BCSC Newsletter for September 2013

News & Announcements

Breast Cancer Surveillance Consortium Data Explorer

The Breast Cancer Surveillance Consortium (BCSC) developed The BCSC Data Explorer, a public data portal. The BCSC Data Explorer uses the nation's largest collection of mammography data to allow researchers to explore tables and graphs of data related to women, mammograms, other breast imaging exams, and breast cancer.

BCSC Contributes to Understanding the Impact of Breast Density Legislation

The Breast Cancer Surveillance Consortium (BCSC) participated in an international workshop on Breast Densitometry and Breast Cancer Risk Assessment held in San Francisco, June 2013. The meeting focused on the California breast density legislation. The BCSC is currently in the process of writing several manuscripts on this topic. The October 2013 issue of *Health Magazine* is publishing an interview of Dr. Karla Kerlikowske, Co-Chair of the density meeting, on breast density and cancer risk highlighting the BCSC risk calculator.

High Rate of False-Positives with Annual Mammograms

A study on the cumulative probability of false-positive recall or biopsy recommendation after 10 years of annual or biennial screening mammography, led by BCSC researchers Rebecca Hubbard, PhD, Karla Kerlikowske, MD, and Diana Miglioretti, PhD was nominated to be listed as part of Research Highlights by the NCI's Epidemiology and Genomics Research Program. Nominations are based on scientific merit, innovation, and/or potential public health impact. Study results suggest that after ten years of annual screening, more than half of women will receive at least one false-positive result, and 7-9% will receive a false-positive biopsy recommendation. While biennial screening reduces false-positive results, it may be associated with a small increase in the proportion diagnosed with late-stage cancer.

Radiology Selects BCSC Manuscripts to Highlight Research in Breast Cancer Screening

Six BCSC papers were selected to be highlighted in *Radiology Select* 2013 and eight papers by BCSC investigators were selected. *Radiology Select* is a continuing series of carefully chosen *Radiology* articles that highlight developments in imaging science, techniques, and clinical practice. Each volume focuses on a particular topic important in the field and is supplemented by commentaries, author interviews, podcasts, and educational opportunities. The six BCSC manuscripts selected were:

- Performance Benchmarks for Screening Mammography, led by Robert D. Rosenberg, MD.

- Evidence-based Target Recall Rates for Screening Mammography, led by Michael J. Schell, PhD.

- Identifying Minimally Acceptable Interpretive Performance Criteria for Screening Mammography, led by Patricia A. Carney, PhD.

- Effect of Observing Change from Comparison Mammograms on Performance of Screening Mammography in a Large Community-based Population, led by Bonnie C. Yankaskas, PhD.

- Variability in Interpretive Performance at Screening Mammography and Radiologists Characteristics Associated with Accuracy, led by Joann G. Elmore, MD.

- Influence of Annual Interpretive Volume on Screening Mammography Performance in the United States, led by Diana S. M. Buist, PhD.

Source Code for Calculating BCSC Risk Score Posted to BCSC Web Site

SAS source code for calculating the BCSC risk score has been posted to the BCSC Web site. This program can be used to estimate the five-year risk of developing invasive breast cancer in a dataset with a large number of women. For individual women, the Web-based risk calculator can be used. The BCSC risk model was developed and validated in 1.1 million women undergoing mammography across the United States, among whom 15,000 were diagnosed with invasive breast cancer. For more information refer to the BCSC Risk Calculator Introduction page.

BCSC in the News

Advanced Cancer Risk is Similar with Biennial vs. Annual Mammography in Women Aged 50 to 74

CancerScope, a commentary in the most recent issue of *Cancer*, highlighted the BCSC article, "Outcomes of screening mammography by frequency, breast density, and postmenopausal hormone therapy," by BCSC researchers Karla Kerlikowske MD, Weiwei Zhu MS, Rebecca Hubbard PhD, Berta Geller EdD, Karen Wernli PhD, Diana Miglioretti PhD, and Ellen O'Meara PhD, published in *JAMA Internal Medicine* in March 2013 and featured on the CBS Evening News.

BCSC Researcher Featured in a *Radiology* Podcast

BCSC researcher, Patricia Carney, PhD, participated in a May 2013 *Radiology Podcast* to discuss her paper: "Diagnostic mammography: identifying minimally acceptable interpretive performance criteria".

BCSC Touted as Example of a Successful Collaborative Research Project

In the September 2013 issue of Science the BCSC was used as an example of how to successfully navigate collaborative grant research. Emphasizing that, "around the world, funding agencies are emphasizing collaborations for many reasons," the article compiles advice from several high-profile collaborations. Dr. Diana Miglioretti was interviewed about her position as co-Principal Investigator on the Breast Cancer Surveillance Consortium Program Project titled, "Risk-Based Breast Cancer Surveillance in Community Settings", saying, "The science is improved from the synergy created by working together instead of independently."

People News

Berta Geller, EdD, Professor Emerita, Departments of Family Medicine & Radiology, College of Medicine at University of Vermont (UVM) has stepped down as the BCSC UVM Registry Lead. Dr. Geller's research has focused on breast cancer surveillance, particularly improving early detection rates, and the development of the Vermont Mammography Registry, the first and only state-wide registry in the nation. Dr. Geller was honored nationally with the NIH Plain Language Award, and C. Everett Koop National Health Award for Community Programs. Locally, she received the J. Walter Juckett Scholar Award, the Outstanding & Dedicated Leadership Award, and was named a 2011-12 University Scholar.

Dr. Brian Sprague, PhD, Assistant Professor in the Department of Surgery at the University of Vermont (UVM) has taken over for Dr. Geller as the UVM Registry Lead on the BCSC. As a cancer epidemiologist, he conducts population-level research on breast cancer incidence, detection, and survival, and is co-Principal Investigator of the Vermont PROSPR Research Center, which seeks to evaluate the breast cancer screening process and identify factors associated with recurrence after an early stage breast cancer diagnosis.

[Diana L. Miglioretti, PhD](#), Dean's professor of biostatistics at [UC Davis](#) and senior investigator at [Group Health Research Institute](#) (GHRI) is one of fifteen semi-finalists for the [Minnies 2013 "most influential radiology researcher"](#) award. This honor is a reflection of her BCSC research dedicated to improving breast cancer screening.

The *AuntMinnie.com* campaign recognizes the best and brightest in medical imaging. AuntMinnie.com provides the first comprehensive community Internet site for radiologists and related professionals in the medical imaging industry.

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Quarterly Spotlights
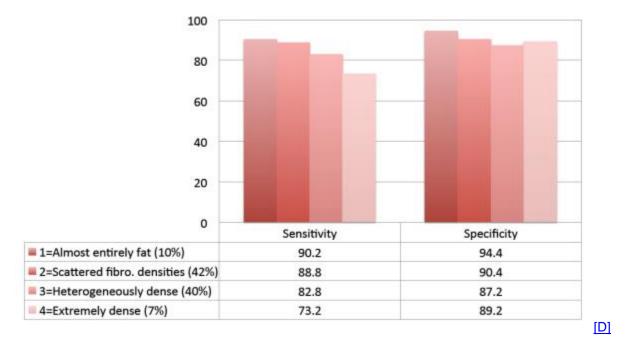
BCSC Collaborating Internationally

Nehmat Houssami, MBBS, FAFPHM, FASBP, MPH, PHD is an Associate Professor and Principal Research Fellow at the School of Public Health at the University of Sydney, Australia and a public health physician. She is in clinical practice at the Royal Hospital for Women, Sydney. She serves on the BreastScreen State Accreditation & Quality Improvement Committee in Australia and has used the BCSC to answer questions pertaining to surveillance for breast cancer patients. Dr. Houssami is currently collaborating on two BCSC-related manuscripts and is the lead author in three international collaborations with the BCSC:

- [Accuracy and outcomes of screening mammography in women with a personal history of early-stage breast cancer. JAMA 2011;](#)

- [Early detection of breast cancer the second time around: mammography in women with a personal history of breast cancer. Med J Aust 2011;](#) and

- [Risk factors for second screen-detected or interval breast cancers in women with a personal history of breast cancer participating in mammography screening, Cancer Epidemiol Biomarkers Prev 2013](#).

Group Health Breast Cancer Surveillance Registry

Led by GHRI Senior Investigator [Diana S.M. Buist, PhD, MPH](#), the [Group Health Breast Cancer Surveillance Registry](#) was established after Group Health's Breast Cancer Screening Program began in 1985 and is a founding member of the national Breast Cancer Surveillance Consortium. This BCSC registry generates and maintains a large-scale data system that contains breast cancer risk factor, screening, diagnosis, treatment and survival data. With an eye toward future scientific collaboration, the [Group Health Breast Cancer Surveillance Registry](#) recently revamped its public Web site to be more collaborator-focused and easier to use. Development of the new Web site was funded by the BCSC's 2011 Program Project grant from the National Cancer Institute.

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Stat-Bite

The BCSC has the largest collection of data on digital mammography examinations with a clinical BI-RADS density measure in the world, 585,993 screening examinations, which allows for determination of performance measures and 5-year breast cancer risk by breast density.

Sensitivity and Specificity of Digital Screening Mammography by BI-RADS Density, Women 40-74 years

	Sensitivity	Specificity
1=Almost entirely fat (10%)	90.2	94.4
2=Scattered fibro. densities (42%)	88.8	90.4
3=Heterogeneously dense (40%)	82.8	87.2
4=Extremely dense (7%)	73.2	89.2

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Recent BCSC Publications

Health technology assessment (HTA) of surveillance of women aged less than 50 years at elevated risk of breast cancer. April 18, 2013. *HIQA Report.* The project is in the form of a report that serves as advice to the decision maker, in this case the National Cancer Control Programme in Ireland. The project involves an Expert Advisory Group that acts as a form of peer review. [View Abstract]

Batina NG, Trentham-Dietz A, Gangnon RE, Sprague BL, Rosenberg MA, Stout NK, Fryback DG, Alagoz O. Variation in tumor natural history contributes to racial disparities in breast cancer stage at diagnosis. *Breast Cancer Res Treat* 2013 Apr;138(2):519-28. [View Abstract]

Braithwaite D, Mandelblatt JS, Kerlikowske K. To screen or not to screen older women for breast cancer: a conundrum. *Future Oncol.* 2013 Jun;9(6):763-766. PMC3745823. [View Abstract]

Dittus K, Geller B, Weaver DL, Kerlikowske K, Zhu W, Hubbard R, Braithwaite D, O'Meara ES, Miglioretti DL; Breast Cancer Surveillance Consortium. Impact of mammography screening interval on breast cancer diagnosis by menopausal status and BMI. *J Gen Intern Med* 2013 Nov;28(11):1454-62. [View Abstract]

Fenton JJ, Onega T, Zhu W, Balch S, Smith-Bindman R, Henderson L, Sprague BL, Kerlikowske K, Hubbard RA. Validation of a Medicare Claims-based Algorithm for Identifying Breast Cancers Detected at Screening Mammography. *Med Care* 2013 Aug 6. [Epub ahead of print] [View Abstract]

Goldman LE, Walker R, Hubbard R, Kerlikowske K; Breast Cancer Surveillance Consortium. Timeliness of abnormal screening and diagnostic mammography follow-up at facilities serving vulnerable women. *Med Care* 2013 Apr;51(4):307-14. doi: 10.1097/MLR.0b013e318280f04c. [View Abstract]

Harel O, Chung H, Miglioretti D. Latent class regression: inference and estimation with two-stage multiple imputation. *Biom J* 2013 Jul;55(4):541-53. [View Abstract]

Houssami N, Abraham LA, Kerlikowske K, Buist DS, Irwig L, Lee J, Miglioretti DL. Risk factors for second screen-detected or interval breast cancers in women with a personal history of breast cancer participating in mammography screening. *Cancer Epidemiol Biomarkers Prev* 2013 May;22(5):946-61. [View Abstract]

Hubbard RA, Miglioretti DL. A semiparametric censoring bias model for estimating the cumulative risk of a false-positive screening test under dependent censoring. *Biometrics* 2013 Mar;69(1):245-53. [View Abstract]

Hubbard RA, Zhu W, Horblyuk R, Karliner L, Sprague BL, Henderson L, Lee D, Onega T, Buist DS, Sweet A. Diagnostic imaging and biopsy pathways following abnormal screen-film and digital screening mammography. *Breast Cancer Res Treat* 2013 Apr;138(3):879-87. [View Abstract]

Kerlikowske K, Zhu W, Hubbard RA, Geller B, Dittus K, Braithwaite D, Wernli KJ, Miglioretti DL, O'Meara ES; Breast Cancer Surveillance Consortium. Outcomes of screening mammography by frequency, breast density, and postmenopausal hormone therapy. *JAMA Intern Med* 2013 May 13;173(9):807-16. doi: 10.1001/jamainternmed.2013.307. [View Abstract]

Mandelblatt J, van Ravesteyn N, Schechter C, Chang Y, Huang AT, Near AM, de Koning H, Jemal A. Which strategies reduce breast cancer mortality most? Collaborative modeling of optimal screening, treatment, and obesity prevention. *Cancer* 2013 Jul 15;119(14):2541-8. [View Abstract]

Mandelblatt JS, Tosteson AN, van Ravesteyn NT. Costs, evidence, and value in the Medicare program: the challenges of technology innovation in breast cancer prevention and control.*JAMA Intern Med* 2013 Feb 11;173(3):227-8. [Look up in PubMed]

Onega T, Anderson ML, Miglioretti DL, Buist DS, Geller B, Bogart A, Smith RA, Sickles EA, Monsees B, Bassett L, Carney PA, Kerlikowske K, Yankaskas BC. Establishing a gold standard for test sets: variation in interpretive agreement of expert mammographers. *Acad Radiol* 2013 Jun;20(6):731-9. doi: 10.1016/j.acra.2013.01.012. [View Abstract]

O'Meara ES, Zhu W, Hubbard RA, Braithwaite D, Kerlikowske K, Dittus KL, Geller B, Wernli KJ, Miglioretti DL. Mammographic screening interval in relation to tumor characteristics and false-positive risk by race/ethnicity and age. *Cancer* 2013 Nov 15;119(22):3959-67. [View Abstract]

Oster NV, Carney PA, Allison KH, Weaver DL, Reisch LM, Longton G, Onega T, Pepe M, Geller BM, Nelson HD, Ross TR, Tosteson AN, Elmore JG. Development of a diagnostic test set to assess agreement in breast pathology: practical application of the Guidelines for Reporting Reliability and Agreement Studies (GRRAS). *BMC Womens Health* 2013 Feb 5;13:3. doi: 10.1186/1472-6874-13-3. [View Abstract]

Roen EL, Roubidoux MA, Joe AI, Russell TR, Soliman AS. Adherence to screening mammography among American Indian women of the Northern Plains. *Breast Cancer Res Treat* 2013 Jun;139(3):897-905. [View Abstract]

Tice JA, O'Meara ES, Weaver DL, Vachon C, Ballard-Barbash R, Kerlikowske K. Benign breast disease, mammographic breast density, and the risk of breast cancer. *J Natl Cancer Inst*2013 Jul 17;105(14):1043-9. [View Abstract]

Recent BCSC Grant & Contract Awards

BCSC Grant Chosen by The Patient-Centered Outcomes Research Institute (PCORI)

The Patient-Centered Outcomes Research Institute (PCORI) announced awards to fund Dr. Karen Wernli's grant, *"Comparative effectiveness of surveillance imaging modalities in breast cancer survivors"*. Unique to PCORI is the involvement of breast cancer survivors as members of the research team and on a Patient Advisory Board. Using BCSC data, the overall aim is to find out how well breast MRI works compared to mammography for surveillance in women who have had breast cancer before. Only 24 out of 182 applications from the priority area of Assessment of Prevention, Diagnosis, and Treatment Options were chosen for funding.

NCI Extends Term of Breast Cancer Surveillance Consortium Research Resource Contract for a Third Year

[The Breast Cancer Surveillance Consortium Research Resource Contract (PDF, 819 KB)](#) has been modified by the National Cancer Institute to extend the terms of the contract for a third option year. The BCSC is the nation's largest longitudinal collection of mammography data, and the Research Resource was designed to make this data publicly available. This resource is optimal for studies designed to assess the delivery and quality of breast cancer screening, as well as studying the biology of breast cancer. The development of new collaborations to research these questions is a key goal of the BCSC. Visit the BCSC-NCI Web site for detailed information regarding specific variables and how collaborations may be developed.

Grant Using BCSC Data Among Top-ranked RSNA Research & Education Foundation Applications

The RSNA Research & Education Foundation's study sections completed the review and scoring of the 2013 grant applications and reported that Amie Yoo Youn Lee, MD's RSNA Research Resident Grant application was among the top-ranked and approved for funding out of a record-setting 236 grant applications. Dr. Lee's grant, which will use The Breast Cancer Surveillance Consortium (BCSC) pooled data, "Utilization Patterns and Concordance of Breast MRI BI-RADS Assessments and Management Recommendations in Community Practice" was approved for funding beginning July 2013.

San Francisco Mammography Registry (SFMR) Funded to Examine Commercial and Non-commercial Automated Density Measures

[Dr. Karla Kerlikowske](#), lead of the [SFMR](#), and [Dr. Celine Vachon](#) received an R01 to compare automated measures of volumetric breast density to determine the measure most strongly associated with breast cancer risk and the measure that most accurately assesses change in breast density.

Upcoming Abstract Deadlines

[**Society of Behavioral Medicine (SBM) Annual Meeting & Scientific Sessions**](#)
Philadelphia, PA
April 23-26, 2014
Abstract Submission Deadline: September 12, 2013
Poster Submission Deadline: January 7, 2014

[**American Society of Clinical Oncology (ASCO) Annual Meeting**](#)
Arlington, VA
May 30-June 3, 2014
Abstract Submission Deadline: February 4, 2014

Upcoming Conferences

Breast MRI Case-Based Review & Advanced Breast Imaging
Las Vegas, NV
September 28-29, 2013

[**Advances in Breast Cancer Research**](#)
San Diego, CA
October 3-6, 2013

Society for Medical Decision Making (SMDM) Annual Meeting
Baltimore, MD
October 19-23, 2013

[AACR Frontiers in Cancer Prevention Research](#)
National Harbor, MD
October 27-30, 2013

NAPCRG Annual Meeting
Ottawa, Ontario
November 9-13, 2013

[Radiological Society of North America Scientific Assembly and Annual Meeting](#)
Chicago, IL
December 1-6, 2013

[AACR Cancer Health Disparities Conference](#)
Atlanta, GA
December 6-9, 2013

[San Antonio Breast Cancer Symposium (SABCS)](#)
San Antonio, TX
December 10-14, 2013