

# Addressing lung cancer disparities in nonsmoking Asian women

Written and designed by Mari Flores, Staff Writer

According to the National Library of Medicine, lung cancer is the leading cause of cancer-related deaths globally. The disease accounts for about 1.6 million deaths annually, and almost a quarter of cancer-related deaths in the United States.

Nonsmoking Asian women face disproportionate rates of lung cancer compared to other demographics. Despite this, a variety of factors are creating barriers between the affected group and the research needed to address the issue.

In the United States, about 89% of all lung cancer cases are related to smoking, with the majority occurring in men. However, while the disease is becoming less common in the male population due to a general decline in smoking, lung cancer remains just as prevalent for women.

In the Bay Area, women make up over 70% of all lung cancer patients. “We think one of the reasons why [lung cancer in women] is not going down ... is that it’s being driven by nonsmoking women with lung cancer,” said Dr. Jeffrey Velotta in an interview with The Urban Legend. Dr. Velotta is a thoracic surgeon at Kaiser Permanente in Oakland and also works as a study investigator for the Female Asian Never Smokers (FANS) study.

According to Dr. Velotta, the current lung cancer epidemic is considerably more prevalent in Asian women than in other female demographics. Fifty-seven percent of all Asian women diagnosed with lung cancer have never smoked. Asian women experience a rate almost four times that of overall female nonsmoking lung cancer cases in the United States, which stands at about 15%.

“These [disparities faced by Asian women] have actually been known [since] the early 2000s,” said Dr. Velotta. “We knew that there was something going on where there was lung cancer happening in Asian nonsmoking women. But it really wasn’t brought to the forefront.”

The past five to seven years have shown a slow uptick in lung cancer incidence of about 2% annually for nonsmoking Asians — both men and women. Such an increase was not seen in any other demographic. “Asian nonsmokers have an increased incidence ... and higher prevalence of lung cancer,” said Dr. Velotta.

In 2021, a group of oncologists, epidemiologists and other professionals from

Stanford University, the University of California Davis (UC Davis) and the University of California San Francisco (UCSF) collaborated to conduct the FANS study. FANS is a population-based case-control study, comparing data from 1,200 Asian females with the goal of determining why nonsmoking Asian females are disproportionately affected by lung cancer.

Half of the study’s participants are those who have been recently diagnosed with lung cancer and are referred to as the active group, while the other half, the control group, are cancer-free. However, because of issues with recruiting participants for the study, the FANS team isn’t currently able to use the collected data to draw any conclusions as to why so many seemingly healthy Asian women are falling ill.

“There needs to be 600 controls as well as 600 of the people who have the cancer,” said Dr. Scarlett Lin Gomez in an interview with The Urban Legend. Dr. Gomez is a UCSF Department of Epidemiology and Biostatistics professor, co-leader of the Cancer Control Program at the UCSF Helen Diller Family Comprehensive Cancer Center and FANS study investigator.

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The FANS team collects data from participants by having them fill out a 45-minute survey and provide a small saliva sample. The information gathered through the survey and saliva sample helps the team explore potential links between lung cancer and environmental or genetic factors. However, only a specific group of people qualify for the study. All participants must be Asian women between the ages of 21 and 90 who have never smoked and are living in the Bay Area, Sacramento or Southern California.

For those with lung cancer, another requirement may present a challenge: they must have received their lung cancer diagnosis within 18 months of entering the study. The time window, which was originally only nine months, helps the study avoid survival bias — a disproportionate representation of affected individuals who live longer — in the data they collect.

Dr. Heather Wakelee is the Deputy Director of the Stanford Cancer Institute and Stanford University School of Medicine

Division Chief of Medical Oncology, past president and current member of the International Association for the Study of Lung Cancer (IASLC) Board of Directors and FANS study investigator. “There’s a lot of personal burden when someone is dealing with cancer,” said Dr. Wakelee in an interview with The Urban Legend. “[The patient is] just trying to figure out how to get to their next appointment and do all of these things. ... a lot of people just feel like they can’t do it [all].”

Even if they meet all of the criteria, potential FANS study participants may face other issues. “Even though ... we have bilingual interviewers [who speak] Mandarin, Cantonese, Vietnamese, Tagalog, Korean, we are still missing people due to language barriers,” said Dr. Gomez. “[The Asian American community [is] such a large, diverse population — more than 100 languages are spoken, let alone dialects. We can’t capture everything. ... We’re still going to miss people.”

While the study is currently focused on recruiting all 600 participants for both the active and control groups, there are additional factors that need to be considered in the recruiting process.

“We’re concerned not only about getting the 600 cases and controls, but we’re also concerned with making sure that those who enroll [in the study] are [fully] representative [of the demographic we are studying],” said Dr. Gomez. She noted that this includes all nonsmoking Asian American females who have been diagnosed with lung cancer as well as those who have the potential to get the disease.

Because the Asian population is so diverse, it can be difficult to maintain the statistical robustness necessary for a study such as FANS. “A rate is the number of [cases of a disease] that occur in a population divided by how many people are in that population,” said Dr. Gomez. “In order to calculate an incidence rate for a county, for example, the denominator cannot be less than 10,000 ... but the rule for cancer surveillance is that we need at least 15 people in the numerator. ... So if we don’t have enough [there] then we also cannot calculate a rate.”

According to Dr. Gomez, these requirements are used by all cancer surveillance and registry programs in the United States. As a result, some ethnicities with fewer recorded lung cancer cases, such as Filipinos or Mang Chinese, cannot be reported without combining data from other groups. This is challenging for the FANS study, as its team tries

to avoid lumping together the smaller groups within the Asian American population in order to better represent its diversity.

In combination with the restrictive nature of the study’s design, yet another challenge arises regarding participant recruitment: socioeconomic status. “The misconception is that, when a lot of people think of Asians, [they think of] the Model Minority myth — that they’re all well-educated and that of course they’re going to [participate in] a study, and of course they speak English,”



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said Dr. Velotta. “[People assume that Asians going to be a lawyer or a doctor, but no. There’s such a wide spectrum of Asians that are getting lung cancer; it’s from the very rich and the in-between.”

Assumptions about socioeconomic status, education and English proficiency may deter potential FANS study participants. “Asian Americans do tend to be more reluctant to participate in health research,” said Dr. Gomez. “In some groups, there may be preconceptions or maybe even historical injustices about participating in research ... but I think it’s on us as researchers to address that going forward.”

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According to Dr. Gomez, participation in health research has decreased dramatically over the years. In the past, upwards of 70% of people who were approached to participate in medical studies would agree to take part in them. Now, she said, 3% is considered lucky.

“With lung cancer, there’s a lot of stigma,” said Dr. Wakelee. “There is the association with smoking — many people have been afraid to talk about lung cancer because there’s a sense of ‘Oh, you caused it to yourself.’”

In 2013, the U.S. Preventive Services Task Force (USPSTF) and other organizations recommended lung cancer screening for current and past smokers considered to be at a high risk for the disease. Two years later, the Centers for Medicare and Medicaid Services (CMS) officially approved low-dose computed tomogra-

phy (LDCT) scans for lung cancer screening, but only in high-risk individuals who met specific eligibility criteria.

Young nonsmokers do not qualify for CT lung cancer screening. To qualify for screening, one must be between the ages of 55 and 77, asymptomatic, a current smoker or one who has quit within the last 15 years and have a tobacco smoking history of at least 30 pack-years. (According to CMS, smoking one pack — 20 cigarettes — per day is equal to one pack-year.)

While the eligibility criteria for CT cancer screening can heavily impact the diagnosis and treatment trajectory of those who are not considered high-risk, there is reason for its specificity. “As a society, we tend to be an over-diagnosing, over-treating place,” said Dr. Wakelee. “It’s challenging because when you hear the stories about a person who had lung cancer that got missed, it always seems like, ‘How could that possibly happen?’ But we don’t emphasize the stories of people who got multiple CT scans they never needed.”

The images taken through CT scans are highly effective for detecting lung cancer. However, since even low-dose CT scans involve significantly more radiation exposure than an x-ray, there are both risks and benefits to be taken into account.

According to Harvard Health, in the context of medical imaging, radiation is often measured in units called millisieverts (mSv), which take into account the biological effect of radiation. While a chest x-ray has an average effective radiation dose of about 0.1 mSv, a CT scan of the chest has an average effective radiation dose of about 7 mSv.

For comparison, the average person is exposed to about 3 mSv per year of “background radiation,” which comes from natural sources such as cosmic radiation from the sun.

Because CT cancer screening is reserved for a specific group of people, many of the Asian women who are diagnosed with lung cancer are diagnosed at a later stage, making their cancer more difficult to treat and lowering the chances of survival.

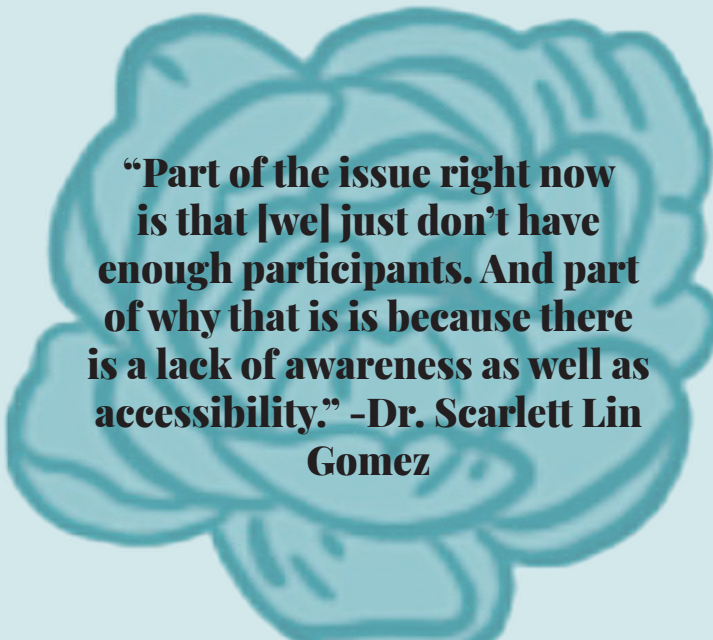
survival.

“A lot of the patients that have stage four lung cancer are Asian females,” said Dr. Velotta. “They’re being diagnosed later when they should have been diagnosed two years before.”

Encouraging people to seek help for medical issues such as potential lung cancer can prove complicated, particularly when it comes to cases in which an individual lacks the usual risk factors. While there are people who fall ill unexpectedly, it is also important to try to differentiate between such cases and those where individuals — especially those who are more privileged — push for procedures or tests they don’t truly need.

There are several factors that play into an individual’s ability to receive a diagnosis and

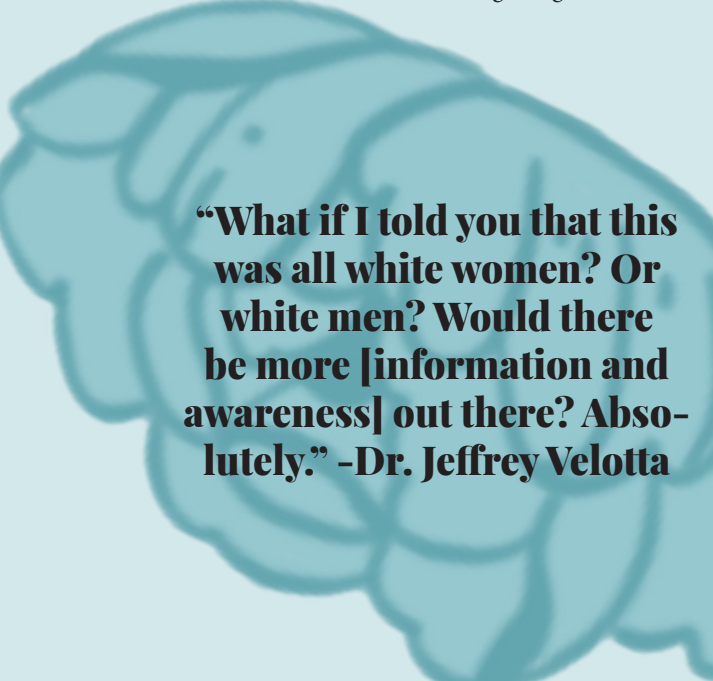
Visual credit: Mari Flores.



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treatment, including the biases present in both the medical world and the general population. The FANS team hopes that by raising awareness and conducting the research needed to address lung cancer disparities in the nonsmoking Asian female population, their study will help to reduce the number of missed cases and facilitate advances in lung cancer prevention and treatment.

“What if I told you this was all white women? Or white men? Would there be more [information and awareness] out there?” said Dr. Velotta. “Absolutely. And what if I told you that Black men were getting this? I think there would be even less than what we’re getting for Asians.”



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