BCSC Newsletter for October 2015

BCSC in the News

Immediate Impact of BCSC study on Ineffectiveness of CAD

Science tends to make a steady march towards progress, but once in a while a study has a sudden and powerful influence over policy. A new BCSC study published September 28, 2015 in *JAMA Internal Medicine* has done just that by providing the best evidence to date that Computer-aided detection (CAD) doesn't improve the accuracy of digital screening mammography, and that insurers are paying for it - with no likely benefit.

In 1998 the FDA approved CAD for mammography. Today, CAD is used for most screening mammograms in the United States and costs approximately $400 million a year - even though there is little evidence that it improves accuracy. There have been immediate discussions about re-evaluating coverage for CAD since the publication:

- Aetna Inc. has announced that it will review the study and take it into consideration when deciding on coverage.
- The Seattle Times reported that a local health insurer is re-evaluating coverage for the procedure.

The study garnered media attention from outlets such as Bloomberg News, HealthDay, Associated Press, Reuters, Time.com, Medscape, Aunt Minnie and the Seattle Times, and comes on the heels of another BCSC study, published in 2011, which also raised concerns about the effectiveness of CAD.

Widespread Media Attention for BCSC Study on Breast Density and Breast Cancer Risk

Women with dense breasts are at higher risk for breast cancer and mammography does not work as well in these women, but a new BCSC study published May 18, 2015 in the *Annals of Internal Medicine* suggests that breast density should be just one part of the equation in determining who is at high risk of having a cancer missed on digital mammography. The study was picked as “Leading the News” for RSNA weekly and received widespread media attention, with over 50 media references. The results provide more evidence that breast density alone may not be enough to justify supplemental screening and that overall breast cancer risk needs to be considered.

Below is a sample of the many media outlets which carried this story: The New York Times, NPR, Time Magazine, Reuters, National Cancer Institute Blog, Medscape, Daily RX Today, Business Insider, MedPage Today, Tech Times, and Self Magazine.

BCSC Risk Calculator Updated to include Benign Breast Disease

In 2013 The Breast Cancer Surveillance Consortium (BCSC) developed a web-based BCSC Risk Calculator for health professionals to estimate a woman's five-year risk of developing invasive breast cancer and now the BCSC risk model has been updated to include benign breast disease. The updated model was published in the *Journal of Clinical Oncology* on Aug 17, 2015 and led by Dr. Jeff Tice.

In 2015 free iPhone and iPad apps were created and both have been recently updated in addition to the web-based application. Since then the iPhone app has been downloaded over 1,330 times. In addition to public use, the calculator has been scientifically validated and used as part of a research analysis. It has also been featured in the following news outlets:

- Mother Jones
- Bottom Line Health,
- Yahoo Health News
- ASCO “Exclusive Coverage”
- HealthManagement.org

Breast biopsies may not be reliable in identifying subtle abnormalities

The New York Times featured an interesting, if somewhat worrisome, study by Joann Elmore MD which was published March 17, 2015 in the *Journal of American Medical Association (JAMA)*. The study found that biopsy results, which have long been considered the diagnosis gold standard, may be less reliable when the findings are for DCIS and atypia. On the bright side, there was high concordance (96%) when diagnosing invasive cancer. Two BCSC breast-imaging registries, The New Hampshire Mammography Registry and the Vermont Breast Cancer Surveillance System contributed data to this important research.

Few Advanced Imaging Services available at nonacademic and non-radiology practices

A BCSC study, by Christoph Lee, MD, found that women who obtained mammography screening at multispecialty breast centers or full diagnostic radiology practices were more likely to have advanced breast imaging services at the same location, compared with women who went to non-radiology or breast imaging-only practices. The study was featured in Health Imaging Magazine. Health Imaging is a leading news website that reflects the clinical, informatics and practice management considerations involved with medical imaging.

Aunt Minnie covers four BCSC Publications

Four publications were highlighted by AuntMinnie.com, which provides a "comprehensive community Internet site for radiologists and related professionals in the medical imaging industry." One BCSC study, led by BCSC researcher Louise Henderson, PhD, found that technologists can affect the accuracy of mammogram interpretations and that there were "significant fluctuations in recall rate, cancer detection rate, sensitivity, and specificity for screening mammography, depending on the radiologic technologist who performed the imaging."

A second study, led by BCSC researcher Diana Miglioretti, PhD, proposed criteria for identifying physicians whose performance interpreting screening mammography may indicate suboptimal interpretation skills. Prior criteria evaluated each performance measure in isolation. This new study proposed joint criteria considering the tradeoffs between performance measures such as cancer detection rate and recall rate.

Aunt Millie's coverage of another BCSC study, led by Tracy Onega, PhD, found that women who undergo mammography screening at breast centers with high volumes tend to have better outcomes. The study suggests that, "there may be volume benchmarks, and a low-volume facility may expect better outcomes if they bump up the number of mammograms read per year."

Aunt Minnie also covered the new BCSC study published September 28, 2015 in *JAMA Internal Medicine*, which provided the best evidence to date that CAD does not improve the accuracy of digital screening mammography but insurers are paying more for it - with no likely benefit.

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News & Announcements

The BCSC: 575 publications and counting

BCSC data have been published in over 575 papers since 1994. Reflecting the BCSC's commitment to career development and data sharing, many have been led by non-BCSC and early-stage investigators. Topics have ranged from developing better risk prediction models to demonstrating that CAD adds costs, but is not effective at improving the accuracy of screening mammography.

The NIH-funded Program-Project, "Risk-Based Breast Cancer Screening in Community Settings," recently completed its fourth year of funding and has published 43 manuscripts. Over 75 additional BCSC-related manuscripts are underway, with submissions planned during the next 1-2 years.

BCSC Researchers Organize Institute of Medicine Workshop

BCSC researchers were a strong presence at the May 2015 Institute of Medicine (IOM) Meeting. "Assessing and Improving Imaging Interpretation in Breast Cancer Screening." Diana Buist, PhD, chaired the Workshop Planning Committee, and Diana Miglioretti PhD, Tracy Onega PhD and Patricia Carney, PhD (prior BCSC registry PI) served as members.

Presenters at the workshop included Diana Buist PhD, Berta Geller EdD, Louise Henderson PhD, Rebecca Hubbard PhD, Diana Miglioretti PhD, Tracy Onega PhD, and Patricia Carney PhD. The consensus committee found that while the technical quality of mammography had improved since MQSA implementation, mammography interpretation remained quite variable, and that this variability limited the full potential of mammography to reduce breast cancer mortality by detecting breast cancers at an early stage.

BCSC Researchers a Major Presence at the International Cancer Screening Network (ICSN)

Several BCSC researchers presented lectures and posters at the June International Cancer Screening Network (ICSN) annual meeting in the Netherlands.

- Diana Miglioretti, PhD, gave a presentation on, "Identifying Women with Dense Breasts at High Risk for Interval Cancer."
- Rebecca Hubbard, PhD presented a poster, "Accounting for censoring in estimation of the cumulative risk of false-positive screening mammography results using observational data."
- Diana Miglioretti, PhD, presented a poster, "Radiation-Induced Breast Cancer and Breast Cancer death from Mammography Screening."
- Brian Sprague, PhD, presented a poster, "Potential Impact of Legislation Mandating Breast Density Notification: Benefits, Harms, and Cost Effectiveness of Supplemental Ultrasound Screening."

The ICSN is a voluntary consortium of more than 30 countries that have active population-based cancer screening programs.

BCSC Research featured at the NCI Precision Cancer Symposium

The NCI Precision Cancer Symposium brought together experts in cancer screening, risk prediction, epidemiology, and other related disciplines to identify the most important questions in precision cancer screening and discuss how epidemiology can be used to find answers to these questions. Rebecca Hubbard, PhD led the "Evidence" topic with her presentation on, "Precision Breast Cancer Screening," while Diana Miglioretti, PhD led a breakout session on, "**Leveraging Existing Data Sources and Infrastructure."** The organizers plan to create a white paper summarizing the discussions and submit it to a peer-reviewed journal.

BCSC Researcher recipient of ACR Annual Meeting Gold-Merit Award

Amie Lee, MD, a BCSC Researcher from the University of Washington, won the American College of Radiology (ACR) Annual Meeting Gold-Merit Award for her e-poster abstract,"Concordance of breast imaging reporting and data system assessments and management recommendations for breast MRI in community practice." As a recipient of this award, her abstract was published in the June 2015 online edition of the *Journal of the American College of Radiology (JACR)*.

BCSC participates in the Cancer Epidemiology Descriptive Cohort Database (CEDCD)

The BCSC is a participating cohort in the National Cancer Institute's Epidemiology and Genomics Research Program's Cancer Epidemiology Descriptive Cohort Database (CEDCD). The CEDCD is a public database that presents descriptive information to the scientific community on cohorts studying cancer as a primary outcome. The purpose is to provide information on existing cohort infrastructures, to foster collaborations among interested scientists, to maximize cohort-based research, and increase transparency.

Diana Miglioretti gives Invited Lecture at the Netherlands Cancer Institute

Diana Miglioretti, PhD gave an invited lecture at the Netherlands Cancer Institute reviewing the concept of risk-based cancer screening, which can improve screening efficiency by focusing on those more likely to benefit, and provided four examples of studies from the Breast Cancer Surveillance Consortium. The studies identified women who might benefit from earlier mammography screenings, annual screening or supplemental screenings, and women at highest risk of radiation-induced breast cancer from mammography.

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People News

Connie Lehman, MD PhD is the new Director of Breast Imaging at Massachusetts General Hospital's (MGH) Department of Radiology. Dr. Lehman has been recognized nationally and internationally for her clinical work, teaching and research. In addition to her new role at MGH, Dr. Lehman has begun a new position as Co-Director of Avon Comprehensive Breast Evaluation Center as well as Professor of Radiology at Harvard Medical School. Dr. Lehman will continue leading the BCSC-P01 project, "Comparative Effectiveness of Imaging Strategies for Breast Cancer Screening in Community Practice."

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Stat-Bite

The BCSC calculated 5-year risk using the updated BCSC Risk Calculator among women with, and without, breast cancer in the BCSC database. The sample consisted of 1,135,977 women aged 35 to 74 years old who had at least one mammogram with BI-RADS density reported between 1994 and 2010. The table shows the distributions of the 5-year risk and indicates that:

- 75% of breast cancers have a BCSC 5-year risk of 1% or greater
- 39% have a risk ≥1.67%, and
- 20% of women without breast cancer have a BCSC 5-year risk ≥1.67%.

Distribution of BCSC risk in a screening population

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Recent BCSC Grant & Contract Awards

New Grant will Estimate Overdiagnosis in Cancer Screening Studies

The BCSC will provide data to estimate overdiagnosis associated with breast cancer screening for a new grant, led by Ruth Etzioni, PhD, and funded by the NCI. The study aims to advance knowledge about how to validly estimate overdiagnosis and to provide concrete information about overdiagnosis associated with specific cancer screening settings in order to inform screening policy development and clinical decision making.

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Recent BCSC Publications

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