

2010 THE SISTER STUDY

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES • NATIONAL INSTITUTES OF HEALTH • NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

Greetings!

It has been a busy year for the Sister Study. Our cohort is now fully enrolled, with 50,884 sisters who completed all baseline activities. And we've already been working hard to stay in touch with each other. We can only learn about causes of breast cancer and other health conditions by tracking changes in your health and experiences over the coming years. If you received an update form or the longer questionnaires with this mailing, please try to complete and return them promptly.

This Newsletter reports some of our current research in the Sister Study. One area we have been focusing on is early life exposures in relation to conditions such as uterine fibroids, and age at menarche and menopause – both of which have been linked to breast cancer risk. Some of you will be asked to send a letter to your mother to invite her to complete a short questionnaire about her pregnancy with you and your early life. This will allow us to assess how well mothers and their daughters agree on this information. We hope you will pass this invitation along.

The Two Sister Study has enrolled over 1,400 of your sisters who were diagnosed with breast cancer before age 50. We have a few more sisters to reach and we are working to get more of their parents to enroll.

We also have been working on studies of breast cancer risk factors. Some of this research takes a long time and we thank you for your patience. About 1,000 participants have reported to us that they were diagnosed with breast cancer or DCIS (ductal carcinoma in situ) and we wish them success with treatment and future good health. We will be following up with them to obtain additional information about their diagnosis. This is essential for understanding risk factors for specific types of breast cancer and what influences health after diagnosis.

As always, we appreciate your continued participation in the Sister Study. Feel free to contact us if you have questions or concerns.

With best wishes for a happy and healthy 2010,

Dale Sandler
Principal Investigator
The Sister Study



Who we are...

We come from every state and Puerto Rico, with numbers ranging from 92 women from Wyoming to 4,222 from California.

47% of us were **35 to 54** years old, 35% **55 to 64**, and 18% **over 65** when we joined the Sister Study.

2.5% completed enrollment in **Spanish**.

9% of us are **African American** and 5.2% are **Latina**.

15% have a **high school degree** or less and 51% have at least a **bachelor's degree**.

65% had gone through **menopause** at the time of enrollment.

19% grew up on a **farm**.

20% reside in **urban** areas, 38% **suburban** areas, 21% **small towns**, and 21% **rural** areas.

4,400 sets of sisters from the same **family** joined the Sister Study.

2009-10 Research Round up

Even before the Sister Study was fully enrolled, we began using your data and samples to better understand potential breast cancer risk factors and explore relationships between exposures and health. One area of interest has been early life factors that may affect timing of puberty or alter breast development, which in turn could affect the risk of breast cancer or other outcomes later in life. Another focus has been the study of biomarkers, such as telomeres, that may hold the key to understanding some medical conditions such as cancer. [See *What are telomeres?*]

Some recent publications —

What are Telomeres?

Telomeres are genetic sequences that cap and protect the ends of chromosomes, the tiny structures in cells that contain our genetic information. Cells split in order to copy themselves and preserve genetic information. Each time a cell divides the telomere shortens slightly. The telomere stops the cell from dividing when a minimum amount of genetic information is reached and also prevents chromosomes from connecting to each other. In this way, telomeres help control the way cells age, which in turn may affect the way the whole body ages. Factors in our lives, such as stress or diet, may affect the aging process and telomere length. Short telomeres have been associated with poor health and with chronic stress in some studies, and may be a marker of cellular aging.

Did you know...?

The **2009 Nobel Prize in Medicine** was awarded to Elizabeth Blackburn, Carol Greider and Jack Szostak — three scientists who discovered telomeres.



Association of intrauterine and early life exposures with diagnosis of uterine leiomyomata by age 35 in the Sister Study.

Uterine fibroids are the most common pelvic tumors in US women and the leading reason for hysterectomies. This was the first study to evaluate early life exposures and the development of fibroids later in life. Women diagnosed with fibroids before age 35 were more likely to report being fed soy formula during infancy, having a mother with diabetes or pregnancy-related diabetes or who took diethylstilbestrol (DES) during pregnancy, being born at least one month early, or having lower family income during childhood.

D'Aloisio AA et al., *Environmental Health Perspectives* 2010; **118**:375-81.

Breast cancer risk perception and lifestyle behaviors among white and black women with a family history of the disease.

A doctoral student from the University of North Carolina School of Nursing, working under Dr. Sandler's supervision, found that perceived breast cancer risk was poorly correlated with actual risk as assessed by a commonly used clinical risk score. The team is now studying how family history of breast cancer influences lifestyle such as exercise or eating a healthy diet.

Spector D et al., *Cancer Nursing* 2009; **32**(4): 299-308.

Telomere length, current perceived stress, and urinary stress biomarkers in women.

Although levels of stress reported by women were generally low, women with higher perceived stress had shorter telomeres. Associations between telomere length and perceived stress were stronger in women age 55 and older, those with recent major losses (e.g. death of a child or spouse), and those with above average urinary stress hormone levels. The body's response to stress rather than stress per se may be more important in cellular aging.

Parks CG et al., *Cancer Epidemiology, Biomarkers & Prevention* 2009; **18**(2): 551-560.

Obesity and weight gain in adulthood and telomere length.

Being overweight or obese or having a larger hip circumference was associated with shorter telomere length. The biggest decrease in telomere length was found for women who were overweight or obese at both the time of enrollment and in their 30s compared with women who had normal weight at both times.

Kim S et al., *Cancer Epidemiology, Biomarkers & Prevention* 2009; **18**(3): 816-20.

Multivitamin use and telomere length in women.

Women who reported regular use of multivitamins had longer telomeres. Higher intake of vitamins C and E from foods was associated with longer telomeres even after taking into account multivitamin use.

Xu Q et al., *American Journal of Clinical Nutrition* 2009; **89**:1-7.

Sister Study Fellow Receives Breast Cancer Training Grant

Congratulations to Dr. Sangmi Kim, Research Fellow at NIEHS, who received a two year Postdoctoral Fellowship Award from the Breast Cancer Research Program of the Department of Defense Congressionally Directed Medical Research Program. This prestigious award will help propel Dr. Kim's career as a breast cancer researcher. In addition to receiving extensive scientific peer review, Dr. Kim's research plans were reviewed by the Human Research Protection offices at NIEHS and the funding agency, which will provide additional oversight during the two-years of the award.



Under the mentorship of Drs. Dale Sandler and Jack Taylor, Dr. Kim will study factors that influence estrogen levels in postmenopausal women and their link to breast cancer risk. Estrogens can influence breast cancer development and progression, but after menopause estrogen production by the ovaries declines and eventually stops. Even so, breast cancer risk increases after menopause. In postmenopausal women, estrogens are primarily produced by a process called aromatization in which androgens (another type of hormone) from the adrenal glands are converted into estrogens. Prostaglandin E2 (PGE2) is a compound that increases the amount of aromatase that is expressed in the body. Prostaglandins are lipid compounds that are produced from fatty acids.

Dr. Kim's research is designed to learn if the amount of PGE2 a woman has influences the amount of active estrogen that is produced and subsequent breast cancer risk in postmenopausal women. She will also study the influence of environmental and medical factors including certain nonsteroidal anti-inflammatory drugs such as Celebrex on levels of PGE2 and estrogens. Such drugs might reduce breast cancer risk but so far studies have not been consistent. Dr. Kim will measure estrogen levels and PGE2 using a very sensitive technique. Her study will include 300 postmenopausal women who developed breast cancer since joining the Sister Study and 300 postmenopausal women without breast cancer.



Two Sister Study makes great progress

The Two Sister Study, made possible with funding from Susan G. Komen for the Cure, is using a family-based approach to study risk factors for young-onset breast cancer. Sister Study participants are helping us recruit their sisters, who had a diagnosis of breast cancer before age 50, and their parents. Thanks to so many of you, recruitment is going well! So far more than 1,400 breast cancer survivor sisters have joined, with more signing up every week. Even with the disruption a breast cancer diagnosis can cause in one's life, these women are giving their time and energy to help with this project. They are making a tremendous contribution to breast cancer research and we are grateful for their efforts.

Parents provide another important piece of the puzzle. Already over 1,100 parents have agreed to provide a sample of saliva, and we hope more are on the way. DNA from the saliva we get from survivors and their parents is used to learn about genetic factors that can work with environmental factors to influence the risk of breast cancer.



In November 2009, the US Preventive Services Task Force announced revised Breast Cancer Screening Recommendations. The report received a lot of media coverage — not all of which was accurate.

The Task Force is a panel of medical experts, appointed by the Agency for Healthcare Research and Quality, to review scientific evidence for a broad range of prevention services. Their conclusions are based on analysis of data from high quality studies of the impact of screening on breast cancer mortality rates. Their recommendations apply “on average” — **women with special circumstances are advised to consult with their health care providers to decide on a screening plan that is best for them.**

Wondering about the new breast cancer screening guidelines?

The Recommendations:

The Task Force does not recommend that all women begin mammography screening at age 40. Rather, women should discuss with their physicians when to start regular screening. **Women in the Sister Study have at least one sister with breast cancer. Letting your provider know you have a family history will help them determine when you should begin regular screening.**

Did you know...?

- **About 10% of Sister Study participants reported having two or more sisters with breast cancer.**
- **About 18% reported that their mother also had breast cancer.**

In creating the guidelines, the task force considered that before age 50, women have denser breast tissue that makes mammograms less accurate, breast cancer is relatively rare in young women, and there are potential risks from extra radiation exposure and from the further testing in cases where the mammogram proves to be a false alarm.

Screening with mammograms is best for finding slow growing tumors. The sometimes fast-growing tumors diagnosed in younger women can be missed with annual screening. The Task Force did not make separate recommendations for specific groups such as African Americans, who may be at increased risk for young-onset breast cancer.

The Task Force recommended biennial (every 2 years) screening mammograms for women ages 50-74. This is slightly different from 2002 when the recommendation was for screening every 1-2 years. The Task Force concluded that there was not enough information to make a recommendation for women ages 75 and over.

The Task Force recommended against systematically teaching breast self-exam and found insufficient evidence to make a recommendation on clinical breast exams, digital mammography, or MRI. This does not mean that women should ignore changes in their breasts. However, the Task Force concluded that *self exam* can provide a false sense of security or can lead to unnecessary testing, which carries its own risks and costs. **Whatever your age, if you notice a breast lump you are advised to consult your doctor.**

For additional information on the Task Force Report see —
www.ahrq.gov/clinic/USpstf/uspsbrca.htm

For Sister Study participants with breast cancer...

It's not the news any of us wants to hear. We've gone to the doctor for our regular check-up or because we've noticed a lump or other breast problem. The medical tests show that we have breast cancer. Next come more diagnostic tests followed by treatment, along with a myriad of emotions ranging from fear to hope for a healthy future.

While most of you will never be diagnosed with breast cancer, if you are, please do contact the Sister Study to let us know. You probably joined the Sister Study because you wanted to be part of the research to find the causes of breast cancer. The information that women can share about their diagnosis and treatment is vital to this effort and also to understanding factors related to health after diagnosis.

Did you know...?

...while some sisters have been diagnosed with breast cancer, many more have reported new diagnoses of other important health conditions that affect women: ~1,250 with diabetes, ~750 with asthma, and more than 2,200 with high blood pressure.

Since the study began, more than 1,000 participants have told us they were diagnosed with breast cancer or DCIS. After allowing some months for treatment and recovery, we ask them to complete a short telephone interview and to give us permission to contact their medical providers. With permission, we ask providers for copies of the medical records pertaining to diagnosis and treatment and for a small sample of the breast tissue that is usually saved from the biopsy or surgery. Just as no two sisters in our study are exactly alike, neither are tumors. These records and the tissue sample are often the most detailed and accurate sources of information about the specific characteristics of the cancer. These details may hold the clues to why some women get breast cancer while others do not, and whether certain kinds of tumor are caused by specific exposures. We may also learn a great deal about factors that contribute to a healthy recovery after treatment. Most providers have been happy to give us this information with permission from their patient.



The on-going participation of all women is key to the success of the Sister Study.

We hope that all participants, including those diagnosed with breast cancer and other health conditions, will stay in the study for the long-term. This study is about your health. If you have been diagnosed with breast cancer or experienced other major changes in your health, please let us know by returning the Annual Updates (or the more detailed questionnaires if it is your turn to do that) or calling us at our toll free number, 1-877-4SISTER. If your health is good, it is also important that you let us know that, by filling out the Update forms. Thanks for keeping in touch and contributing to this research effort.

Q&A: from our mailbox...

How does the Sister Study use my address information? Your addresses are kept confidential. We use your current address information to stay in touch with you. We also assign a “geocode” (longitude and latitude coordinates) for each of the residences we asked you about. We can then link this location code to information about neighborhoods or to environmental databases, such as air pollution monitoring data, to help us study environmental factors related to health.

Why is the Sister Study asking about stressful personal experiences? Some women experience stressful events at different times in their lives. When we were planning the Sister Study, many women in focus groups told us they thought stress affects their health. Some research supports this, and the questions we ask will help us study this possibility. We hope you will complete the stress questionnaire — if you do not want to answer a specific question you can simply skip it. All of the information we collect is kept confidential.

When will we see new results on environmental and genetic risk factors for breast cancer? Prospective research studies take a long time. It took 5 years to enroll all women into the study. Information on newly developed breast cancer and other health changes comes from the annual updates and biennial questionnaires. Women who enrolled in 2004 have had several years to share information on changes in their health. Women who enrolled in 2009 will be getting an annual update for the first time this year.

We have been busy putting the information from your questionnaires and forms into data files for statistical analyses. Data on all 50,844 of you should finally be assembled later this summer.

We are now carrying out some small studies of specific genetic and lifestyle factors by comparing the first participants diagnosed with breast cancer to women who do not have breast cancer. In the coming years we will conduct large studies of the combined effects of genes and environment. Fortunately breast cancer is still a relatively rare disease, but this means it may be several years before we can carry out these sorts of studies.



NIEHS Sister Study Research Team Honored

In September 2009, Dale Sandler received the NIH Director’s Scientific Medical Award for her role as Principal Investigator of the Sister Study. And then in December, the Sister Study team of NIEHS scientists received the prestigious National Institutes of Health Award of Merit for innovation and creativity in designing and implementing the Sister Study and working as a team to achieve the goal of enrolling 50,000 women. This award is given to scientists who make meritorious contributions to the mission of the National Institutes of Health. We are proud of these awards and share the Sister Study’s success with all of our participants, volunteers and supporters!

Pictured above: Drs. Jack Taylor, Dale Sandler, Lisa DeRoo, Clarice Weinberg, Stephanie London, and Paula Juras.

Meeting Tom Joyner!



Tom Joyner was in town promoting the Census 2010, so Sister Study recruiters Lourdes and Carrissa went to meet him and tell him “Thanks” in person for all the great recruitment work he’s done for the study.

Behind the scenes at the Sister Study...

Every year we send out thousands of annual update requests, questionnaires, newsletters, letters and cards, and responses to your phone calls and emails. Staying in touch with each of you for the duration of the study, answering your questions, and keeping track of your updates are important to us.

Keeping up with all these mailings and making sure your questionnaires and forms are received is no small task. A small but dedicated staff makes this all happen...



Mailings

Shielvonda tracks forms returned to the study office.



Susie oversees study mailings.



HelpDesk

Jamie makes sure all HelpDesk questions are answered.

Kymoni, Alana, and Teresa answer your HelpDesk calls.



Data Processing

Irina oversees data processing and helps develop new forms.



Maria, Sharon, Susan, Gareth, and Metria process data collected from participants.



Managers

Ans, Irina, Lourdes, David, Polly, Marsha, Julia, and Cindy each manage a different segment of the study.

Sister Study at the White House!

WHITE HOUSE HONORS INCLUDE SISTER STUDY VOLUNTEERS

On October 23, 2009 three dedicated Sister Study supporters were among breast cancer survivors and advocates honored at the White House by First Lady Michelle Obama and Dr. Jill Biden. Pink ribbons adorned White House columns during the Breast Cancer Awareness Month observance, as Mrs. Obama stressed the importance of early detection, health insurance reform, and funding for research. The First Lady applauded honorees for their passion and hard work to raise money and awareness



to fight breast cancer and for “lifting the veil off of this disease” by sharing their stories. Congratulations to Wish Martin, Vernal Branch (not pictured) and Venus Ginés on this remarkable tribute!



Photographs: Wish Martin (left photo) and Venus Ginés (right photo) with First Lady Michelle Obama

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