multicenter trial titled Effect of Preoperative Breast MRI on Surgical Outcomes, Costs and Quality of Life of Women with Breast Cancer (Alliance A011104/ACRIN 6694) and Study chair of the recently opened ECOG-ACRIN trial EA1141, "Comparison of Abbreviated Breast MRI and Digital Breast Tomosynthesis in Breast Cancer Screening in Women with Dense Breasts".

Abstracts and biographies

Preoperative MRI in targeting breast cancer care

Prof Thomas Helbich

Professor, Medical University of Vienna, Austria

Thomas H Helbich MD, MSc, MBA, Professor of Radiology, finished his medical degree at the Medical University of Vienna in 1998. From 1990 until 1996 he was trained as a radiologist at the Department of Radiology at the Medical University of Vienna. He was trained at the Department of Radiology, Center of Molecular Imaging of the University of California in San Francisco from 1996 to 1998. In 1999 he became Associate Professor of Radiology. In 2007 he became Division Head of the Breast Imaging Department of the University of Toronto and Full Professor of Radiology of the University of Toronto. Since October 1st, 2008 he is Professor of Molecular Imaging and Vice Chair of the Department of Biomedical Imaging and Image guided Therapy of the Medical University of Vienna. His working group developed and optimized several methods on the basis of MRI, different molecular imaging tools, as well as minimal invasive diagnostic techniques. He is author/coauthor of more than 220 scientific articles. He was honored with several national and international awards. He served as president of the European Society of Breast Imaging (EUSOBI) and the Austrian Society of Senology (ÖGS).

Radiogenomics personalising treatment - where are we?

Overview: Radiogenomics is a novel field in radiology that refers to the collective characterization and quantification of pools of image features. This presentation will introduce the topic of radiogenomics as applied to breast MRI. It will explain the term radiogenomics, go over the principles of radiogenomic analysis and personalised medicine including a detailed review of the current literature. There will be illustrations of MR phenotypic features according to molecular subtypes of breast cancer and how these relate to utility of breast MRI. There will be an introduction to functional breast MR techniques and how radiogenomic features may be extracted, analysed and interpreted to complement the information that is already available.

- To understand that radiogenomics refers to the extraction and analysis of imaging characteristics and features which can be captured automatically and linked or correlated with tumour genetics to identify specific imaging phenotypes that may have predictive or prognostic value.
- To understand that there are certain radiogenomic signatures that may be associated with underlying gene expression patterns.
- To appreciate that radiogenomics may provide more complex information on lesions that would otherwise be missed. This can be obtained by analysing T1 or T2 signal, enhancement characteristics or diffusion weighted sequences.
- To appreciate that the different molecular subtypes of breast cancer can have quite specific imaging features, although heterogeneity is recognised.

1. Aerts et al. Nat Comm 2014
2. Trop et al. Radiographics 2014
3. Mazurowski et al. Radiology 2015
Grimm e al. JMRI 2015

http://www.radiomics.org

www.oncoradiomics.com

Dr Liz O'Flynn

Consultant Radiologist, St George's University Hospitals NHS Foundation Trust

Dr Elizabeth O'Flynn is a Consultant Breast Radiologist at St George's Hospital in London. She qualified from St Mary's Hospital, London where she started post graduate training in surgery before moving to specialist training in radiology at Hammersmith and King's College Hospitals, London sub-specialising in breast radiology. She spent 7 years in academic medicine as Clinical Lecturer and Consultant Radiologist at the Institute of Cancer Research and the Royal Marsden Hospital where she gained knowledge and expertise in advanced MR Imaging techniques and became significantly experienced in the utility and application of functional imaging techniques including diffusion-weighted imaging as well as ultrasound techniques such as photoacoustics, elastography and ultrasound tomography. Her MD thesis involved assessing breast cancer using multimodal functional imaging techniques and she has continued academic interests in this field, particularly in assessing response to neoadjuvant chemotherapy, measuring breast density and evaluating novel breast imaging techniques about which she has published many research papers and conference abstracts. She has written a book chapter on functional MR Imaging techniques in the breast. She has a passion for teaching and is a faculty member of the International Breast Ultrasound School, a member of the organising committee for Symposium Mammographicum and lectures in the UK and Internationally.

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PARALLEL SESSION 3B - MAMMOGRAPHY PRACTICE: STATE OF THE ART AND BEYOND - EVIDENCE BASED TECHNIQUES AND IMAGE QUALITY

Evidence based techniques for positioning and compression - how does this link with PGMI?

This session will provide an overview of the challenges of mammography positioning and breast compression, it will develop an understanding of the concepts for the production of high quality mammography images, and demonstrate evidence based techniques to support ongoing learning.

Dr Claire Mercer
Interim Director of Radiography, Programme Leader Advanced Medical Imaging, University of Salford

Claire Mercer qualified as a Radiographer in 1995 from S. Martin's College, Lancaster. She worked in as a Radiographer for 5 years and then progressed into the field of Mammography. She developed into an advanced practitioner, followed by Superintendent and completed her MSc with distinction in Advanced Medical Imaging in 2011. The following year Claire completed her PhD at the University of Salford. Her research work is centred on practitioner variation in breast compression and Claire has published several papers in this area. She is currently Interim Director of Radiography at the University of Salford.

Image quality in interpretation of FFDM

Learning outcomes:

- Gain an understanding of what image quality means in FFDM
- Learn why high image quality is important
- The impact of poor image quality in general.
- The particular impact of blurring in FFDM

Ms Judith Kelly
Deputy Clinical Director / Consultant Radiographer, Breast Screening Unit, Chester

Judith Kelly has been a consultant breast radiographer at the Countess of Chester Hospital since 2004 and Deputy Programme Director (Breast Screening) since 2009. She is also an honorary senior research fellow at the University of Salford where she has worked on various collaborative research projects which have resulted in many journal publications Additionally, Judith has spoken at various Salford research seminars and delivers lectures on Salford's post graduate breast imaging modules.

Over the years Judith has had opportunities to speak at various national and international conferences on topics around breast imaging and she is a member of the Advisory Committee to the DoH on breast screening.

Tomosynthesis practices for mammographers

The aim of my presentation is to explore the implications that digital breast tomosynthesis has on our routine mammography practice.

What is the evidence to ensure that we perform this mammographic procedure to ensure highest quality standards of the resultant images and what questions do mammography practitioners frequently ask when considering this technique, do we need to adapt our mammographic positioning accordingly?

How we currently utilise DBT as an additional technique to our standard 2d digital mammography imaging and its relevance now and in the future.

Ms Helen Yule
Consultant Radiographer, Breast Test Wales and Cwm Taf University Health Board, Royal Glamorgan Hospital

Helen is a consultant radiographer working in both the symptomatic and screening environments. She began to specialise in mammography in 2005. Her interest in advanced practice started with biopsy and mammographic interpretation in 2008 and further extended my role into consultant practice since 2011. Helen is actively involved in all domains of consultant practice, and she is also an academic associate at Cardiff Metropolitan University where she is undertaking a PhD. Helen was a keen sportswoman running several marathons in sub three hours and has been a local magistrate for almost 20 years.

Breast density and working as a mammographer and advanced practitioner in Ghana

An understanding of the anatomy and structure of the breast, with its various compositions and densities, is essential for effective detection of breast cancer in the female breast. Such understanding is important for the detection and diagnosis of breast pathology at an early stage; in the case of younger women with a dense breast type, this can be a more difficult task than for older women with more fatty and less dense breasts.

Various factors are thought to influence breast density, and in subsequent diagnosis of pathology. With the knowledge that early detection leads to a better prognosis, my visit to Ghana as a member of a surgical team aims to provide teaching to improve breast cancer outcomes and also to run clinics. The goal is to reduce the number of patients presenting with late disease, both in the near-term and importantly, in the longer term. This

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will help reduce the mortality rate in Ghana, for a disease that is better controlled in the Western world in large part due to its understanding of the significance of breast density.

Dawn McDonald

Consultant Radiographer and Independent Practitioner, NHS and Private Hospitals

Dawn McDonald is an accredited consultant radiographer, and formally regularly appraised by the GMC. She works within the NHS and also the private sector in the Breast Symptomatic Services and the National Screening Programme. Further to her UK clinical role, Dawn has spent the last few years travelling and speaking internationally in locations such as Las Vegas, New York and Helsinki – delivering the findings of her own research, presenting her career progression and approach to her clinical work, and of course learning from others attending. As we go to press, Dawn is involved in planning a charity trip to Ghana with a UK team, the aim being to help reduce the number of women likely to present with advanced disease; she will be teaching as well as performing the clinical task.

SESSION 4: PLENARY - STAY ON THE RIGHT SIDE OF THE LAW

The law: what's new?

Mr Richard Furniss

Barrister, 42 Bedford Row, London

Richard is a well-known specialist in medical law and has vast experience of all aspects of clinical negligence and personal injury work.

He acts both for claimants and for defendants.

His clinical negligence cases have encompassed almost all aspects of that area of work. He is regularly instructed in cerebral palsy and other catastrophic cases and has been sole or junior counsel in very many cases worth in excess of £1 million.

Richard has well over 20 years' experience of personal injury and has done every type of personal injury case.

Lessons from the Paterson Case

Mr Ian Paterson was a breast surgeon who worked at both NHS and private hospitals in Birmingham from the 1990s until his suspension in 2012. In 2013 the Kennedy Breast Care Review detailed the findings of an investigation into the response to concerns raised regarding his NHS practice and in particular an operation he carried out known as 'cleavage sparing mastectomy'. In 2017 he was found guilty of 17 counts of wounding with intent and 3 counts of unlawful wounding relating to carrying out unnecessary surgery in the private sector and was jailed for 20 years. The presentation will describe the events that have occurred and the lessons that can be learnt.

Mr Mark Sibbering

Consultant Breast Surgeon, Derby & President, Association of Breast Surgery

Mark has been a consultant breast surgeon at the Royal Derby Hospital since 1997. He is the current President of the Association of Breast Surgery (ABS). Mark is also the National Advisor to Public Health England on Breast Screening. He is also the Chair of the Breast Screening Research Advisory Committee and was the previous Chair of the ABS / NHSBSP Screening Audit 2013-16

Duty of candour and the breast team - guidelines and toolbox

- English law mandates a duty of candour (DOC) for healthcare providers to be open and honest when something goes wrong with care causing harm.
- Screening involves a balance of harms and benefits, DOC guidance (Ref 1) helps distinguish incidents necessitating DOC from harms which are an expected consequence of the imperfections of screening tests.
- Interval cancers are inevitable in breast screening and are common; three interval cancers are expected to occur for each 1000 women given a normal screening result. Most of these women will be found on review to have had satisfactory previous screens, a few will require DoC.
- Most women with interval cancers will present to symptomatic breast services. Guidance, a toolkit and training video have been developed to help services manage these women (Ref 2). These will also assist with managing concerns from women related to other incidents such as the failure to invite older women.

References:

Ref 1 Public Health England: Guidance on applying Duty of Candour and disclosing audit results. PHE Sept 2016
Ref 2 Public Health England: Breast screening: interval cancers and Duty of Candour toolkit. March 2018

Dr Ros Given-Wilson, Consultant Radiologist, St George's University Hospitals NHS Foundation Trust

Dr Rosalind Given-Wilson

Consultant Radiologist, St George's Healthcare NHS Trust

Dr Rosalind Given-Wilson is a consultant radiologist at St George's Healthcare NHS Trust. She set up the South West London breast screening service in 1991 and was the Director of Screening, then Medical Director until 2015. She is a non-executive director at Moorfields Eye Hospital. She has research interests in the optimisation of breast imaging and decision making having published over 120 papers and abstracts. She ran the St George's National Breast Screening Training Centre providing post graduate training and has held the Royal College of Radiologists Breast Imaging Professorship. She has been involved with PHE work on implementing duty of candour in breast screening and is chair of the adult reference group of the UK National Screening Committee.

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TUESDAY 10 JULY

SESSION 5: PLENARY - JOINT PLENARY WITH ASSOCIATION OF BREAST CLINICIANS (ABC)

Inaugural Dr Audrey Tucker Lecture: It's the little things that matter

Liz has a unique perspective on the treatment of breast cancer, since she is a breast cancer patient and a breast cancer surgeon. She has talked extensively about using her experiences to improve the quality of patient care, focusing on something that is often overlooked and hard to measure - the patient experience. She will share with you what she has learned along the way, and hopefully make you see that when it comes to high quality care, it's the little things that matter.

Dr Liz O'Riordan
Consultant Oncoplastic Breast Surgeon

Liz is a consultant breast surgeon. In July 2015 she was diagnosed with breast cancer herself. She started chemotherapy within a week, followed by a mastectomy and reconstruction, radiotherapy and Tamoxifen. Since recently returning to work and learning how to cope with the challenge of treating patients when she has been a patient herself, Liz was diagnosed with a local recurrence.

Liz blogged about her cancer experience and has spoken at many national and international conferences, including a TEDx talk in 2016 - 'Jar of Joy'. This led to her being nominated as a 'Woman of the Year 2016'. She is passionate about improving the quality of healthcare by focusing on the patient experience.

@Liz_ORiordan http://liz.oriordan.co.uk

PARALLEL SESSION 6A - PROFFERED PAPERS

Evaluating the impact of the NHS Breast Screening Programme on mortality from breast cancer in England: a case-control study

Roberta Maroni; Dharmishta Parmar; Amanda Dibden; Stephen Duffy
Queen Mary University of London

Background: The National Health Service Breast Screening Programme (NHSBSP) was implemented in the UK in 1988. Improvements in diagnostic techniques and treatments led to the need for an up-to-date evaluation of the benefit of the NHS BSP on risk of death from breast cancer. An initial pilot case-control study demonstrated that attending mammography screening at least once led to a mortality reduction of 39% (1).

Methods: Based on the same study protocol (2), an England-wide study was set up. Women aged 47-89 who died of primary breast cancer in 2010 or 2011 were selected as cases (8,458 cases). Two controls who were alive at the time of the case's death were selected per case. Controls were matched by date of birth and screening area (15,900 controls). Both cases and controls had been invited to at least one breast screening appointment.

Results: Conditional logistic regressions show a 51% reduction in breast cancer mortality (OR 0.49, 95% CI 0.46-0.53) for women being screened at least once. This percentage increases with the number of screens attended. A similar reduction in breast cancer mortality is observed for women screened in the three years before diagnosis.

Conclusions: Preliminary results suggest a protective effect of breast cancer screening against mortality from breast cancer. However, further analysis to adjust for potential biases, such as self-selection, is currently under way.

Massat NJ, Dibden A, Parmar D, Cuzick J, Sasieni PD, Duffy SW. Impact of Screening on Breast Cancer Mortality: The UK Program 20 Years On. Cancer Epidemiol Biomarkers Prev. 2016;25(3):455-62.
Massat NJ, Sasieni PD, Parmar D, Duffy SW. An ongoing case-control study to evaluate the NHS breast screening programme. BMC Cancer. 2013;13:596.

Roberta Maroni
Statistician, Centre for Cancer Prevention
Wolfson Institute of Preventive Medicine
Queen Mary University of London

Roberta Maroni has an MSc in Mathematics and has been a statistician at the Policy Research Unit in Cancer Awareness, Screening and Early Diagnosis (PRU) based at the Centre for Cancer Prevention, Wolfson Institute of Preventive Medicine, Queen Mary University of London since 2016. The PRU is led by Professor Stephen Duffy and is a collaboration between seven institutions.

Roberta's main focus is breast cancer screening and her past work includes a study assessing the benefit of second-timed appointments in improving attendance to breast screening. Roberta is currently working on an evaluation of the NHS breast screening programme.

Women's experiences of mammography: analysis of 1196 free-text comments from a questionnaire study

Patsy Whelehan[1]; Jennifer Boyd[2]; Andy Evans[2]; Violet Warwick[2]; Gozde Ozakinci[3]
[1]NHS Tayside; University of Dundee; University of St Andrews; [2]University of Dundee; [3]University of St Andrews

Introduction: As part of a project aiming to develop comprehensive and valid measures of the mammography experience and its determinants, we analysed free-text comments from questionnaires completed by breast screening attendees.

Methods: Women were sent study invitations and questionnaires before their appointments. Those who chose to participate completed one questionnaire before attending, then two further questionnaires at the appointment.

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Questionnaire items captured mammography experiences and potential influencing factors. Acceptability and face- and content validity had been tested. Free-text boxes were included to elucidate fixed response data. NVivo 11 software (QSR International) facilitated analysis.

Two researchers familiarised themselves with the data and agreed an initial codebook before formal coding. Results below are from the first coder; full consensus findings from two coders will be presented.

Results: Questionnaires were completed by 237 participants (52% response rate). Average age was 60; 124 (52%) had post-16 education; 208 (88%) reported previous mammography.

The two major themes were: "negative-perceptions/screening-barriers" and "positive perceptions/screening motivators". There were over three times as many positive as negative comments. Pain and discomfort were the predominant negative subthemes, affecting the breast (n=62 text segments) and other body areas (n=34). Positive subthemes included belief in early detection (n=55) and positive perceptions of staff (n=427).

Of 174 comments on what was most important in determining experience quality, 112 (64%; 95%CI: 57%-71%) cited the mammographer's behaviour/attributes while 23 (13%; 95% CI: 9%-19%) concerned pain.

Conclusions: While pain remains a major issue in mammography, the mammographer seems to be central to positive overall experiences.

Patsy Whelehan

Radiographer, NHS Tayside and Universities of Dundee and St Andrews

Patsy's mammography career dates back to 1997 in Cambridge, followed by a stint as head of training at the King's College Hospital National Breast Screening Training Centre. She is now working as an advanced clinical practitioner in Ninewells Hospital, Dundee and is active in breast imaging research within the School of Medicine at the University of Dundee. She is working towards a PhD through the University of St Andrews. Patsy is a former regional quality assurance radiographer and until recently was a member of the English government's advisory committee on breast cancer screening. She is a current member of the steering group of the North of Scotland Hub of the Council for Allied Health Professions Research (CAHPR), and is chair of the Trustees of Symposium Mammographicum.

5 year prospective follow up of patients with B3 lesions

Nerys Forester
Newcastle Hospitals

A prospective database of all B3 lesions has been maintained since 2011, with all patients undergoing vacuum assisted biopsy/excision (VAB/VAE) if appropriate. If not upgraded following VAB/VAE, patients underwent 5 years annual surveillance mammography (ASM) or were discharged/returned to routine recall, depending on the presence of atypia. Outcomes audited over 5 years.

Number of ASMs, recall rate, symptomatic episodes and subsequent malignancy following B3 diagnosis identified from database.

Between 10/2011 and 12/2016, 432 patients with a B3 diagnosis, without any co-existing malignancy, were recorded. 346 underwent second line VAB/VAE, which diagnosed 33 with malignancy. 18 patients had malignancy identified at diagnostic excision (11.8% malignancy upgrade rate).

381 patients underwent ASM, routine screening or were discharged, having 633 mammograms over 5 years. 29 patients were recalled from ASM (recall rate 4.5%). 48 presented symptomatically for further breast investigations. 1 recalled following high-risk MRI surveillance.

Additional investigations diagnosed 16 cancers; 1 following MRI, 4 symptomatic, 11 recalled from ASM (CDR of 2.9). 13 further B3 lesions and 49 benign diagnoses were made. 6/16 cancers were contralateral and 10 ipsilateral (6 at original site). 14/16 cancers invasive, 2/16 DCIS.

VAB/VAE for B3 lesions is an excellent alternative to diagnostic excision. However, subsequent ASM has a low recall and cancer detection rate, questioning whether ASM is necessary in this group of patients. Is finding a B3 lesion simply highlighting patients who would progress to a screen detected cancer anyway? If so, could they be safely returned to routine follow up within the screening program?

Nerys Forester

Consultant Radiologist, Newcastle Hospitals

Nerys studied at New College, Oxford and obtained a first-class honours degree in Physiological Sciences prior to qualifying in Clinical Medicine in 1997. Nerys undertook surgical training in Yorkshire before returning to basic science research and gaining her PhD. She become a Consultant Breast Radiologist in Newcastle in 2011 where she has continued her passion for research, working with the extended breast team on a variety of projects. Supported by Symposium Mammographicum, she completed a MSc in Health Research in 2017, examining the risk of breast cancer for patients with indeterminate breast lesions using systematic review methodology.

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Difference in tumour characteristics between true interval and screen-detected breast cancers

Alan Tan; Nithya Vidyaprakash; Asha Eleti
Southend University Hospital NHS Foundation Trust

Background: True interval breast cancers are non-false negative cancers detected between mammographic screenings. For cancers to develop in the three-year interval of the NHSBSP, it is plausible that they are inherently more aggressive and therefore grow rapidly.[1,2] We hypothesised that true interval breast cancers have more adverse tumour characteristics than screen-detected breast cancers.

Methods: Prospectively collected records from our NHSBSP population of 100000 between 1/4/2014 and 31/3/2015 were retrospectively analysed. Cases of true interval cancers were distinguished from missed interval cancers. All screen-detected cancers in the same period were included as control. Recurrent cancers or cancers not surgically removed were excluded. Tumours were assessed for size, type, grade, multifocality/multicentricity, hormone receptor status, HER2 overexpression, lymphovascular invasion and axillary nodal involvement. Statistical analysis was performed with t-test and chi-square test for numerical and categorical variables, respectively (alpha 0.05).

Results: We identified 63 and 130 eligible patients with true interval and screen-detected breast cancers, respectively. True interval cancers were significantly larger (26.34 vs. 15.41mm, p<0.00001), of higher grade (Grade III, 46% vs. 29.2%, p=0.015), less likely to be ER (82.5% vs. 96.9%, p=0.001) or PR positive (57.6% vs. 89.1%, p<0.00001), and had higher rate of lymphovascular invasion (38.3% vs. 15.6%, p=0.001). There was no significant difference in tumour type, multifocality/multicentricity, HER 2 overexpression and axillary nodal involvement.

Conclusion: We demonstrated that true interval breast cancers possessed more adverse tumour characteristics compared with screen-detected breast cancers. Patients with true interval breast cancers should generally be regarded as having a poorer prognosis.[3]

Gilliland FD, Joste N, Stauber PM, et al. Biologic characteristics of interval and screen-detected breast cancers. J Natl Cancer Inst. 2000;92(9):743-9.

Kirsh VA, Chiarelli AM, Edwards SA, et al. Tumor characteristics associated with mammographic detection of breast cancer in the Ontario Breast Screening Program. J Natl Cancer Inst. 2011;103:942-50.

Cianfrocca M, Goldstein LJ. Prognostic and predictive factors in early-stage breast cancer. The Oncologist 2004;9:606-16.

Alan Tan

Radiology Registrar, Southend University Hospital NHS Foundation Trust

Alan Tan is a clinical radiology registrar in East of England, based primarily at Southend University Hospital NHS Foundation Trust. He previously undertook a year of training in Breast Surgery as a Core Surgical trainee in West Yorkshire before embarking on a career in Clinical Radiology. Alan recently completed a three-month Breast Radiology module during which he developed further interest in this field.

Comparison of performance of mammogram readers with breast magnetic resonance imaging (MRI) readers at an abbreviated breast MRI (FAST MRI) interpretation task: results from a single centre multi-reader study using an enhanced data-set

Lyn Jones[1]; Samantha Harding[2]; Rebecca Geach[1]; Chris Foy[3]; Victoria Taylor[4]; Andrea Marshall[5]; Janet A Dunn[5]
[1]Bristol Breast Care Centre, North Bristol NHS Trust; [2]North Bristol NHS Trust; [3]South West Research Design Service, NIHR; [4]University Hospitals Bristol NHS Trust; [5]Clinical Trials Unit, University of Warwick

Background: FAST MRI has been proposed as a screening tool for a wider group of women than those currently offered screening with breast MRI (1,2). Its shorter acquisition and reading times promise potential cost effectiveness. However, any proposed change in screening modality from mammograms to FAST MRI has workforce implications. We need to know whether NHSBSP mammogram readers, already adept at mammogram interpretation but with no previous experience of interpreting breast MRI, could quickly learn to read FAST MRI with minimal additional training. HRA and REC approval obtained (IRAS: 219332, REC: 17/SW/0142, EDGE: 4002).

Methods: 8 Readers (4 NHSBSP breast MRI and mammogram readers (Group 1) and 4 NHSBSP mammogram readers who do not read breast MRI (Group 2)) were all trained using a standardised training package. All Readers completed a test set of 125 anonymised FAST MRI examinations (250 breasts: 194 normal and 56 cancer) blinded to the other Readers' opinions; providing a total of 2000 interpretations.

Results: Overall concordance with the true result was 1745 (87%) when identifying MRI classification 4 or 5 as cancers (898/1000 (90%) for Group 1 Readers; 847/1000 (85%) Group 2 Readers). The inter-reader agreement, kappa, was 0.69 (95% confidence interval 0.65-0.72).

When identifying MRI 3, 4 or 5 as cancers, overall concordance was 1550 (78%) for all readers (777/1000 (78%) Group 1; 773/1000 (77%) Group 2) and kappa = 0.51 (95% confidence interval 0.47-0.54).

Conclusions: These results suggest that NHSBSP image readers could adapt to reading FAST MRI with minimal additional training.

Kuhl CK. Abbreviated breast MRI for screening women with dense breast: the EA1141 trial. Br J Radiol. 2017;90:20170441

Jones LI, Dunn JA, Marshall A and Kuhl CK. Mapping the drivers of overdiagnosis to potential solutions: Is the UK ready for an Imaging Biomarker Solution to the Breast Screening Debate? BMJ 2017 http://www.bmj.com/content/358/bmj.j3879/rr-3Last accessed January 2018

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Dr Lyn Jones

Consultant Radiologist, Bristol Breast CareCentre North Bristol NHS Trust

Dr Lyn Jones was initially appointed at North Bristol NHS Trust in 2002 as a consultant radiologist with specialist interests in breast and interventional radiology. In 2013, when Bristol's separate breast symptomatic services from Frenchay Hospital and from the Bristol Royal Infirmary combined with Avon Breast Screening Unit into a single service at the new Bristol Breast Care Centre she gave up Vascular Intervention to become a consultant breast radiologist.

Since August 2014 she has been working to develop a research proposal, investigating the potential uses of FAST MRI in a screening context.

PARALLEL SESSION 6B - ASSOCIATION OF BREAST CLINICIANS

Population screening with MRI: is it the future?

Objectives:

- Review the current limitations and inefficiencies of breast cancer screening programs
- Discuss the potential for vascular based screening in women with dense breasts.
- Review the concept of primary screening for breast cancer with breast MRI (PRISM).
- Describe the potential trial design to evaluate breast MRI as a replacement for mammographic screening and whole breast screening ultrasound in women with dense breasts.
- Review non-contrast MRI techniques as a possible future breast cancer screening tool

Dr Christopher Comstock

Radiologist, Sloan-Kettering Cancer Center, USA

See page 23.

What challenges face the NHSBSP in introducing MRI

Learning points:

- NHSBSP screening with digital mammography only finds around 60% of the cancers in a screened population, the remainder being intervals. We need to do better particularly with the reducing screening uptake and current bad press.
- Risk of breast cancer is different for all women. How do we more accurately identify those who will most benefit from other enhanced screening modalities? Risk stratification, and strategies for assigning risk eg indeterminate lesions, FH, personal history, breast density and texture analysis.
- MRI breast reliably identifies otherwise occult breast tumours, but due to reduced gantry time, costs, difficulties with menstrual cycle timing etc, it is reserved for selected cases.
- Shortening the scan time (abbreviated MRI, AB-MRI) has been shown to be statistically equivalent to standard protocol MRI by reducing time and cost of the study and could be utilized for a wider group of screenees, particularly those at higher risk.
- How could large scale breast MRI be introduced for NHSBSP clients? What would it need, how could we do this?

Prof Kate Gower Thomas

Consultant Radiologist, Dept of Clinical Radiology, Royal Glamorgan Hospital

Kate has been a breast radiologist in South Wales for 25 years, working in both screening and symptomatic. Her interests include familial breast cancer, interval cancers and GP open access breast imaging. She was a QA radiologist for 14 years, starting the FH screening service in 2001, which runs alongside population screening at Breast Test Wales. She recently published on the Welsh BRCA carriers, treatment choices and outcomes. Her current projects include the differences in cancer detection pre and post digital. She has a personal Chair at the University of South Wales and is currently looking forward to her retirement!

PARALLEL SESSION 7A - ASSOCIATION OF BREAST SURGEONS: TECHNIQUES FOR LESION LOCALISATION

Radio-guided Isotope Occult Lesion Localisation (ROLL)

The onset of the Breast screening programme brought in the need for localising techniques for impalpable breast cancers. Wires introduced into the breast, to help the surgeon remove the lesion, have been used in majority of units ever since. Problems associated with wires have been reported in the literature and alternative methods have been around for some time, but wires are still considered the "Gold Standard" in this country.

Radioisotope Occult Lesion Localisation was first implemented in our unit in 2002. Despite numerous publications about its superiority and safety, only a few units in the UK have moved over to this technique.

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In this presentation I will demonstrate the technique, share long term results, look at causes for occasional failure of ROLL technique, discuss its combination with Sentinel Lymph node biopsy (SNOLL), and finally suggest reasons why the Cochrane review (2011) did not endorse it's superiority over wire.

Miss Leena Chagla

Honorary Secretary of ABS, Consultant Surgeon, St Helens and Knowsley Teaching Hospitals

Miss Leena Chagla is a consultant surgeon and the Honorary Secretary of the Association of Breast Surgery, and President elect of the Liverpool and Northwest Society of Surgeons. She heads the Breast Unit at St Helens and Knowsley Teaching Hospitals. She is an honorary lecturer at the University of Liverpool and is a professional clinical advisor to Public Health England for Breast Screening. Her breast unit at St Helens Hospital is actively involved in clinical innovation and introduced the ROLL (Radioisotope occult lesion localisation) and SNOLL(Sentinel node and occult lesion localisation) techniques for screen detected cancers in the UK. Leena was instrumental in setting up the International Forum at ABS with a view to sharing good practice globally. She is committed to improving and standardising breast cancer care through education and training.

Radioactive Seed Localisation (RSL)

Mr Henry Cain

Consultant Oncoplastic Breast Surgeon, Newcastle upon Tyne Hospitals NHS Foundation Trust

Henry Cain qualified in 2001 from Leicester Medical School. Following the award of MD in breast cancer signalling pathways and higher surgical training he spent a year as the Oncoplastic Fellow at the Canniesburn Unit in Glasgow. He was appointed a consultant oncoplastic surgeon at the Royal Victoria Infirmary Newcastle upon Tyne in 2013. Henry Cain maintains numerous research activities in the molecular basis of breast cancer and has significant interest in the use of Neo-Adjuvant Chemotherapy in breast cancer. Henry Cain continues a commitment in teaching advanced oncoplastic breast surgery. He is a member of the Education and Training Committee at the Association of Breast Surgery. Clinically he has been one of the lead surgeons in the introduction of Radioactive Seed Localisation of impalpable breast cancer to the UK.

Magnetic seed localisation

Accurate localisation of impalpable breast lesions is essential to optimise both oncological and non-oncological outcomes for breast-conserving surgery. A number of techniques are employed to achieve this, the most common in the UK being wire-guided localisation. Wire placement adds stress for the patients on the day of surgery and can cause delays to the operating schedule. Radioactive Occult Lesion Localisation (ROLL) and Radioactive Seed Localisation (RSL) are alternative methods however the latter poses specific logistical difficulties associated with radioisotope legislation. Magnetic seed localisation (Magseed) has similar principles to RSL. It can avoid a same-day placement, and operative time may be reduced without compromising accuracy.

In this talk Jenny will describe the pilot study undertaken to investigate Magseed for localisation and removal of impalpable breast lesions in breast conserving surgery. Surgeon and radiologist satisfaction with the technique was assessed. I will also present the rationale for and aims of the cohort study to which we are currently recruiting in order to evaluate clinical and economic effectiveness. Logistics, pros and cons will be described.

Miss Jenny Rusby

Consultant Oncoplastic Breast Surgeon, The Royal Marsden NHS Foundation Trust

Miss Jennifer Rusby is a consultant oncoplastic breast surgeon at the Royal Marsden Hospital. She trained at Oxford and in Wessex before undertaking her MD research into nipple-sparing mastectomy at Massachusetts General Hospital, Boston. She then did oncoplastic fellowships in Birmingham and at the Marsden before becoming a consultant there in 2010. Jenny has been on the Conference Organising Committee of Symposium Mammographicum since 2013.

Her main research interests are the utility of three-dimensional surface imaging in breast cancer surgery but she has also been exploring the interface between radiology and surgery such as the evaluation of the axilla after neoadjuvant treatment and the introduction of new technology for localisation. She is the local PI for LORIS, POSNOC and the Bridging the Age Gap trials.

No innovation without evaluation

Learning outcomes:

- New techniques and devices should not be introduced without evidence – 'no innovation without evaluation'.
- There is a developed methodology for the assessment of new devices and techniques – the IDEAL Principles.
- Introduction of new techniques and devices without evaluation can be disastrous for patients, health professionals and the health economy.

Prof Chris Holcombe

Breast Surgeon, Royal Liverpool Hospital

Chris is a consultant breast surgeon in Liverpool with a particular interest in breast reconstruction and oncoplastic surgery and has an honorary chair at Liverpool University. He is the Chair of the Association of Breast Surgery Academic and Research Committee, and Deputy Chair of the National Breast Clinical Expert Group. His main research interests are in the evaluation

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of new techniques of breast reconstruction and applying 'IDEAL' research principles to the introduction of new surgical devices and techniques.

He is co-chief investigator for the iBRA Study, a practise changing study, and the largest prospective cohort study worldwide in primary breast reconstruction.

Chris is also actively involved in recruitment to pre-surgical 'window of opportunity' studies and has an interest in the psychology of breast cancer diagnosis and treatment. At home Chris is actively involved in his local church and enjoys spending time with his family and growing number of grandchildren, and heads for the mountains whenever possible.

PARALLEL SESSION 7B - ASSOCIATION OF BREAST CLINICIANS

Mistakes happen we are all human – the human factor

In today's climate of increasing workload and radiology shortage it is inevitable that mistakes occur. Whilst academic and technical training, alongside experience stand us all capable of performing well, the lives we lead both in work and outside of it influence our professional behaviours and outcomes. Repeated interruptions, colleague conflict, a lack of lunch or an incident at home before the commute may be the difference between finding a cancer or returning to screen. Understanding, accepting and addressing these 'human factors' will make for safer practice and an improvement in work and life balance.

Dr Zoe Goldthorpe

President, ABC

Dr Zoe Goldthorpe became President of the ABC in June 2017. She has worked as a breast clinician in Taunton since 2008, having previously worked in Portsmouth and Bristol as a surgical trainee. Whilst in Portsmouth she researched changes in breast cancer gene expression, during and after neo-adjuvant chemotherapy. She completed a Masters degree in Breast Evaluation (Imaging) in 2013 and furthered her scope of practice to include MRI reporting in 2016/17. Outside medicine, she has 2 small children and plays French horn which acts as a perfect escape mechanism to both a busy work and family life.

Public and patient involvement in research

Session outcomes: For researchers to recognise and value the incorporation of effective PPI in their research from an early stage. Also, to recognise the need for education to be reciprocal – both researchers and patients can learn from working together in research.

Mrs Maggie Wilcox

Independent Cancer Patients' Voice

Maggie is a former nurse who is now an experienced patient advocate after treatment for breast cancer.

She has worked with Breakthrough, Breast Cancer Campaign, Breast Cancer Care, Macmillan, CR-UK, NCRI Breast Clinical Study Group. Maggie was member of Marmot Panel on Breast Screening and Panel designing new screening information and is a current member of SLOANE Project and All Party Parliamentary Group on Cancer. Maggie is also a founder member & President of Independent Cancer Patients Voice (ICPV) – a patient led group which provides education, mentoring and support for people who, having been treated for cancer, want to add the important informed patient perspective to cancer research.

www.independentcancerpatientsvoice.org.uk

ICPV welcomes the opportunity to collaborate with researchers. Our introduction to Symposium Mammographicum came about through Patsy Whelehan's participation in an ICPV workshop in Glasgow. Her support for ICPV has continued and we now benefit from two bursaries to attend this conference.

PARALLEL SESSION 8A - STRATIFIED SCREENING AND SURVEILLANCE - THE WAY FORWARD

What do we know about personalised screening & what do we not know?

Learning outcomes:

- It is possible to stratify the risk of developing breast cancer through family history, demographic information and from SNPs
- Breast density contributes to the risk of developing breast cancer
- Dense breast tissue can mask cancers resulting in them being found at the next round or presenting as an interval cancer
- Different imaging modalities should be considered for women with dense breasts especially if at increased risk

Prof Fiona J Gilbert

Professor of Radiology, University of Cambridge School of Clinical Medicine

Professor Gilbert was appointed the Professor of Radiology & Head of the Department of Radiology at University of Cambridge in 2011. Prior to this she was head of the Aberdeen Biomedical Imaging centre, University of Aberdeen. She is the Honorary Consultant Radiologist at Addenbrookes Hospital, Cambridge.

Professor Gilbert's clinical research is focused on imaging breast cancer. She is interested in multimodal functional imaging of the tumour microenvironment using breast cancer as a model,

Abstracts and biographies

and using these combined imaging techniques to map the tumour genetic profile. She has been awarded grants in excess of £33m over the last 10 years from the Medical Research Council, Engineering & Physics Research Council, NIHR Health Technology Assessment Board and Cancer Research UK. These have been awarded with Professor Gilbert nominated as either chief investigator or co-applicant. Professor Gilbert maintains a strong interest in musculo-skeletal imaging and oncological imaging.

Professor Gilbert's role is to provide leadership to the diverse imaging community at Cambridge University. She is responsible for radiology research and radiological undergraduate teaching. She is the Chair of the Academic Committee of the Royal College of Radiologists, and immediate past Chair of the Royal College of Radiologists Breast Group. She is Chair of the NCRI Imaging Advisory Group and was co-lead of the NCRI PET Research Network. Professor Gilbert is also on a number of advisory panels.

Professor Gilbert has over 185 peer reviewed publications, 6 book chapters and numerous conference abstracts. She is a regular speaker at international Radiology conferences in Chicago and Vienna as well as the European Society of Breast Imaging

Breast density and texture imaging markers

The term 'breast density' or mammographic density (MD) denotes those components of breast parenchyma at mammography with a density greater than adipose tissue. MD comprises a mixture of epithelial and stromal components in variable proportions, which can change throughout life.

There are two main risks associated with MD: firstly, high MD significantly reduces mammographic sensitivity for breast cancer. Secondly, it is in itself a risk factor for breast cancer.

The advent of digital mammography (DM) has made it possible to obtain fully automated, reliable, volumetric measures of breast density for the first time. However, it is becoming clear that measures of parenchymal organisation such as texture also confer important information on risk.

This presentation will review:

- The importance of breast density
- How breast density is measured
- Other measures of breast cancer risk such as texture

Dr Sarah Vinnicombe

Consultant Radiologist, Thirlestaine Breast Centre, Cheltenham and Honorary Senior Lecturer, Cancer Imaging, University of Dundee

Dr Sarah Vinnicombe completed her radiological training with distinction at St. George's Hospital, and was appointed as Consultant Radiologist at St Bartholomew's Hospital Medical School, where she was Lead in Breast Imaging, Haematologic Oncology Imaging, and Director of Breast Screening. In 2011, she took up a Clinical Senior Lecturer post at Ninewells Hospital Medical School in the University of Dundee, to focus on research in cancer imaging, and has just commenced a new post in The Breast Centre, Cheltenham General Hospital.

Dr Vinnicombe lectures and teaches nationally and internationally, particularly on breast MRI and imaging aspects of breast cancer risk, and has an active role in teaching and training in radiology and cancer imaging. Her main research interests are in breast density, personalised breast cancer screening, evaluation of response to neoadjuvant chemotherapy, novel breast imaging techniques and multiparametric prostate MRI.

In 2013, Dr Vinnicombe was the British Society of Breast Radiologists' Visiting Professor. She is an elected fellow of the International Cancer Imaging Society and is Vice-Chair of the British Society of Breast Radiology.

What's the evidence for using ultrasound as a screening test?

Prof Thomas Helbich

Professor, Medical University of Vienna, Austria

See page 24.

Surveillance following breast cancer - Mammo 50

Good evidence exists to suggest mammographic follow-up following a diagnosis of breast cancer is associated with improved outcomes. There is little evidence regarding the optimal frequency and length of mammographic follow-up. These question should be answered, at least in part, by the Mammo50 study which has now finished recruiting. It randomised women over 50 yrs at diagnosis to yearly or longer frequency follow-up after yr 3. There are also plans to use mammo50 participants to look at the role of changes in breast density while on adjuvant hormone therapy and recurrence. Follow-up of women who initial tumour was mammographically occult is also a difficult issue.

Prof Andy Evans

Professor of Breast Imaging, University of Dundee

See page 19.

Abstracts and biographies

PARALLEL SESSION 8B - ASSOCIATION OF BREAST CLINICIANS

Single Nucleotide Polymorphisms (SNPs) – who will benefit and who will lose out?

There are increasing attempts to try to stratify cancer risks to enable more targeted early detection and prevention strategies and in particular to balance the risks and benefits of population screening for breast cancer. An increasing number of common genetic variants called Single Nucleotide Polymorphisms (SNPs) have been identified which alter breast cancer risk. Although individually their effect sizes are small they can be used multiplicatively to provide a polygenic risk score (PRS) that accurately predicts risk in both the familial and population setting. Although the first 18 SNPs produce a highly calibrated PRS that is ready for use there are now PRSs of 143 SNPs that increase risk stratification although with some loss of calibration. Using data from 9362 women in the Predicting the Risk of Cancer at Screening (PROCAS) study (500 prospective cancers) we have validated the PRS alongside mammographic density (density residual-DR) and standard risk factors to assess future risk of different types of breast cancer. The combined score accurately predicts breast cancers rates with 18% of women being predicted in the moderate or high risk categories (≥5% 10 year risk) that developed 41.5% of the stage 2+ cancers. Improvements are needed to identify oestrogen receptor negative cancers.

Conclusions: A combined approach using Tyrer-Cuzick, mammographic density and a PRS provides accurate risk stratification not only overall but also for worse prognosis cancers. This provides support for reducing screening intervals in the high and increasing them in the low risk groups

Prof Gareth Evans

Professor of Medical Genetics, Regional Genetics, St Mary's Hospital, Manchester

Professor Evans has established a national and international reputation in clinical and research aspects of cancer genetics, particularly in neurofibromatosis and breast cancer.

He has published 706 peer reviewed research publications; 264 as first or senior author. He has an ISI web of knowledge H-index of 95 and google scholar of 130. He is overall cancer lead (3 themes) and Cancer Prevention Early detection theme lead on the successful all Manchester NIHR Biomedical research centre bid (2017-2022-£28.5million) and is lead clinician on the NICE familial breast cancer guideline group.

Update on antibody therapies and the effects of Rapid BRCA testing on the choice and timings of chemotherapy regimens

Learning objectives:

- Understanding the role of primary medical therapy of breast cancer with respect to the relationship between pathological complete response and long term outcomes
- HER-2 targeted therapy with trastuzumab and pertuzumab
- The role of BRCA testing and targeting in the clinic

Prof Andrew Wardley

Clinical Director, Consultant & MAHSC Professor in Breast Medical Oncology; Medical Director of The NIHR Manchester Clinical Research Facility @ The Christie NHS Foundation Trust Lead for The Christie & Manchester Breast Centre Clinical Research Team

Professor Andrew Wardley graduated from the University of Manchester Medical School in 1989, completing his medical oncology training in 2000 and was awarded an MSc and an MD. Since 2001 he has been a consultant in breast medical oncology, at The Christie he has developed a fully integrated practice of research, education & service innovation. He created & developed the Breast Cancer Research Team, the highest recruiter to clinical trials in the UK & is one of the founding members of The Manchester Breast Centre. He is a member of the National Cancer Research Institute Breast Cancer Clinical Studies Group.

Workshops and networking sessions

SUNDAY 8 JULY

SOCIETY AND COLLEGE OF RADIOGRAPHERS WORKSHOP

What's in a job title?

- *Sue Johnson and Tracy O'Regan, Professional Officers, Society and College of Radiographers*
- *Claire Borrelli, Organising committee and Education & Training Manager / Principal Lecturer, Radiographic Advisor to the NHSBSP/PHE, Breast Screening Training Centre, St. George's University Hospitals, London*

This session will be an exploration of radiographic advanced practice roles within breast services, seeking to support radiographers with understanding, and recognising the role of national advice and professional guidance in relation to the roles they undertake and the services that they deliver. It will be of interest to those already in advanced practice roles as well as those who aspire to develop into these roles. Service managers, radiologists and clinical directors are also welcome and should find it useful to support service development.

GE HANDS-ON-WORKSHOP

Contrast enhanced spectral mammography; making a difference in moments that matter

Dr Ruxandra Pietrosanu, Consultant Radiologist, Guy's Hospital, London

HOLOGIC SPONSOR'S SYMPOSIUM

Technological advances in mammography: The impact of tomosynthesis on the patient pathway

Moderator: *Dr Nisha Sharma, Director of Breast Screening and Clinical Lead for Breast Imaging, Leeds Teaching Hospitals NHS Trust*

- **Prospects Trial: Digital breast tomography within breast screening – a consideration for the future** - *Dr Michael Michell, Consultant Radiologist, King's College Hospital NHS Foundation Trust, London*
- **Tomosynthesis in the assessment setting: Benefits and considerations** - *Dr Nisha Sharma, Director of Breast Screening and Clinical Lead for Breast Imaging, Leeds Teaching Hospitals NHS Trust*
- **Stratifying tomosynthesis screening results by breast density: implications for clinical practice** - *Dr Giovanna Romanucci, Consultant Radiologist, UOSD Breast Unit ULSS9, Marzana Hospital, Verona, Italy*

MONDAY 9 JULY

FUJIFILM CLINICIAN LED SYMPOSIUM

Contrast Enhanced Digital Mammography - our experiences of establishing and trialling CEDM and a case study review exploring the advantages and limitations of CEDM

Dr Andrew Gash, Consultant Radiologist and Karen Hopkins, Lead Breast Radiographer, Ysbyty Gwynedd Hospital, Bangor

HOLOGIC WORKSHOP

High resolution tomosynthesis and synthesized 2DTM

Dr Aron Belfer, Consultant Radiologist, Lisbon, Portugal

Advanced hands-on workshop for experienced readers

This 90 minute hands-on reading workshop is intended for consultant radiologists, consultant radiographers and advanced practitioners who have experience with tomosynthesis and who are interested in learning more about how the use of high resolution tomosynthesis and synthesized 2D imaging, can help optimize clinical practice. The workshop is composed of a short introduction which is followed by hands-on reading of selected cases, when tips and tricks on overcoming current clinical challenges will be shared and debated and the final diagnosis of each case presented will be discussed. To ensure optimal conditions for participants, advanced mammography reading workstations will be used and the number of people per reading workstation will be limited to two.

Limited numbers booking essential

FUJIFILM CLINICIAN LED SYMPOSIUM

Performing DBT and tomo-guided biopsy as routine procedures in a clinical breast unit

Prof Müller-Schimpfle, Head of Breast Centre (Diagnosis), Frankfurt Hospital, Germany

Workshops and networking sessions

ASSISTANT PRACTITIONER NETWORKING SESSION

Band 4 – Scope of practice

I hope to cover my own thoughts and experiences about my role as a band 4 Assistant Practitioner (AP). I will include how I became an AP, the training I had to undertake to achieve promotion in my department, developing my role in daily working life and what I have achieved. More recently my personal challenge of completing the second year of the Foundation Degree in Mammography at St. George's and what that means for my role now as I move forward with my career.

Ms Rebecca Stevens
Dorset Breast Screening Unit, Poole NHS Foundation Trust

Rebecca Stevens works as an assistant practitioner in mammography for the Dorset Breast Screening Unit at Poole Hospital. She started her career there in 2006 as a radiography assistant. In 2008 she completed a Higher Certificate of Education in Mammography at the Anglia Ruskin University in Cambridge and was promoted to an assistant practitioner. In 2016 she was given the opportunity to complete a second year of education. This awarded her a Foundation Degree in Mammography which was completed at St George's University of London, she graduated in May of this year.

Band 5 – Scope of practice

Learning outcomes:

- Alternative Career Pathways – Clinical to Clerical
- Personal Development Opportunities – Management
- Motivation – Rising to the challenge
- Helping to shape the future – Getting involved

Ms Joanne Essex
Ex Assistant Practitioner and now Programme Manager, University Hospital Coventry and Warwickshire NHS Trust

Joanne was born in Birmingham. Wife, mother and grandmother, working backgrounds in nursery nursing, sales, business owner, purchasing and currently the NHS.

She never considered management as a career and even when asked directly shunned the idea but circumstance and 'other people with notions' have a funny way of getting her into things she never thought possible. In time she grew to love the new challenges faced on a daily basis, whilst juggling the needs, personalities and constraints of the big melting pot that is….The NHS Breast Screening Service.

A manager's perspective on the positive advantages of assistant practitioners

Background: Assistant practitioners (AP's) were introduced into the radiography profession as part of the four tier framework initiative to address issues with retention and recruitment of radiography staff. AP's have been widely implemented and perform clinical imaging examinations under the supervision of qualified radiographers. The role is now well established nationally but with current workforce issues and 'patient need' increasing, how advantageous are AP's?

Aim: To look at the advantages, clinically and non- clinically, of the AP Mammographer role within a specific Breast Imaging Department.

Objectives: To identify and evaluate the positive outcomes of an AP's diverse role within a site specific Breast Imaging Department.

Conclusion: AP's have been widely implemented nationally but their roles differ from one unit to another. The role is very diverse and dependant on individual unit needs, so there is a general feeling of frustration for those AP's who would like to further their careers in breast work. With the daily demands on an already stretched Breast Imaging Unit, this site has identified that the AP role makes a significant contribution to daily service delivery and is a valued role within the breast team. Is it time to look at future proofing this role to prevent experienced and valued staff leaving?

Ms Nicola Ward
Radiology Services Manager, Kings Lynn Hospital

Nicola Ward is the Breast Imaging and Programme Manager at the West Norfolk Breast Care Unit in King's Lynn. She qualified in 1990 as a radiographer and in 2010 as a mammographer. She has worked in the NHS and Private Sector throughout her career. She has also spent time working in the Netherlands and Germany. Nicola and her team are actively involved in promoting Breast Screening and Breast health awareness. She has recently worked with Breast Cancer Now to film a promotional video in the unit to raise awareness of the importance of Breast Screening.

Accreditation, apprenticeships and career pathways

Learning outcomes: Delegates will -

- Understand what accreditation means and be able to apply it to their role
- Know how SCoR accreditation schemes relate to roles, services and quality assurance
- Understand the career pathway from assistant practitioner to consultant practitioner
- Appreciate how and where apprenticeships may fit into the career pathway

Ms Sue Johnson
Society of Radiographers

Sue Johnson is a diagnostic radiographer and currently works as a Professional Officer In Clinical Imaging at the Society and College of Radiographers. Sue's long clinical career culminated in her becoming a Clinical Manager in the Radiology Department at Derby Hospitals where she also managed the Breast Unit. Sue also spent 4 years as a part-time lecturer in radiography at the University of Derby. Sue is an enthusiastic supporter of professional development and has a long association with the Society and College of Radiographers in various lay positions including holding the position of President in 2011.

Workshops and networking sessions

BARD HANDS-ON-WORKSHOP: VACUUM BIOPSY

2 hour practical Hands on Workshop with ultrasound

Limited numbers booking essential

CASE STUDIES

Local Liverpool Radiologists present interesting case studies

GE HANDS-ON-WORKSHOP

Contrast enhanced spectral mammography; making a difference in moments that matter

Dr Ruxandra Pietrosanu, Consultant Radiologist, Guy's Hospital, London

Limited numbers booking essential

FUJIFILM CLINICIAN LED SYMPOSIUM

Evaluation of Tomosynthesis for screening at East Lancashire Breast Imaging Unit – what we have learned and our expectations for the future

Dr Rabea Haq, Consultant Radiologist and Liz Reid, Breast Imaging Manager, East Lancashire Breast Imaging Unit

TUESDAY 10 JULY

HOLOGIC WORKSHOP

High resolution tomosynthesis and synthesized 2DTM

Dr Aron Belfer, Consultant Radiologist, Lisbon, Portugal

Advanced hands-on workshop for experienced readers

This 60 minute hands-on reading workshop is intended for consultant radiologists, consultant radiographers and advanced practitioners who have experience with tomosynthesis and who are interested in learning more about how the use of high resolution tomosynthesis and synthesized 2D imaging, can help optimize clinical practice. The workshop is composed of a short introduction which is followed by hands-on reading of selected cases, when tips and tricks on overcoming current clinical challenges will be shared and debated and the final diagnosis of each case presented will be discussed. To ensure optimal conditions for participants, advanced mammography reading workstations will be used and the number of people per reading workstation will be limited to two.

Limited numbers booking essential

GE HANDS-ON-WORKSHOP

Contrast enhanced spectral mammography; making a difference in moments that matter

Dr Ruxandra Pietrosanu, Consultant Radiologist, Guy's Hospital, London

Limited numbers booking essential

Workshops and networking sessions

FUJIFILM CLINICIAN LED SYMPOSIUM

Contrast Enhanced Digital Mammography - our experiences of establishing and trialling CEDM and a case study review exploring the advantages and limitations of CEDM

Dr Andrew Gash, Consultant Radiologist and
Karen Hopkins, Lead Breast Radiographer, Bangor Hospital

CONSULTANT RADIOGRAPHERS NETWORKING SESSION

Chairs: **Ms Zebby Rees and Ms Sue Williams**, Chair, Consultant Radiographer Advisory Group (CRAG)

- Update on CRAG meeting from UKRC
- Explain about glasscubes forum with SoR
- Topic of interest to consultant radiographers
- AOB: Accreditation, scope of practice, VABs/ tomos etc.
- A chance to network and catch up

FUJIFILM CLINICIAN LED SYMPOSIUM

Contrast Enhanced Digital Mammography - our experiences of establishing and trialling CEDM and a case study review exploring the advantages and limitations of CEDM

Dr Andrew Gash, Consultant Radiologist and
Karen Hopkins, Lead Breast Radiographer, Bangor Hospital

Acknowledgements

Symposium Mammographicum would like to thank the following sponsors for their support:

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- The original dual-mode DBT acquisition, optimised for screening and diagnostic mammography
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HOLOGIC The Science of Sure

Hologic is an innovative medical technology company primarily focused on improving women's health and well-being through early detection and treatment. We are committed to leading in breast health through constant innovation, and are dedicated to evolving screening and interventional technology to continue serving the needs of our customers and their patients. We continue to drive innovation in breast health to provide high-quality mammograms for physicians, supplying them with the most accurate information. Our 3D Mammography™ exam is proven to offer better, earlier, breast cancer detection compared to conventional mammography alone, enabling physicians to provide patients with earlier diagnosis and reduced chance of call backs.

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Siemens Healthineers is the separately managed healthcare business of Siemens AG enabling healthcare providers worldwide to achieve better outcomes at lower costs by empowering them on their journey towards expanding precision medicine, transforming care delivery, improving patient experience and digitalising healthcare. With an understanding and focus on the unique healthcare needs of women, we offer healthcare providers solutions to prevent, detect, and treat the most threatening diseases affecting their female patients throughout all stages of their lives. For further information visit www.siemens.co.uk/sympmammo

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Poster presentations

P001 **Vacuum assisted biopsy weight -- does the radiological weight match the pathological weight?**
Suzanne Ramsey; Louise Dixon; Nerys Forester, Newcastle Hospitals

P002 **Papillomas - impact of the new UK B3 guidelines on lesion management**
Naveed Altaf [1]; Nerys Forester [2], [1]University Hospital North Tees; [2]Newcastle upon Tyne Hospitals NHS Foundation Trust

P003 **Clip migration after vacuum-assisted biopsy**
Vivien Milnes; Asif Iqbal; Rema Wasan; Juliet Morel; Keshthra Satchithananda, King's College Hospital

P004 **Painful vacuum assisted procedure: What's to blame?**
Shahrooz Mohammadi; Ashley Warren; Mary Sinclair; Rosalind Given-Wilson; Sam Dumonteil; Mamatha Reddy, St George's Hospital

P005 **10-Gauge vacuum assisted breast biopsy versus 14-Gauge core biopsy in the management of B3/B4 lesions in the breast**
Katie Walker-Stabeler, Heart of England NHS Foundation Trust

P006 **Large gauge vacuum excision - What do our patients think?**
Jackie Finlay; Barbara Dall; Nicola Atkinson, Leeds Teaching Hospitals NHS Trust

P007 **Is second line VAB always a superior alternative to WLE to achieve a diagnosis?**
Meena Powell; Bethan Bayley, Breast Test Wales

P008 **Now you see me, now you don't**
Sally-Ann Gibbs; John Nash; Angelique Beling; Rebecca Church, Portsmouth Hospital NHS Trust

P009 **A comparative evaluation of different breast markers and guidewire localisation devices used during stereotactic procedures**
Rebecca Conlon; Deborah Nelson, Tameside Integrated Care Foundation Trust

P010 **Are axillary lymph node marker clips useful in the management of node-positive breast cancer treated with neoadjuvant chemotherapy?**
Romney Pope, Marios Konstantinos Tasoulis, Briony Bishop, Nicola Roche, Fiona MacNeill, Steve Allen, Kate Downey The Royal Marsden NHS Foundation Trust

P011 **Audit to assess clip migration post stereotactic core breast biopsy**
Aparna Madhavan; Clare Keevil; Caroline Parkin University Hospital of South Manchester

P012 **A retrospective audit of clip marker placement following mammographic 14g breast core biopsies, to determine accuracy and usefulness for future sampling/localisation**
Liz Edwards; Alison Sweeney, Breast Test Wales

P013 **Initial investigation of reading efficiency from experienced radiologists interpreting digital breast tomosynthesis (DBT) images**
Leng Dong; Yan Chen; Qiang Tang; Alastair Gale, Loughborough University

P014 **To improve the quality of Tomosynthesis images**
Sabrina Bintalib; Olivia Pagco; Jie Han; Lee Kian Yeo; Juliana Ho, National Cancer Centre Singapore

P015 **Is any additional information gained regarding margins using 3D tomosynthesis vs 2D conventional digital imaging when imaging operative breast specimens? - results of a pilot study**
Jenny Waldron; Doreen Cox; Julie Shephard; Anne Wilbraham; Anne Mannion; Humaira Khan; Juliet Mazarura City Breast Screening Unit

P016 **Breast density and impacts on health**
Cheryl Cruwys, Breast Density Matters UK

P017 **A prospective clinical audit of Digital Breast Tomosynthesis core biopsy (DBTCB) compared with Stereotactic core biopsy (SCB) within the breast screening service in South-East Wales**
Danielle Moakes-Evans; Joy Curran; Liz Edwards; Kate Jenkins, Breast Test Wales

P018 **Contrast enhanced breast tomosynthesis (CONTEST) in patients suspected of having breast cancer: a prospective comparison with digital mammography and breast MRI**
Kulsam Ali; Patsy Whelehan; Andy Evans; Sarah Vinnicombe, University of Dundee

P019 **Interpreting contrast enhanced spectral mammography**
Rachel Sun; Elisabetta Giannotti; Sarah Tennant, Nottingham University Hospitals

Poster presentations

P020	**The value of contrast enhanced mammography (CESM) in the assessment of lobular breast cancer** *Roslyn Stanton[1]; Dana Photiou [1]; Ketan Jethwa [1]; Yan Chen [2]; Lisa Whisker [1]; Sarah Tennant [1], [1]Nottingham Breast Institute; [2]AVRC, Loughborough University, Loughborough*
P021	**Setting up a new contrast-enhanced digital mammography (CEDM) service at Ysbuty Gwynedd Hospital in Bangor, North Wales** *Kate Thomas; Andrew Gash; Karen Hopkins, Ysbuty Gwynedd Hospital, Betsi Cadwaladr University Health Board*
P022	**Succession planning for Consultant Radiographers - a snapshot** *Lisa Bisset, Dorset Breast Screening Unit*
P023	**Perceptions and influences for considering breast imaging as a career option** *Kathryn Taylor [1]; Ruth Strudwick[2]; Liz Orlowski [1], [1]Addenbrookes Hospital; [2]University of Suffolk*
P024	**Recruitment of assistant practitioners and extending their scope of practice to alleviate workforce shortages in one NHS Trust** *Tracey Daulby, Manchester University NHS Foundation Trust*
P025	**Can radiographers report on breast MRI images - focus group findings from a single site?** *Juliet Mazarura, City Hospital Birmingham NHS Trust*
P026	**Industry collaboration and research to improve mammography education: how and why?** *Claire Mercer [1]; Lyndsay Kinnear [2], 1University of Salford; [2]Wythenshawe Hospital, Manchester University NHS Foundation Trust*
P027	**Radiography teachers/mentors and students viewpoints on challenges in mammography education and training in five European countries** *Bergliot Strøm [1]; José Adalberto Pires Jorge [2]; Nicole Richli Meystre [2]; Anja Henner [3]; Tiina Kukkes [4]; Eija Metsälä [5]; Cláudia Sá dos Reis [6], [1]Institutt For Ergoterapi, Fysioterapi Og Radiografi / Høgskulen på Vestlandet, Bergen, Norway; [2]Haute École de Santé Vaud, University of Applied Sciences and Arts Western Switzerland; [3]Oulu University of Applied Sciences Ltd., Finland; [4]Tartu Health Care College, Estonia; [5]Metropolia University of Applied Sciences, Finland; [6]Curtin University, Australia*
P028	**Development of flipped learning resources for mammography education** *Lyndsay Kinnear [1]; Janet Kenwright [2]; Claire Mercer [3], [1]Wythenshawe Hospital, Manchester University NHS Foundation Trust; [2]East Lancashire Hospitals NHS Trust; [3]University of Salford*
P029	**Are you working in the past? update yourself into the future. Back to the Future** *Monica Howard; Margaret Walker, Nottingham University Hospitals*
P030	**Evaluation of the use of e-learning in the training of mammographic image interpretation: a review** *Susan Allison [1]; Tim Donovan [1]; Julie-Anne Sime [2]; Peter Phillips [1], [1]University of Cumbria; [2]Lancaster University*
P031	**The use of 'Think Out Loud' methodology in the development of teaching materials for abbreviated breast Magnetic Resonance Imaging scan (FAST MRI) interpretation, and a comparison of the learning experience of two reader cohorts** *Sam Harding; Rebecca Geach; Lyn Jones, North Bristol Hospital*
P032	**Does breast MRI aid surgical planning in the case of symptomatic breast cancer?** *Rachel Hubbard; Tharsi Sarva; Puja Patel; Phillipa Skippage, Frimley Park Hospital*
P033	**MRI breast indications: a review of current practice** *Ayesha Rahim; Neil Donald; Demitrios Tzias; Ying Chen; Jonathan Glover; Jane Hibbert, Ashford and St Peter's Hospitals NHS Foundation Trust*
P034	**Safe working practices in vacuum-assisted magnetic resonance imaging (MRI) guided breast biopsy** *Claire Gilbert; Rachael Long; Sarah Bacon; Barbara Dall, Leeds Teaching Hospitals NHS Trust*
P035	**Diagnostic utility of second-look US for breast lesions identified at MR imaging: Systematic review and meta-analysis** *Amrita Kumar, Frimley Health*
P036	**Audit of "Stavros" benign lesions** *Julie Smith, UHL Glenfield Hospital*

Poster presentations

P037 **A quantitative research: Correlation between age and the axillary lymph node cortical thickness (ALNCT) on ultrasound, in patients attending the symptomatic breast clinic, with no cancer or any condition resulting in reactive nodes**
Lubna Khalid; Caroline Taylor; Gemma Price; Aneet Sian; Asif Jaffer, Royal Surrey County Hospital

P038 **Reliability of ultrasound guided FNAC in the assessment of metastatic axillary lymphadenopathy**
Shahrooz Mohammadi; Sam Dumonteil; Lisanne Khoo, St George's Hospital

P039 **Review of imaging of breast cancers in women under the age of 30**
S Khan [1]; Marium Ahmed [2]; Leah Richardson [1]; Anne-Marie Wason [1,1]Penine Breast Imaging; [2]BTHFT

P040 **Can audit driven new protocols reduce over-investigation of male breast symptoms**
Diana Dalgliesh; Nicola Maddox; Paul Maddox, Royal United Hospital NHS Trust

P041 **UK and BI-RADS guidelines for the management of likely benign lesions: a comparison of costs within the NHS setting**
Alice Spencer [1], Helen Fielden [1], Tran Seaton [2], Sarah George [2], Neil Upadhyay [2], Imperial College London [1], Imperial College Healthcare NHS Trust [2]

P042 **Setting up in-house sentinel lymph node isotope service at the Breast Imaging unit, MidYorkshire Hospitals**
Nevine Anandan; Asha Ramakrishnan; Amanda Coates, MidYorkshire Hospitals

P043 **Incidental breast findings on non-breast imaging**
Edward Norman; Sheetal Sharma, Royal Liverpool & Broadgreen University Hospitals NHS Trust

P044 **Improving turn around times in sending mammograms results to patients**
Lalita Malghan [1]; Neal Larkman [2]; Caroline Costello [2], [1]Leeds Teaching Hospitals NHS Trust; [2]Harrogate District Hospital

P045 **A simple, safe and cost effective mammographic recall system for breast cancer follow-up**
Oshada Jinadasa; Katerina Lekanidi, Brighton and Sussex University Hospitals NHS Trust

P046 **An evaluation of the impact of a combined IT hardware failure and Malware cyberattack on the operational effectiveness of a large breast unit**
Linda Metaxa; Tamara Suaris; Evans David; Shefali Dani; Jezreel Naidoo, St Bartholomew's Hospital, London

P047 **Effect on the screening assessment pathway of introducing specific assessment clinics offering Vacuum Assisted Biopsies**
Michelle Boyce; Kathryn Taylor, Cambridge Breast Unit

P048 **When is it safe for the multi-disciplinary team to accept a B1 result following screening assessment?**
Sylvie Flais; Gita Ralleigh; Deborah Cunningham; Nigel Barrett, West of London Breast Screening Service

P049 **Do single reader recalls make a significant contribution to cancer detection in breast screening mammography? What can we learn from reviewing these cases?**
Sarah Wake; Zoe Goldthorpe; Anne Ratsey; Sarah Perrin, Taunton and Somerset NHS Trust

P050 **Population register accuracy and completeness as a tool to improve screening coverage**
Patricia Fitzpatrick; Simon O'Connor; Derek Ross; Linda Wilson; Margaret Sweeney; Therese Mooney, National Screening Service, Ireland

P051 **Assessment of well defined lesions in prevalent screening**
Rupinder Rai; Humaria Khan; Julie Shephard; Amy Wilibraham; Ed Goble; Doreen Cox; Joyce Yates; Jenny Waldron; Louise Tromans; Julie Smith, Sandwell and West Birmingham Hospital

P052 **Does national advertising encourage younger women to participate in breast screening for the first time?**
Lorraine Fahy; Therese Mooney; Patricia Fitzpatrick, National Screening Service, Ireland

P053 **Role of predicted histology at assessment prior to MDT**
Melanie Schofield, South Lancashire Breast Screening Program

P054 **Analysis of the ethnic make up of a metropolitan breast screening service and incidence of cancer within each ethnic group**
Aisha Naseer; Linda Metaxa; Connie Horth; Jezreel Naidoo; Tamara Suaris, St Bartholomew's Hospital, London

P055 **Subtle interval arbitration cancers: An audit and pictorial case review**
Sue Garnett, Coventry

Poster presentations

P056 **Requesting previous external imaging for patients with likely benign breast conditions: what are the effects on the cost of patient management?**
Neil Upadhyay [1]; Helen Fielden [2]; Alice Spencer [2]; Siham Sudderuddin [1], [1]Imperial College Healthcare NHS Trust; [2]Imperial College London

P058 **Local factors influencing attendance for breast cancer screening in the prevalent round: a service review**
Leah Richardson; Shazia Khan, Pennine Breast Screening

P059 **Audit to establish cancer detection rates for the 5 - 11yr surveillance group in Dorset**
Lisa Bisset; Nicola Robson; Stella Campbell, Poole Hospital NHS Foundation Trust

P060 **Measuring women's experiences of mammography: development and validation of new methods, using the Rasch measurement framework**
Patsy Whelehan [1]; Maria Pampaka [2]; Andy Evans [3]; Violet Warwick [2]; Gozde Ozakinci[4], [1]NHS Tayside; University of Dundee; University of St Andrews; [2]University of Manchester; [3]University of Dundee; NHS Tayside; [4]University of St Andrews

P061 **A mammographers' perception of patient assisted-compression**
Faye Wigley; Sarah Cardno, Nottingham Breast Institute

P063 **Is there an improvement of patient's experience during a mammogram with the addition of a 'Sensory Suite'?**
Emily Rees, Guy's and St. Thomas' NHS Foundation Trust

P064 **A comparative, observational study of pain experienced during successive mammography events between family history and post-operative patients**
Deborah Nelson [1]; Andrew England [2]; Claire Mercer [2], [1]Tameside and Glossop Integrated Care NHS Foundation Trust; [2]University of Salford

P065 **Metastatic tumours to the breast. A pictorial review of the mammographic and sonographic findings**
Sarah Wake, Taunton and Somerset NHS Trust

P066 **Gentamicin impregnated bead particles mimicking microcalcification**
Nikhil Patel; Juliet Morel; Rema Wasan; Clare Peacock; Rumana Rahim; Bhavna Batohi; Shalini Wijesuriya; Michael Michell; Keshthra Satchithananda, King's College Hospital

P067 **Mimics of metastatic breast cancer on CT Pearls and pitfalls of Interpretation with radiological and pathologic correlation**
Philip Dilks; Aisha Naseer, Bartshealth NHS Trust

P068 **Case report: Nipple malignant-type calcification**
Chi Bao Tran Nguyen, Hung Vuong Hospital, Vietnam

P069 **Breast implant associated anaplastic large cell lymphoma (BIA-ALCL) -- Experience of a single tertiary centre**
Pooja Padmanabhan; Ruth Edmonds; Fiona MacNeill; Romney Pope; Ashutosh Nerurkar; Bhupinder Sharma, The Royal Marsden Hospital, NHS Foundation Trust

P070 **Imaging features of invasive lobular breast cancer and it's correlation with histopathology: A pictorial review for a challenging diagnostic entity**
Tharsi Sarvananthan [1]; Emily Guilhem [2]; Rachel Hubbard [2]; Puja Patel [1]; Philippa Skippage [1]; Kirsten Stafford [1]; Fiona Hearn [1], [1]Frimley Park Hospital; [2]Chelsea and Westminster Hospital

P071 **Evaluating the Eklund - recent cases of malignancy illustrating the importance of this additional view of the augmented breast**
Ann Hills, West Suffolk Hospital NHS Trust

P072 **The impact of age on the art of mammography and how to adapt accordingly**
Lucy Cielecki; Susan Williams; Marie Metelko; Charlotte Worrall; Blossom Lake, Shrewsbury and Telford Hospital

P073 **Review of screening cancers which were recalled initially for technically inadequate imaging**
Shazia Khan; Sarah Alexander, Pennine Breast Imaging

P075 **Prospective audit of the repeat examinations in a breast screening programme**
Patricia Pires Rodrigues; Rachel Laming; Asif Iqbal, King's College Hospital

P076 **Exploring Mammographers' attitudes to audit, service evaluation and research in a U.K. breast screening unit**
Amy Symons; Simon Rickaby, Kingston University and St Georges University of London Joint Faculty

Poster presentations

P077 **A novel quality control phantom for pressure based mammography paddles**
Katy Szczepura [1]; William Mairs[2]; Liam Djedidi [1]; Claire Mercer [1], [1]University of Salford; [2]The Christie NHS Foundation Trust

P078 **Impact of cardiac devices on radiation dose and image quality**
Monica Stanway; Amanda Maclaren; Jackie Francis; Karen Litton, Great Western Hospital

P079 **Using dose management data exports to show insights into mammographer practice in the NHSBSP**
Maria Robinson [1]; Matthew Dunn [1]; Samantha Knighton [2]; Penny Stinchcombe [2], 1Nottingham University Hospitals NHS Trust; [2]Sherwood Forest NHS Foundation Trust

P080 **An audit of partial mammography**
Rebecca Bond; Zoe Evans, Norfolk and Norwich University Hospital

P081 **Implementation of the Eklund technique into routine clinical practice: an audit**
Rachel Laming; Elizabeth Redrup, King's College Hospital NHS Foundation Trust

P082 **Ultrasound evaluation of breast microcalcifications: single centre experience**
Boshra Edhayr; Surinder Sapal; Barbara Dall; Bhavani Rengabashyam, Leeds Teaching Hospitals NHS Trust

P083 **The impact of simulated double reporting on the detection performance of masses and microcalcifications in FFDM images containing different magnitudes of image blurring**
Ahmed K. Abdullah [1]; John Thompson [2]; Claire Mercer [2]; Judith Kelly [3]; Rob Aspin [2]; Peter Hogg [2], 1University of Diyala; [2]University of Salford; [3]Countess of Chester Hospital, UK

P084 **Service evaluation of the GE Senographe Pristina™**
Claire Mercer [1]; Janet Cumiskey [2], 1University of Salford; [2]Queen Elizabeth Hospital, Gateshead

P085 **The impact of simulated motion blur on the physical characteristics of malignant breast masses in full field digital mammography**
Ahmed K. Abdullah [1]; John Thompson [2]; Claire Mercer [2]; Judith Kelly [3]; Rob Aspin [2]; Peter Hogg [2], [1]University of Diyala; [2]University of Salford; [3]Chester Breast Imaging Unit, Countess of Chester Hospital NHS Foundation Trust

P086 **Radio-wave imaging - Frequency response as an aid to lesion characterization. Early concept work**
Trushali Doshi [1]; Iain Lyburn [2]; Richard Sidebottom [2]; David Gibbins[1], [1]Micrima; [2]Thirlestaine Breast Centre Cheltenham

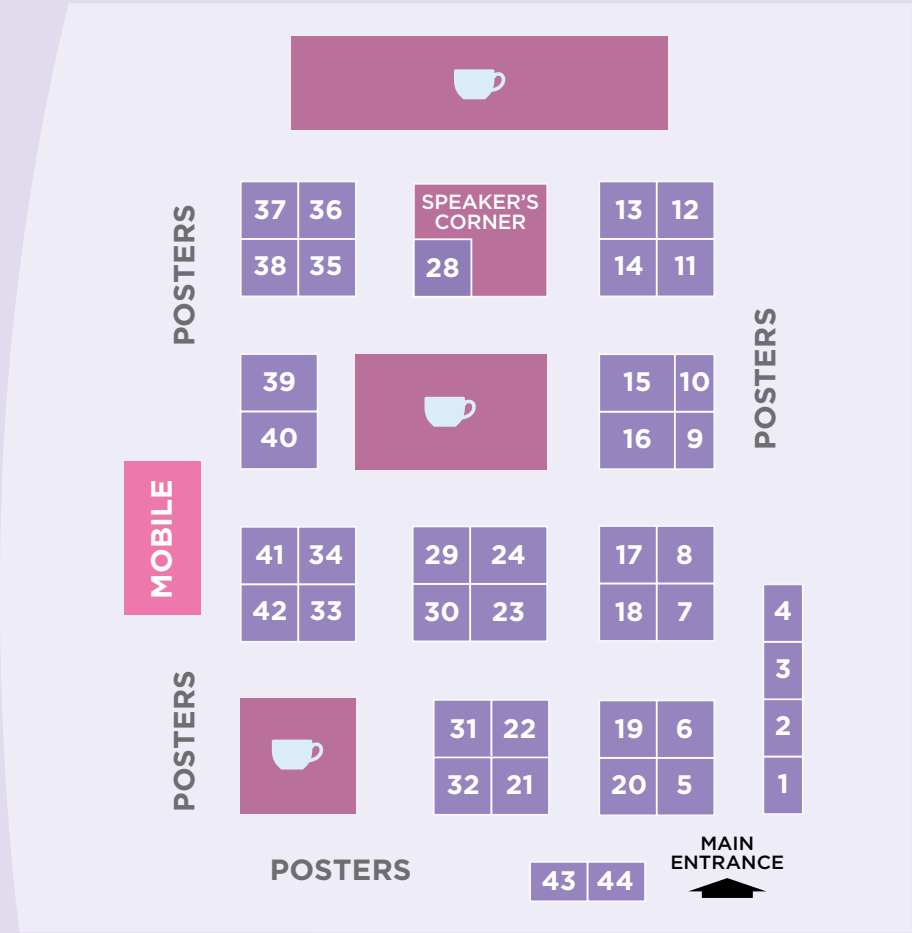
P087 **Detection of breast cancer in the symptomatic clinic using radio-wave technology- a multi-centre study**
Iain Lyburn [1]; David Gibbins [2]; Nicholas Ridley [3]; Monika Schoenleber-Lewis [2]; Mike Shere [4], [1]Thirlestaine Breast Centre Cheltenham; [2]Micrima; [3]Great Western Hospitals NHS Foundation Trust, Swindon; [4]Bristol breast Care Centre, North Bristol NHS Trust

P088 **OPTIMAM Mammography Imaging Database (OMI-DB): fuelling machine learning research**
Mark Halling-Brown; Mishal Patel; Ken Young, Royal Surrey County Hospital

P089 **Ultrasound advancements in cancer screening for the dense breast**
Kay-Dean Anderson, Birmingham City University

P090 **Evaluating current and advancing techniques, technology and pharmaceuticals in ultrasound for breast cancer**
Sophie Trott, Birmingham City University

Exhibitor information



Tweet at #SympMamm2018

Exhibitor information

Association of Breast Clinicians 20

In 1996 the Association of Breast Clinicians was founded. Its aim was to establish a new specialty as a recognised branch of diagnostic medicine, with a multi skilled approach to breast disease diagnosis and management.

Most Breast Clinicians in the UK are fully dedicated to breast disease and are invaluable members of the multidisciplinary team and certainly many services would struggle without this specialised clinician.

Through the modernisation of the NHS, nurses and radiographers now develop their role towards Advanced Practitioner status. The ABC welcomes these professionals to join the Association as Associate members. The ABC hopes to offer continued support and training opportunities that encompass all those individuals involved in breast disease management. www.abcuk.org

BDI Biopsy Systems 40

At BDI Biopsy Systems we are committed to helping physicians deliver uncompromised care for every patient - from breast biopsy to therapy. We understand the challenges physicians face in delivering superior care for their patients at all stages of treatment. Our technology, service and product development is directed toward finding solutions to these challenges that make it easier and more efficient for physicians to take patient care to a higher level.

Breast Screen Reader Assessment Strategy (BREAST) Research 32

The Breast Screen Reader Assessment Strategy (BREAST) was developed by The University of Sydney and Cancer Institute NSW in Australia to enhance the performance of radiologists and other clinicians involved with reading mammogram images.

This study is to collect performance data from advanced practitioners skilled in mammography film reading. It enables the participant to assess their performance in diagnosing breast cancers using online software which displays test cases derived from screening. Upon completion of a test set comprised of 60 cases, they receive immediate feedback with scores in lesion sensitivity, specificity, receiver operating characteristics (ROC), and jack-knife free response ROC (JAFROC) figures of merit. Feedback image files specific to each reader are also immediately provided which indicate correct and incorrect decisions on images. De-identified raw data on observer performances are stored centrally. These features make BREAST a powerful radiology training and research tool.

With funding from the College of Radiographers Industrial Partnership Scheme (CoRIPS), and supported by Symposium Mammographicum, BREAST workshops will be offered at Symposium Mammographicum 2018. The workshops will be self-directed with researchers on site to provide assistance if needed. Pre-registration workshops are required.

CoR 37

The College of Radiographers is the charitable and educational subsidiary of the Society of Radiographers, the chosen membership body for over 27,000 radiographers and other professionals in clinical imaging, radiation therapy and oncology.

In addition the Society has over 3,000 student members. It provides, through monthly subscription, a full range of services, including professional indemnity insurance, professional and employment advice and support and workplace representation. The College of Radiographers exists for public benefit, with objects directed towards education, research and related activities. An important part of the College's strategy is engaging with and listening to patients.

A major initiative to support research in radiography is the College of Radiographers Industry Partnership Scheme (CoRIPS), which currently has 31 partners. The Society and College work towards raising standards across the spectrum of clinical imaging, radiotherapy, oncology practice and education, and the College provides a comprehensive approval and accreditation programme for all pre and post-registration education provision, as well the accreditation of individual practitioners. Technical and professional guidance, a comprehensive website, publications, journals (including the internationally acclaimed peer reviewed journal Radiography), seminars and conferences are examples of just some of the benefits available to our members.

Daax 35

UK / Ireland representatives for FAXITRON - leading manufacturers of innovative solutions for digital specimen radiography.

BioVision, for surgical radiography enabling a surgeon to accurately determine margin assessment within 10 seconds minimising the risk of re-excision and saving at least 20 minutes per procedure

CoreVision for breast care units to identify calcification within needle biopsy

PathVision for histopathology where the large field of view provides imaging capability from small wax block assessment to full mastectomy and fetal specimen imaging

"VISION" systems - simple to operate providing clinicians with an unique level of image quality

For information visit: www.daax.co.uk

Exhibitor information

Densitas 21

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Esaote UK 2

MyLab™9, the flagship ultrasound system in radiology & shared services recently launched by Esaote, defines a new standard in increasing the value of your investment. At the core of the system design stands a new concept of Clarity in image quality, together with Performance & Workflow improvement for more efficiency & precise information.

With new and unique features on the MyLab™9 including Virtual Biopsy, which allows physicians to follow percutaneous procedures by superimposing needle tracking information on the real-time ultrasound image and Body Map – the 2D Navigation technology on second imaging modality, body mark and patient examined area picture.

Esaote is proud to announce that the International Academy of Design granted the Golden A' Design Award to the new ultrasound platform MyLab™9.

For more information visit www.esaote.com

Fujifilm 23, 24, 29, 30

The Fujifilm AMULET Innovality – a highly advanced mammography system representing evolving technology and a commitment to enhanced patient care.

- The original dual-mode DBT acquisition, optimised for screening and diagnostic mammography
- Proprietary HCP technology and ISR iterative processing for proven dose reduction
- S-View software enables switching from tomosynthesis acquisition to 2D imaging with no additional exposures for real workflow and dose benefits
- Patented Fit Sweet Paddle; a flexible, adaptive compression paddle designed for maximum patient comfort
- Stereotactic and tomo-guided biopsy targeting, with vertical and lateral needle access for faster and more accurate interventional mammography
- Support for advanced clinical application with Contrast Enhanced Mammography

New Dynamic Visualization™ II image processing offers intelligent auto-recognition of breast tissue, implant and structural characteristics, delivering greater levels of stability throughout the entire exposure region. This enhances diagnostic visibility across a wide range of breast morphology.

New Fujifilm technology allows breast density detection and measurement directly from the AMULET Innovality providing a truly seamless workflow.

New The Fujifilm Academy of Breast Imaging (FABI) will deliver a series of clinician-led lectures offering delegates the opportunity to explore the latest technology, trends and innovations in digital mammography.

FROM TECHNOLOGY TO INNOVATION, FROM INNOVATION TO CARE

GE Healthcare 41,42

GE Healthcare are pleased to welcome delegates to this year's Symposium Mammographicum. Come and visit us on the GE Stand #41 & #42 for our latest innovations.

GE Healthcare provides transformation medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

Hologic 6,7,8,17,18,19

Hologic is an innovative medical technology company primarily focused on improving women's health and well-being through early detection and treatment. We are committed to leading in breast health through constant innovation, and are dedicated to evolving screening and interventional technology to continue serving the needs of our customers and their patients.

We continue to drive innovation in breast health to provide high-quality mammograms for physicians, supplying them with the most accurate information. Our 3D Mammography™ exam is proven to offer better, earlier, breast cancer detection compared to conventional mammography alone, enabling physicians to provide patients with earlier diagnosis and reduced chance of call backs.

For patients, we are delivering minimally invasive biopsy solutions that enable an improved patient experience without clinical compromise. Our Brevera™ breast biopsy system with CorLumina™ imaging technology is the first system to offer clinicians both breast biopsy as well as real-time verification of specimens – streamlining workflow, expediting the procedure and creating a gentler patient experience.

None of this would be possible without the talent and passion of our employees. Together, our expertise and dedication to developing and sharing more robust, science-based certainty drives our increasingly global presence and a promising pipeline that responds to the unmet health and wellness needs of women, families and communities.

Exhibitor information

ICPV 31

The ICPV is a patient led charity aiming to provide the education and support needed to enable realistic patient advocacy in cancer research.

King's College Hospital National Breast Screening Training Centre 9

King's College Hospital National Breast Screening Training Centre offers a large portfolio of nationally and internationally renowned courses study days and bespoke clinical attachments within the field of breast radiology and mammography.

The training centre works in close collaboration with London South Bank University to deliver a range of post graduate modules aimed at developing the role of the radiographer, nurse and clinician within the breast imaging pathway.

Visit our website for further information of our courses and study days:

http://careers.kch.nhs.uk/training/courses-health-professionals

Leica Biosystems 36

Leica Biosystems is a global leader in workflow solutions and automation, integrating each step in the workflow. As the only company to own the workflow from biopsy to diagnosis, we are uniquely positioned to break down the barriers between each of these steps. Our mission of "Advancing Cancer Diagnostics, Improving Lives" is at the heart of our corporate culture. Through our ever-expanding portfolio of Mammotome breast biopsy products and lesion localization products, we strive to improve the patient's journey and achieve better outcomes. For more information, visit www.mammotome.com

MediScientific 34

MediScientific proudly represent some of the world's leading manufacturers of X-Ray QA instruments, test tools and QA phantoms for use in Radiology, Medical Physics and X-Ray Engineering.

This year we will showcase Radcal's exciting new Stand-Alone "TOUCH" Series of diagnostic x-ray measurement systems. This new range provides accurate and reliable dose measurement but in a new quick & easy to use system.

We will also be exhibiting samples of the Kyoto Kagaku anthropomorphic phantoms which have been designed with 3D internal structures that provide realistic radiographic and CT images. This year we will also have a demonstration Ultrasound phantom "BREAST FAN".

Our experienced sales team will also be available to discuss the latest additions to the range of QA phantoms from Leeds Test Objects and to provide detailed information on our full range of products. Come and visit us on booth #34.

Mermaid Medical 44

Mermaid Medical is delighted to be sponsoring the Symposium Mammographicum 2018.

We have several exciting new products available to see on Stand 44

- Tumark Vision -New 3D marker with excellent long-term ultrasound visibility
- Duo Premium – Repositionable single-handed ultrasound visible localisation wire
- Medone – New Spring-loaded fully automatic disposable 14g biopsy instrument.
- Biofeather- Semi automatic controllable biopsy instrument for lymph nodes
- Star Marker- Innovative non-metallic permanent breast marker
- Elesta – Laser Ablation in Elderly unresectable breast cancer patients

We look forward to welcoming you at our booth!

Micrima Ltd 38

Micrima has developed the new radio-wave breast imaging system MARIA®. This breast imaging system uses harmless radio-waves to detect breast cancer. So it is easy to install and doesn't require any specialist facility. It also means it can be used frequently from a young age. Obtaining the image uses no compression so it's comfortable for women. It has proven particularly effective in dense tissue. MARIA® has been trialled in over 400 women in the United Kingdom. Further trials are now taking place at the Royal Marsden and other leading European centres.

MIS Healthcare 15,16

MIS HEALTHCARE is a UK based company offering innovative and cutting edge medical and diagnostic products to aid accurate and fast diagnosis based on advanced technology.

This year at the UKRC we will be showcasing the latest advances in healthcare solutions from Samsung, Novarad RIS/PACS, TIMS, Planmeca, Planmed, Kubtec, Nemoto and Vimap.

Technology continually evolves and so do we, yet we remain driven by our passion for providing innovative healthcare solutions in the interest of accurate diagnosis, perfecting those solutions and delighting our customers.

Exhibitor information

Nottingham International Breast Education Centre 4

Nottingham Breast Education Centre is one of the leading Training Centre's in the United Kingdom. The Centre was established in 1988 in recognition of its long-standing experience and expertise in breast cancer screening, diagnosis, treatment and research.

The Education Centre provides a comprehensive range of theoretical and practical courses and study days for all health care professionals involved in breast cancer screening and symptomatic breast disease diagnosis and treatment.

Over 60% of UK professionals involved in breast cancer services have attended courses at Nottingham. The Centre accommodates delegates from across Europe, North America, the Far East, Australasia and South Africa.

Oncology Imaging Systems 43

Oncology Imaging Systems Ltd is a forward-thinking medical device company dedicated to providing the best products and the best customer service to the medical imaging, radiotherapy and medical physics communities. We are the UK partner for Beekley Medical, renowned for their simple, low cost, disposable products that help medical imaging and surgical professionals improve communication, productivity, and patient care.

OIS is excited to be exhibiting at Symposium Mammographicum this year, where we will be presenting the presenting the Beekley Skin Marking System® for Mammography. The Beekley system is simple and effective, and is clinically proven to reduce patient recalls, repeat images and improve diagnostic information.

Siemens Healthineers 13,14

Siemens Healthineers is the separately managed healthcare business of Siemens AG enabling healthcare providers worldwide to achieve better outcomes at lower costs by empowering them on their journey towards expanding precision medicine, transforming care delivery, improving patient experience and digitalising healthcare. With an understanding and focus on the unique healthcare needs of women, we offer healthcare providers solutions to prevent, detect, and treat the most threatening diseases affecting their female patients throughout all stages of their lives. Siemens Healthineers will be on stand 13/14. For more information and latest product line, please visit www.healthcare.siemens.co.uk

Symposium Mammographicum 5

Symposium Mammographicum is a registered charity founded in 1979. Its principal aims are 'to stimulate and support research and disseminate knowledge about the prevention, diagnosis and treatment of breast disease'.

The Charity is recognised as one of the largest international breast conferences in the UK, attracting national and international delegates, world renowned international speakers, and leading commercial and industrial partners.

We run biennial conferences which have recently taken on a more multi-disciplinary approach to reflect the patient pathway, resulting in collaboration with physicists and the Association of Breast Clinicians. We also run Award and Bursary schemes for people to undertake research and clinical attachments.

www.sympmamm.org.uk
E andrew@sympmamm.org.uk
T: 020 8361 7066 / 07709 714669

Sysmex 22

Sysmex continues to strive to improve cancer treatment with advanced technologies.

Magseed tumour localisation: "time to retire the wire?" The Sentimag System is proven for accurate localisation of both tumour without wires, and SLN without radioisotope or blue dye.

Approved by NICE with more than 150,000 patients benefitting, OSNA provides accurate, standardised, quantitative, whole node staging of patients (Post-Operative or Intra-Operative) to allow appropriate axillary clearance and prognostic stratification of patients (5 year DFS). "The only independent predictor of 4 or more involved nodes". "TTL: A better predictor than the number of positive LN"

Visit Stand 22 to find out more!

www.sysmex-lifescience.com

Exhibitor information

UK Medical 28

It's about breast biopsy solutions! Come and talk to us about our range of soft tissue biopsy needles, including the Achieve™, and the Temno Evolution™, ideal for your core breast biopsy and axilla biopsy procedures. We will also be highlighting our new BiopSafe® sample pot for safe biopsy handling by eliminating the risk of exposure to formalin and formaldehyde, and ColdCare™ post-biopsy cold gel pack, which helps minimize post-biopsy swelling and bruising.

Visit UK Medical on stand 28.
Contact us on:
Tel: 0114 268 8880
Email: hello@ukmedical.com

University of Salford 10

The University of Salford has unbeatable links to industry with a great location in the heart of Greater Manchester with state-of-the-art facilities and award-winning academics. The University staff and students have built a community that makes Salford a warm and welcoming place to live and study.

The Universities Advanced Medical Imaging Programme has no standard pathway. Module choices will depend on your own practice area. This programme will allow you to meet the challenge of specialist, advanced and consultant practitioner status in the field of advanced medical imaging within a rapidly evolving health service http://www.salford.ac.uk/pgt-courses/advanced-medical-imaging.

Visbion 3

Visbion is a specialist in providing connectivity solutions based on three key standards DICOM, HL7 and IHE. With our extensive experience in multi hospital and ambulatory environments we can offer solutions for even the most complex challenges connecting remote networks and mobile facilities. Using our leading edge technology we work closely with our customers to provide long term archiving and flexible solutions to suit any sector within healthcare. Our product range includes solutions for mammography and a service for image transfer and connectivity for mobile breast screening vans.

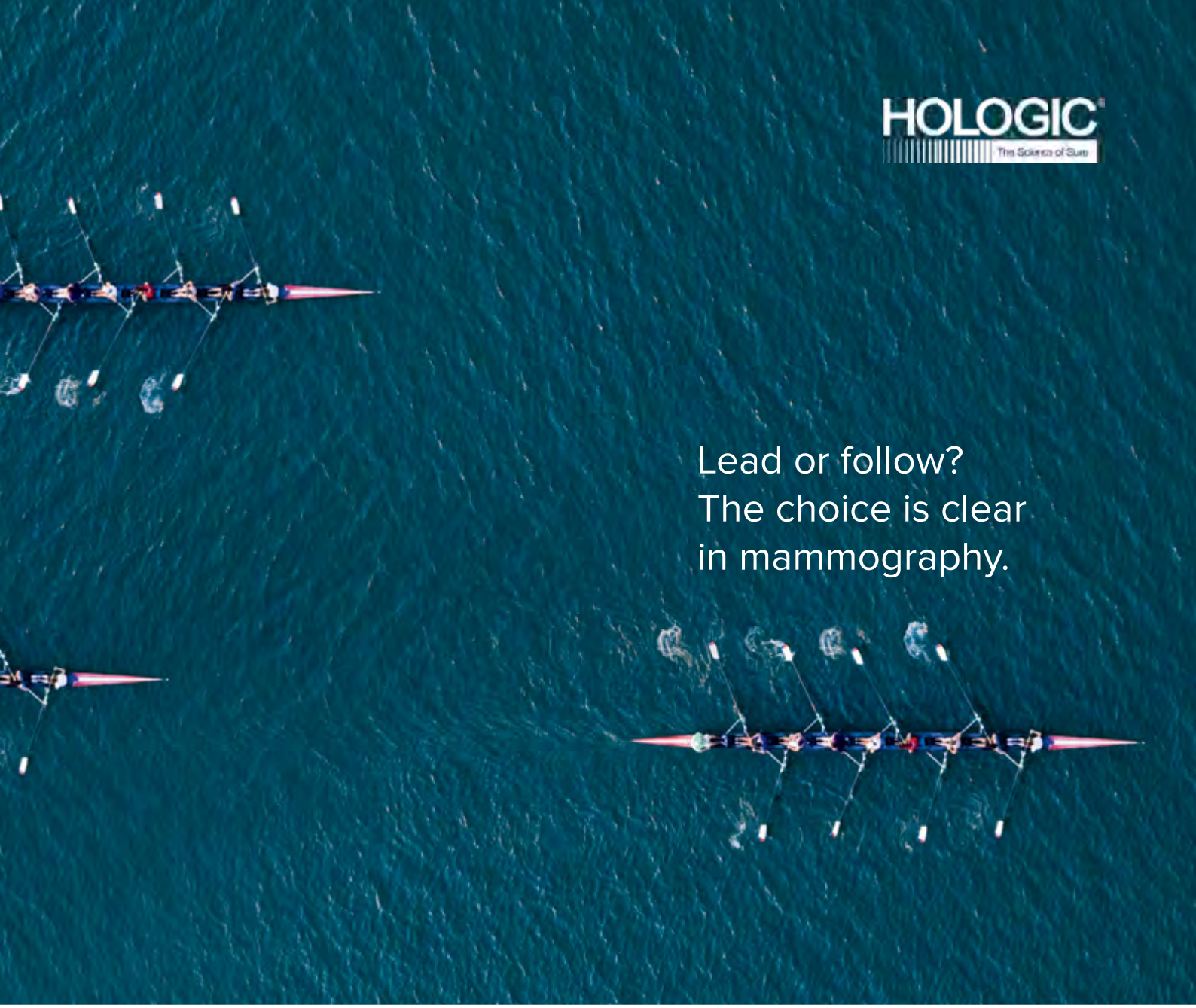
Volpara Solutions 1

VolparaEnterprise software, with embedded positioning training by Louise Miller, can help you discover how you can improve your mammography positioning. VolparaEnterprise is the first product to ever provide direct feedback on every screening mammogram, helping you better understand patient positioning and breast compression issues.

VolparaEnterprise software gives managers a myriad of key performance indicators and quality metrics, including patient positioning, compression and equipment utilisation through dynamic, interactive dashboards.

Website: https://volparasolutions.com

Notes



Take the lead with Hologic

- Not all breast tomosynthesis systems are created equal.
- When you partner with Hologic, it means proof—not promises. The Hologic 3D Mammography™ exam has proven results backed by more than 200 clinical studies.
- Only Hologic 3D Mammography™ exams detect up to 65% more invasive breast cancers compared to 2D alone.[1]

Contact your Hologic representative for updates on the latest innovations in mammography.

1. Results from Friedewald, SM, et al. "Breast cancer screening using tomosynthesis in combination with digital mammography." JAMA 311.24 (2014): 2499-2507; a multi-site (13), non-randomized, historical control study of 454,000 screening mammograms investigating the initial impact of the introduction of the Hologic Selenia® Dimensions® on screening outcomes. Individual results may vary. The study found an average 41% (95% CI: 20-65%) increase and that 1.2 (95% CI: 0.8-1.6) additional invasive breast cancers per 1000 screening exams were found in women receiving combined 2D FFDM and 3D™ mammograms acquired with the Hologic 3D Mammography™ System versus women receiving 2D FFDM mammograms only.