

# PATHWAYS

## A Study of Breast Cancer Survivorship

A NEWSLETTER FOR STUDY PARTICIPANTS

Summer 2015

### Breastfeeding may reduce risk of breast cancer recurrence; tumor type also influences outcomes

Marilyn Kwan, Ph.D., Pathways Study Co-Investigator



Women diagnosed with breast cancer who previously breastfed had a 30% overall decreased risk of the disease recurring, and the protective effect of breastfeeding was more pronounced for tumors of particular genetic subtypes, according to a new study published in

the *Journal of the National Cancer Institute*.

“This is the first study we’re aware of that examined the role of history of breastfeeding in cancer recurrence, and by tumor subtype,” said Marilyn L. Kwan, PhD, research scientist with the Kaiser Permanente Division of Research and lead author of the study.

The researchers conducted a study of 1,636 women with breast cancer who participated in the Pathways and Life After Cancer Epidemiology (LACE) studies of breast cancer survivorship at Kaiser Permanente Northern California. Study participants completed a questionnaire that included breastfeeding history, and additional medical data were obtained from chart reviews and HealthConnect, Kaiser Permanente’s comprehensive electronic health record.

The genetic makeup of the women’s breast tumors was subtyped using a gene expression assay called the PAM50, which classifies breast tumors into distinct subtypes based on 50 genes that are associated with predicting breast cancer outcomes.

The study determined that the benefits of breastfeeding on prognosis were strongest among women who were diagnosed with the luminal A subtype of breast cancer, while no significant associations were observed for those with other subtypes. Luminal A tumors include the estrogen-receptor positive (ER+) breast tumors, which are the most commonly diagnosed of all breast cancers; they are less likely to metastasize, are treatable with hormonal therapy such as tamoxifen and aromatase inhibitors (e.g., Arimidex®, Aromasin®, and Femara®), and generally have better prognosis.

During the 9-year follow-up period, which ended in mid-2014, researchers identified 383 recurrences and 290 deaths from breast cancer in the study population. In addition to decreased risk of recurrence, women who breastfed were also 28% less likely to die from the disease.

There are a number of possible explanations for why breastfeeding could be associated with a better prognosis once a woman is diagnosed with



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breast cancer. “Women who breastfeed are more likely to get the luminal A subtype of breast cancer that is less aggressive, and breastfeeding may set up a molecular environment that makes the tumor more responsive to anti-estrogen therapy,” Kwan said.

It is not entirely clear why women who breastfeed develop less aggressive tumors. “Breastfeeding may increase the differentiation of ductal cells in the breast, making them less susceptible to carcinogens or facilitate the excretion of carcinogens, and lead to slower growing tumors,” explained Bette J. Caan, DrPH, senior research scientist with the Kaiser Permanente Division of Research and senior author of the study.



It is well established that breastfeeding is great for babies, Kwan noted, and research is now showing that it also has benefits for moms. “In fact, the protection was even stronger for women who had a history of breastfeeding for 6 months or more.”

This study was funded by the National Institutes of Health, with additional support from the Huntsman Cancer Institute. ✖

## PATHWAYS STAFF

### Wendy Sun



Wendy Sun was a Chinese bilingual senior research assistant for Pathways since 2010. Wendy left in August 2014 to pursue a Master’s degree in the School of Public Health at University of Minnesota.

She is currently working on a graduate school project about patient care quality improvement and innovations in population health at UCSF. She is thankful for the kindness of all the Pathways participants she spoke with over the years, and continues to be inspired by their determination. When not studying, she enjoys writing, music, and hiking.

### Virginia Pozo

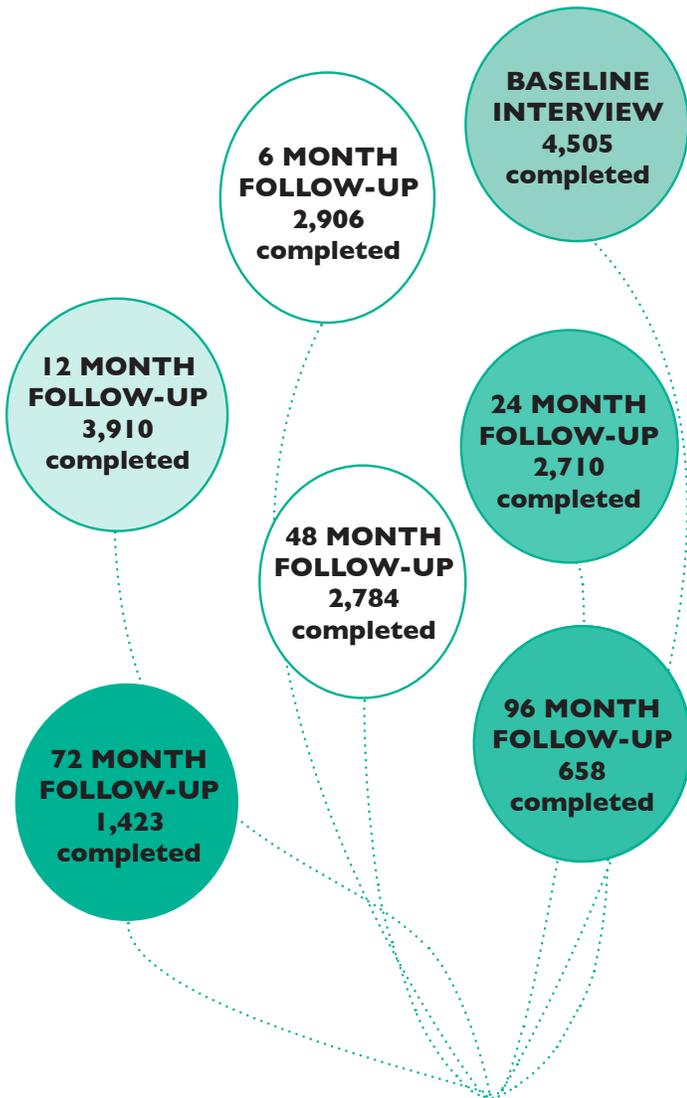
Virginia Pozo has been with the Pathways Study since 2006. If you live in San Francisco or the greater Peninsula you might have met her during your Baseline Interview. She is now doing the 48-month Health Status Update calls.

This last year Virginia and her husband Rick welcomed baby Maria Isabel into their family.





## Pathways Update: Who is Participating?



We are grateful for your role in the Pathways. All of you add meaning and diversity to our team, and contribute your unique perspective to the information we are gathering. Thank you for participating! ❏

For the most up to date information on the Pathways Study, please visit our website:  
<http://pathways.kaiser.org> ❏

**New Contact Information?**  
In order to keep in touch with you we must have your latest contact information. Please let us know if your phone number or home address has changed. You can reach us by calling our toll-free number:  
**1-866-206-2979.** ❏



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