

Christopher Ian Flowers

MB BS, MRCS, LRCP, FRCR, FSBI

Current position: Retired

Current address:



(In process of re-locating to UK)

Prior positions:

- 1: MD Consultant
Jonsson Cancer Center
University of California, Los Angeles
Los Angeles, 90024
- 2: Director of Breast Imaging and Research
Department of Diagnostic Imaging
Moffitt Cancer Center & Research Institute
12902 Magnolia Drive
Tampa, FL 33612
- 3: Joint Appointment as Associate Professor Radiology
Department of Oncological Sciences, MDC 44
College of Medicine
University of South Florida
12901 Bruce B. Downs Blvd.
Tampa, FL 33612
- 4: Associate Clinical Professor
Department of Radiology and Biomedical Imaging
University of California, San Francisco
San Francisco, CA 94115
- 5: Clinical Director
Breast Test Wales
24, Alexandra Rd
Swansea SA3 5EL
- 6: Breast Cancer Lead
South West Wales Cancer Network
Singleton Hospital

Swansea SA2 8QA

Linkedin Page:

<https://www.linkedin.com/in/chrisflowers/>

Education:

University College London
(Royal Free Hospital School of Medicine)
London, UK
MB BS (1981)
MRCS, LRCP
LMSSA

Licenses:

Medical License, United Kingdom, 1982 (GMC 2693680)
State of California, Medical License – 2007 (F 5441)
State of Florida, Medical License – 2010 (FMC 1673)

Board Certifications:

Radiology Board Examinations, Part 1 FRCR 1985
Radiology Board Examinations, Final FRCR 1990
Register of Medical Specialists (General Medical Council UK) 1990

Honors and Awards

1976 Gladys Sandes Prize in Practical Anatomy, UCL London UK (Awarded to the top performing student in year), class of 1977.

2001 SMART Wales Award for innovation (Small business Merit Award for Research and Technology)

2010 Radiology Editor's Award for reviewing with distinction

2011 Radiology Editor's Award for reviewing with distinction

2012 Radiology Editor's Award for reviewing with distinction

Service to Professional Publications

2000-present Reviewer for Radiology (Editors Distinguished Merit Award 2011 and Special Distinction Merit Award 2012)

2003-present Reviewer for Clinical Radiology

2009-present Reviewer for Acta Radiologica

2011-present Reviewer for Journal of Clinical Oncology
2011-present Reviewer for Clinical Breast Cancer
2012-present Reviewer for Annals of Surgical Oncology

PUBLICATIONS:

PEER REVIEWED PUBLICATIONS

1. David AS, Flowers CI, Ireland AC, Kilvington M, Farr MJ. Peripheral Vein and Fistula Blood Samples after Single Needle Dialysis Artificial Organs, 7(2): 248-250, 1983
2. David AS, Flowers CI, Ireland AC, Farr MJ. Captopril in heart failure with renal disease American Heart Journal, 105(5): 873-4, 1983
3. Arthur J, Ellis IO, Flowers CI, Roebuck EJ, Elston CW. Blamey RW. The relationship of high-risk mammographic parenchymal patterns to histological risk factors for cancer development in the human breast, Br. J. Radiol. 63: 845-849, 1990 PMID: 2252976
4. Chare MJB, Flowers CI, O'Brien CJ, Dawson A. Use of Image Guided Core Biopsy in Patients with Breast Disease British Journal of Surgery, 83:1415-6, 1996 PMID: 8944459
5. Flowers CI and Davies JH. Radiological features of breast cancer in young women. B J Radiol 1997 – Supplement to British Journal of Radiology Volume 70, page 38
6. Flowers CI. Towards Complete and Accurate Reporting of Studies of Diagnostic Accuracy: The STARD Initiative – eResponse letter to the Editor. Radiology 2003 (<http://radiology.rsna.org/content/226/1/24.abstract/reply#radiology>)
7. Flowers CI. Triple Assessment and Breast Cancer. BMJ Rapid Responses Letter to the Editor. 2003 (<http://www.bmj.com/cgi/eletters/326/7401/1233-c>)
8. Shah VI, Flowers CI, Douglas-Jones A, Dallimore N, Rashid M. Immunohistochemistry Increases the accuracy of diagnosis of benign papillary lesions on breast core needle biopsies, Histopathology 48 (6): 683-691, 2006 PMID: 16681684
9. Laidevant AD, Malkov S, Flowers CI, Kerlikowske K, Shepherd JA. Compositional breast imaging using a dual-energy mammography protocol Med Phys 37;(1):164–174, 2010 PMID: 2801735
10. Garwood ER, Kumar AS, Baehner FL, Moore DH, Au A, Hylton N, Flowers CI, Garber J, Lesnikoski BA, Hwang ES, Olopade O, Port ER, Campbell M, Esserman LJ. Fluvastatin reduces proliferation and increases apoptosis in women with high grade breast cancer. Breast Cancer Res Treat. 119(1):137-44, 2010
11. Chenjing Peng, C. Belinda Chang, Hilda H. Tso, Christopher I. Flowers, Nola M. Hylton, and Bonnie N. Joe. MRI Appearance of Tumor Recurrence in Myocutaneous Flap Reconstruction After Mastectomy. Am J Roent AJR 196(4):471-475, 2011 PMID: 21427313
12. Heine J, Fowler EE, Flowers CI. Full field digital mammography and breast density: comparison of calibrated and non-calibrated measurements. Academic Radiology 18(11):1430-6, 2011 PMID: 3190123
13. Rebecca A. Hubbard, Karla Kerlikowske, Chris I. Flowers, Bonnie C. Yankaskas, Weiwei Zhu, and Diana L. Miglioretti. Cumulative Probability of False-Positive Recall

- or Biopsy Recommendation After 10 Years of Screening Mammography: A Cohort Study. *Ann Intern Med* 155(8): 481-492, 2011 PMID: PMC3209800
14. Flowers CI. Breast Biopsy: Anesthesia, Representative Sampling and Rad/Path concordance. *Applied Radiology* 41(1):9-14, 2012
 15. Mammographic Interpretation: Radiologists' Ability to Accurately Estimate Their Performance and Compare It With That of Their Peers. Andrea J. Cook, Joann G. Elmore, Weiwei Zhu, Sara L. Jackson, Patricia A. Carney, Chris Flowers, Tracy Onega, Berta Geller, Robert D. Rosenberg, and Diana L. Miglioretti. *Am J Roent* AJR 2012;199:695-702
 16. Arasu VA, Joe BN, Lvoff NM, Leung JWT, Brenner RJ, Flowers CI, Moore DH, Sickles EA. Benefit of Semiannual Ipsilateral Mammographic Surveillance Following Breast Conservation Therapy. *Radiology* 2012 2012;264 371-377
 17. Flowers CI, Mooney BP, Drukteinis JS. Clinical and Imaging Surveillance Following Breast Cancer Diagnosis. *ASCO* 2012; 59-64
 18. Philippe Autier, Laura Esserman, Chris I Flowers, and Nehmat Houssami. Breast Cancer Screening: The Questions Answered. *Nat Rev. Clin. Oncol.* 2012 *Nat Rev Clin Oncol.* Oct 2012 9;10:599-605

BOOKS and chapters

- 1: Chris Flowers, Editor *Image Guided Core Biopsy of the Breast – a practical approach*, Greenwich Medical Media 1998 ISBN 1 900151 480 (8 Chapters)
 - Introduction to Core Biopsy
 - Ultrasound Core Biopsy
 - Stereotaxis - Conventional
 - Using the Lateral Stereoguide
 - Early Results of Stereotaxis using the Lateral Guide
 - Case Histories
 - Costs and Business Case - Ultrasound and low-tech Stereotaxis
 - The Future of Breast Biopsy
- 2: Chris I Flowers. *Breast Imaging Update*. 6 video lectures and 1 workshop. Oakstone Publishing 2010
 - Assessment of digital image quality
 - Digital mammography concepts
 - New opportunities for digital mammography — Dual energy and tomosynthesis
 - The reading room in the age of digital mammography
 - Making the transition from analog to digital mammography
 - Breast imaging workstations
 - Integrating workstation display software with PACS, RIS, and Reports generation software
 - Integrating off-site screening facilities into a central reading station

3: Chris I Flowers. Breast Imaging and Intervention: A Comprehensive Review. Oakstone Publishing 2010 (6 1-hour audio visual presentations on Digital Mammography)

Breast Ultrasound

Digital Mammography

Breast Biopsy - Practical Tips and Tricks (1 1/2 hour workshop)

New Opportunities for Digital Mammography

Digital Mammography Concepts

Breast Imaging Workstations

4: Chris I Flowers and Esserman LJ. Breast Cancer Screening. Chapter in Vincent, T. DeVita, Jr., Theodore S. Lawrence, and Steven A. Rosenberg (eds.), Cancer: Principles and Practices of Oncology 9th Edition, Lippincott Williams & Wilkins, 2012

5: Flowers CI, Mooney BP, Drukteinis JS. Clinical and Imaging Surveillance Following Breast Cancer Diagnosis. Chapter in American Society of Clinical Oncology Educational Book, Pages 59-64; 2012

6: Chris I Flowers. Mammographic Screening in Women aged 50 years and over. Chapter 11, in Benson J, Tuttle T, and Gui G. (eds.) Early Breast Cancer: From Screening to Multidisciplinary Management. Informa Healthcare. 3rd Edition, 2013

7: Chris I Flowers and Esserman LJ. Breast Cancer Screening. Chapter in Vincent, T. DeVita, Jr., Theodore S. Lawrence, and Steven A. Rosenberg (eds.), Cancer: Principles and Practices of Oncology for Primary Care Doctors. Lippincott Williams & Wilkins, 2012

8: Duewer F, Flowers CI, Kerlikowske K, Malkov S, Joe BN, Shepherd J. Improvements and performance of diagnostic compositional imaging using a novel dual-energy x-ray technique in A.D.A. Maidment, P.R. Bakic, and S. Gavenonis (Eds.): IWDM 2012, LNCS 7361, pp. 569–574, 2012 Springer-Verlag

9: Chris I Flowers and Markus Holzhauser. Resident Case Based Review: Breast Imaging. McGraw-Hill 1st Ed, 2012 (100 chapters)

TECHNICAL REPORTS

Chris Flowers. Chapters: Inside the Human Body. Bright Star Publishing, London, UK 1999

Mammography (Part 53)

Breast Ultrasound (Part 83)

Royal College of Radiologists Breast Group Website – large specialist website (until 2011) (<http://www.rcrbreastgroup.com>), Summary blogs of breast imaging research from the journals – <http://www.rcrbreastgroup/latest/latest.php> Breast Imaging Research Network Website – www.imagingresearchnetwork.com 2000 – 2010

Digital mammography podcasts (available via iTunes)
2005 Introduction and Taster to Digital Mammography
2005 DMIST study – design (Digital Mammographic Investigation Screening Trial)
2005 DMIST study – results
2005 DMIST study - initial reactions. Interview with Jim Brenner, UCSF
2006 RSNA 2005 (report of the Annual Scientific Meeting of the Radiological Society of North America)
2007 SECTRA_FFDM (SECTRA is a Mammography PACS vendor, and FFDM is Full Field Digital Mammography)
2007 Sectra in Coventry (practical experience and evaluation of the SECTRA PACS system in Coventry)
2007 Tomosynthesis – Interview with Dan Kopans, MGH

Scientific Abstracts/Poster Presentations/Plenary Presentations:

Abstracts:

1. Flowers CI. The Problem of the Solitary Dominant Lump. Symposium Mammographicum, York, 1994
2. Chare MJB, Flowers CI, O'Brien CJ, Dawson A. Can Image Guided core biopsy reduce the need for surgical biopsy in Patients with breast disease, Welsh Surgical Society, 1995
3. Flowers CI. Can Image Guided Core Biopsy Prevent Unnecessary Benign Biopsies of the Breast. Roentgen Centenary Congress, Birmingham, June 1995
4. Chare MJB, Flowers CI, O'Brien CJ, Dawson A. Impact of Image Guided Core Biopsy on Number of Surgical Biopsies in Patients with Breast Disease, Symposium Mammographicum 96, Brighton, 1996
5. Flowers CI, Chare MJB, O'Brien CJ. The Integration Of Ultrasound Guided Wide Core Needle Biopsy Into The Triple Assessment In Breast Disease. Symposium Mammographicum 96, Brighton, 1996
6. O'Brien CJ, Hopkins L, Flowers CI, Chare MJB. Pathological Aspects of Screen Detected and Symptomatic Breast Carcinomas. Symposium Mammographicum 96, Brighton, 1996
7. Flowers CI - Radiological Features Of Breast Cancer In Young Women, Radiology Congress, Birmingham UK, 1997

Poster and Oral Papers:

1. Flowers CI, Davies JH, Chare MJB, O'Brien CJ. Image Guided Core biopsy – it's impact on the management of breast disease. 5th International Cambridge Conference on Breast Cancer Screening, Cambridge UK, 1995
2. O'Brien CJ, Flowers CI, Chare MJB, Dawson A, Hopkins L. Pathological Features of Breast Cancer in Young Women. 5th International Cambridge Conference on Breast Cancer Screening, Cambridge UK 1995
3. Flowers CI, Davies JH, Chare MJB, O'Brien CJ. Stereotactic Core Biopsy of the Breast using a lateral guide – the Early Results. Royal College of Radiologists Breast Group Annual Scientific Meeting, Bristol, 1997
4. O'Brien CJ, Dawson A, Hopkins L, Flowers CI, Davies JH, Chare MJB. Breast Cancer in Young Women. Symposium Mammographicum. Imaging 10: 10, 1998
5. Chare MJB, Flowers CI, Davies JH, O'Brien CJ, Dawson A. Breast Cancer in Young Women; Pitfalls in diagnosis – Symposium Mammographicum. Imaging 10: 10, 1998
6. Flowers CI, Antoniazzi A, Williams B, Jones H, James-Deane C. Indirect Digital Mammography in women under follow-up for breast cancer. Symposium Mammographicum. Imaging 10: 34, 1998
7. Burch A, Flowers CI. Radiation Dose and Image Quality Measurements on a FUJI Digital Mammography System. Symposium Mammographicum. Imaging 10: 38, 1998
8. Davies JH, Flowers CI. Comparison of Mammographic Density Between Women aged 50-64 and Age Trial Women aged 40-41. Symposium Mammographicum. Imaging 10: 38, 1998
9. Flowers CI, Antoniazzi A. Speed Gains in Stereotactic Core Biopsy and Specimen Radiography using an Indirect Digital Mammography System. Symposium Mammographicum. Imaging 10: 44, 1998
10. O'Brien CJ, Dawson A, Hopkins L, Flowers CI, Davies JH, Chare MJB. Fine Needle Aspiration Cytology of the Breast; a 3-year audit. Symposium Mammographicum. Imaging 10: 45, 1998
11. Evans N, Flowers CI, Davies JH. Radiological Features of Breast Cancer in Young Women. 6th International Conference on Breast Cancer Screening, Cambridge UK, 1999
12. Flowers CI, D Parker D. Dynamic Optical Breast Imaging – a new way of imaging breast cancer. Conversazione, Swansea University, 2000

13. Flowers CI. DMIST (Digital Mammographic Imaging Screening Trial)– the definitive research study comparing film-screen mammography with full field digital mammography. Royal College of Radiologists Breast Group Annual Scientific Meeting, London 2004
14. Britton P, Dall BJB, Dobson H, Flowers CI, Liston J, Pinder S, Sinnatamby R. The current state of vacuum assisted biopsy in the UK (conclusions from the 2nd National Multi-disciplinary Mammotome User Group Conference 2006 Nottingham UK). Royal College of Radiologists Breast Group Annual Scientific Meeting, Edinburgh 2006
15. Jakubowksi Wisner D, Chang B, Flowers C, Lessing J, Hwang S, Joe B, Hylton N, “Preoperative Breast MRI Accuracy for the Estimation Of DCIS Grade, Extent, and Occult Invasive Disease,” Fifth Annual UCSF Imaging Research Symposium, San Francisco, CA, 9/2008
16. Garwood ER, Kumar AS, Baehner F, Garber JE, Troyan S, Olopade OI, Moore D, Au A, Flowers CI, Campbell M, Hylton N, Esserman LJ, Rush-Port E. Fluvastatin has biologic effects on stage 0 and 1 breast cancer. 31st Annual San Antonio Breast Cancer Symposium, December 2008
17. Jakubowksi Wisner D, Chang B, Flowers CI, Joe B, Lessing J, Gibbs J, Itakura K, Hwang S, Hylton N, “Preoperative Breast MRI For Prediction Of Occult Invasive Disease,” American Roentgen Ray Society Annual Meeting, Boston, Mass., 4/2009
18. Durand A, Flowers CI (mentor for 1st author), Ljung BM. The use of ultrasound guided FNAC in a breast clinic. American Roentgen Ray Society April 2009
19. Laidevant AD, Malkov S, Flowers CI, Kerlikowske K, Shepherd JA. Compositional breast imaging using a dual-energy mammography protocol, Radiological Society of North America, December 2009
20. Arasu V, Joe BN, Lvoff L, Leung J, Brenner RJ, Chang B, Flowers CI, Sickles EA. Outcomes Analysis of Semiannual Ipsilateral Mammographic Surveillance Following Breast Conservation Therapy: 12-Year Experience. American Roentgen Ray Society May 2010
21. Itakura K, Flowers CI (mentor for 1st author), Alvarado MD, Ewing SA, Esserman LJ, Hylton NM, Hwang ES. Outcome of Incidental Contralateral MR Findings in Patients with Newly Diagnosed Breast Cancer. ASCO Breast Cancer Symposium, 2010
22. Duewer F, Flowers CI (mentor for 1st author), Sherman J, Hwang ES, Shepherd JA. 3 Component Compositional Mammography for Breast Lesion Classification. Radiological Society of North America, December 2010. (Mentor for 1st author)

23. Flowers CI, Duewer F, Sherman J, Shepherd JA. 3 component compositional mammography. Joint RSNA/ASTRO clinical meeting, Atlanta GA, 2011
24. Kim DN, Kim J-H, Flowers CI, Elias S, Moore DH, Esserman LJ [P5-09-02] Reducing Excess Biopsies: Improving Screening through Risk Stratification and New Thresholds for Intervention, San Antonio Breast Cancer Symposium, San Antonio TX 2011 (Mentor for both 1st and 2nd authors and presenter at poster session)
25. Reed S, Vogt K, Koochi J, Flowers CI (Abstract ID:1489) Short term follow up of patients with benign breast biopsies: Is it really worth it? American Roentgen Ray Society May 2012 (Mentor for 1st Author)
26. Duewer F, Flowers CI, Kerlikowske K, Malkov S, Joe BN, Shepherd J. Improvements and performance of diagnostic compositional imaging using a novel dual-energy x-ray technique. IWDM 2012-11th International Workshop on Breast Imaging
27. Talanow RS, Holzhauer M and Flowers CI. Web and Cloud Based Screening Mammography Training to Improve Benchmarks. (Educational exhibit). Radiological Society of North America, December 2012

Invited Speaker/Seminars

1. The NHS Breast Screening Programme in Wales, Medicine for Managers, Swansea, UK, 1991
2. The Multidisciplinary Approach to Breast Disease, Family Physicians Conference, Neath, UK, 1992
3. Oncology Update for Family Physicians, Swansea, UK, 1994
4. Things Radiologists find difficult, Royal College of Radiologists Breast Group Annual Scientific meeting , Winchester, UK, 1995
5. The Multidisciplinary Approach to Breast Disease, Regional Postgraduate Course, Plymouth, UK, 1997
6. Ultrasound Guided Breast Biopsy. 6th International Conference on Breast Cancer Screening, UK. 1999
7. Recent Developments in the Management of Breast Cancer, Grand Rounds, Neath, UK, 2000
8. Dynamic Optical Breast Imaging – a new way of imaging breast cancer, Royal College of Radiologists Breast Group Annual Scientific Meeting, Nottingham, UK, 2001

9. Advances in Cancer Imaging, Grand Rounds, Llanelli, UK, 2000
10. National Breast Screening Programmes – can they really work? Grand Rounds, Johns Hopkins University Hospital, Baltimore MD, 2000
11. Should Radiologists and Surgeons work together? Grand Rounds, George Washington University Hospital, Washington DC, 2001
12. Advances in ultrasound and stereotaxis, National Breast Screening Training Update Course, Cardiff, UK, 2001
13. The BI-RADS System – a call for universal descriptors, Royal College of Radiologists Breast Group Annual Scientific meeting, Eastbourne, UK, 2001
14. The Royal College of Radiologists Breast Group Web Site, Royal College of Radiologists Breast Group Annual Scientific meeting, Southport, UK, 2002
15. Diagnostic Accuracy and the Radiologist: does it really matter? Oklahoma State Radiological Society Annual Scientific Meeting, Oklahoma City, OK, 2003
16. Breast Calcifications for the General Radiologist. Oklahoma State Radiological Society Annual Scientific Meeting, Oklahoma City, OK, 2003
17. Radiological Screening for Cancer: what can we learn from European Population Based Screening? Oklahoma State Radiological Society Annual Scientific Meeting, Oklahoma City, OK, 2003
18. Grand Rounds: Functional imaging of the breast – near infra-red imaging , Royal Marsden Hospital. London UK, 2004
19. The Royal College of Radiologists Breast Group Web Site, Royal College of Radiologists Breast Group Annual Scientific meeting, Nottingham, UK, 2005
20. DMIST (Digital Mammographic Imaging Screening Trial) – the definitive research study comparing film-screen mammography with full field digital mammography, National Breast Screening Conference, Cardiff, UK, 2005
21. The Royal College of Radiologists Breast Group Web Site, Royal College of Radiologists Breast Group Annual Scientific meeting, Edinburgh, UK, 2006
22. Ultrasound Guided Mamotome Biopsy, UK Mamotome Users Group Meeting, Manchester, UK, 2007
23. Breast Imaging for Oncology Residents, Oncology Dept, UCSF Mount Zion Hospital, 2008

24. Breast Imaging for Cancer Center Interns, Cancer Center Conference Room, (also made available on the web and as a DVD), 2008
25. National Medical Association/Cobb Research Institute Workshop on Breast Cancer in Young, African American Women: A Call for Change, Breast Screening in young women, with particular reference to African American Women, UCSF Department of Surgery, 2008
26. USA based research funding, Royal College of Radiologists Breast Group Research Network, London, UK, 2008
27. Differences between UK and USA radiology, Royal College of Radiologists Breast Group, Annual Scientific Meeting, London, UK, 2008
28. Screening and Diagnostic Procedures for Women's Cancers, Conference on Emerging Strategies in Women's Cancers. San Francisco, 2009
29. Breast Imaging for Cancer Center Interns, 2009
30. RadOnc Grand Rounds. UCSF San Francisco, CA. Breast Imaging for Oncology Residents, Jan 2010
31. A new paradigm in breast cancer. Surgical Grand Rounds, UCSF, 2010
32. Breast Oncology Program, Breast Cancer SPORE – Spring Retreat, San Francisco, CA. Reducing unnecessary interventions in breast cancer diagnosis, Feb 2010
33. The ATHENA Breast Health Network: an innovative model for personalized breast cancer care. Moffitt Cancer Center, 2010
34. Great Debates and Updates in Breast Cancer, Conference. MRI Screening Before Surgery for Breast Cancer. San Francisco, 2010
35. Breast Screening – The Radiology Perspective. Clinical Symposium at 33rd Annual San Antonio Breast Cancer Symposium, 2010
36. FACTors Teleconference on findings at San Antonio Breast Conference, January 2011
37. Emerging imaging technologies in breast cancer. FORCES Annual Conference, Orlando, FL 2011
38. FORCES webinar – High Risk Surveillance for Breast Cancer – Feb 2012 (facingourrisk.org)

39. Panel Discussion at the Sarasota Women's Cancer Awareness Luncheon, Sarasota, FL, March 2012
40. Broward County Grand Rounds: Breast Cancer Screening Guidelines. April 2012
41. Chair and presenter – Educational Session. The Many Options for Breast Imaging.: What to use when. American Society of Clinical Oncology Annual Meeting, Chicago 2012
42. Breast Screening for Breast Cancer Survivors, ASCO Annual Meeting, Chicago 2012