



Published in final edited form as:

*J Am Coll Radiol.* 2019 February ; 16(2): 135–136. doi:10.1016/j.jacr.2018.09.056.

## Re: “Linkage of the ACR National Mammography Database to the Network of State Cancer Registries: Proof of Concept Evaluation by the ACR National Mammography Database Committee”

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Dr. Zuley and colleagues published their experience matching 1,316 women diagnosed with breast cancer following breast imaging at their institution to their institution’s cancer registry as a proof-of-principle for the National Mammography Database (NMD) (1). Discussion of this work and other breast imaging outcomes research efforts included several inaccuracies about the Breast Cancer Surveillance Consortium (BCSC) (2), a network of registries that collect data on breast imaging performed across the United States, and link woman-level risk factors and clinical history information to breast imaging information from participating facilities, benign and malignant biopsy results from pathology databases, breast cancer outcomes from Surveillance Epidemiology and End Results (SEER) program and state cancer registries, and deaths on all women from state mortality databases. The inaccurate statements are listed below followed by the correct information about the BCSC:

The authors state: *“Although an excellent source of data for many years, BCSC has suffered in the more recent past with diminished funding, which has led to closures of two of the seven registries.”* The BCSC has been continuously funded since 1994. The authors only mentioned a single source of BCSC funding through a contract by the National Cancer Institute to establish data collected through 2009 as a resource for external investigators. The authors did not mention additional, current funding from the National Cancer Institute (3) and Patient Centered Outcomes Research Institute (4), which support ongoing data collection through 2022 and research focused on evaluating and improving breast cancer screening and surveillance. While it is true that two registries closed in 2006 and 2010, the

large Metro Chicago Breast Cancer Registry was added in 2011 to replace these registries and increase the diversity of data on women receiving breast imaging examinations.

The authors state: *“Because of its age, the BCSC data are primarily based on screen-film mammography, a technology that is now outdated and replaced with digital imaging. Furthermore, 35.3% of women within the BCSC had only one mammogram available in the database, and an additional 17.9% had data for only two mammograms entered. Thus, less than 50% of women included in this data set have had more than two mammography results recorded for analysis. As such, robust conclusions regarding the relationship of current technology screening mammography to clinical outcomes based on the BCSC data are questionable. .... From 1994 to 2009, the BCSC collected data for approximately 9.5 million mammograms performed on 2,300,000 women from up to seven registries.”* The numbers presented by the authors are outdated, because the BCSC has continued collecting data on all breast imaging performed at imaging facilities within each registry’s catchment area since 2009. While older data are from screen-film mammography, participating facilities reflect current US clinical practice and transitioned to digital mammography from 2001–2011 and to digital breast tomosynthesis (DBT) starting in 2012. The current BCSC database has >4.9 million digital, >365,000 digital breast tomosynthesis (DBT) and >56,000 breast MRI examinations. We continue to add 550,000–600,000 digital and DBT mammograms annually. Of the 1.7 million women in the BCSC database since 2005 (reflecting more recent clinical practice), 1.3 million have at least 2 mammograms and 1 million have at least 3 mammograms since 2005.

The authors state: *“Recent publications intended to address the role that imaging plays in outcomes based on these registries have inferred end points based on statistical models, not actual patient data [6–8]. Because these registries represent less than 2% of the United States population, have data on three or more screening examinations for less than 50% of the patients, and are primarily based on outdated screenfilm mammography, conclusions based on these data as to the effectiveness of screening in altering mortality in the United State are questionable.”* References 7 (5) and 8 (6) in Zuley et al. used BCSC data on digital mammography performance as model inputs. They did not use screen-film data as implied by Zuley et al. Our registries include women representative of the United States, served by a diverse set of academic and community facilities (7). Our research reflects current clinical practice in the United States and recent papers are based on digital and DBT mammography (e.g., (7–9)) and other breast imaging modalities such as breast MRI (e.g., (10)).

Both the BCSC and the NMD have many strengths for evaluating breast imaging in the United States. The NMD has Institutional Review Board (IRB) approval for quality improvement projects, allowing them to evaluate screening performance across a large number of facilities in the United States. The BCSC IRB has approval to conduct breast cancer research and as such, has a Federal Certificate of Confidentiality to protect information collected from women and radiologists. The BCSC is very well positioned to evaluate current breast imaging technologies, develop risk prediction models, and enable woman-focused research given the volume of examinations accrued, ongoing data collection, and linkage to SEER and state cancer registries for complete cancer capture. Both organizations can leverage their respective strengths to advance our common goal

of providing high quality evidence to improve breast cancer screening and surveillance in clinical practice.

## Acknowledgements:

This work was supported by the National Cancer Institute (P01CA154292).

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