A Hidden Health Disparity: Lung Cancer among Asian American Females who Never Smoke

by Scarlett Lin Gomez, PhD
Iona Cheng, PhD
Heather Wakelee, MD

University of California, San Francisco & Stanford University

2/22/2022

This Community Health Talk Series was made possible through the generous support of the Vincent V.C. Woo Memorial Foundation.
Lung cancer is a leading cause of **cancer mortality** among AA populations

Rank (based on age-adj mortality rate) & % (of all cancer deaths) of top 5 cancer sites, 1990-2008

<table>
<thead>
<tr>
<th>Male (rank)</th>
<th>Asian Indian</th>
<th>Chinese</th>
<th>Filipino</th>
<th>Japanese</th>
<th>Korean</th>
<th>Vietnamese</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lung 19.0%</td>
<td>Lung 28.13%</td>
<td>Lung 30.7%</td>
<td>Lung 23.9%</td>
<td>Lung 22.8%</td>
<td>Lung 28.1%</td>
</tr>
<tr>
<td>2</td>
<td>Colorectal 8.3%</td>
<td>Liver 11.7%</td>
<td>Colorectal 10.8%</td>
<td>Colorectal 13.1%</td>
<td>Stomach 14.6%</td>
<td>Liver 22.3%</td>
</tr>
<tr>
<td>3</td>
<td>Prostate 8.1%</td>
<td>Colorectal 10.4%</td>
<td>Prostate 8.9%</td>
<td>Prostate 8.9%</td>
<td>Liver 12.9%</td>
<td>Colorectal 7.9%</td>
</tr>
<tr>
<td>4</td>
<td>Pancreas 7.0%</td>
<td>Stomach 6.5%</td>
<td>Liver 7.6%</td>
<td>Stomach 8.8%</td>
<td>Colorectal 11.0%</td>
<td>Stomach 6.5%</td>
</tr>
<tr>
<td>5</td>
<td>Leukemia 6.3%</td>
<td>Pancreas 5.9%</td>
<td>Pancreas 5.7%</td>
<td>Pancreas 8.4%</td>
<td>Pancreas 7.4%</td>
<td>Pancreas 4.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Female (rank)</th>
<th>Asian Indian</th>
<th>Chinese</th>
<th>Filipino</th>
<th>Japanese</th>
<th>Korean</th>
<th>Vietnamese</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Breast 19.8%</td>
<td>Lung 22.2%</td>
<td>Breast 19.5%</td>
<td>Lung 21.4%</td>
<td>Lung 18.5%</td>
<td>Lung 21.7%</td>
</tr>
<tr>
<td>2</td>
<td>Ovary 9.7%</td>
<td>Breast 11.8%</td>
<td>Lung 18.1%</td>
<td>Colorectal 12.9%</td>
<td>Stomach 11.6%</td>
<td>Breast 10.3%</td>
</tr>
<tr>
<td>3</td>
<td>Lung 9.3%</td>
<td>Colorectal 11.9%</td>
<td>Colorectal 9.0%</td>
<td>Breast 10.7%</td>
<td>Colorectal 11.4%</td>
<td>Colorectal 9.6%</td>
</tr>
<tr>
<td>4</td>
<td>Colorectal 6.8%</td>
<td>Pancreas 7.2%</td>
<td>Pancreas 6.7%</td>
<td>Pancreas 9.6%</td>
<td>Pancreas 8.2%</td>
<td>Liver 9.3%</td>
</tr>
<tr>
<td>5</td>
<td>Pancreas 5.9%</td>
<td>Stomach 5.4%</td>
<td>Ovary 6.0%</td>
<td>Stomach 6.5%</td>
<td>Liver 7.2%</td>
<td>Stomach 6.3%</td>
</tr>
</tbody>
</table>

Lung cancer is a leading cause of **cancer mortality** among AA populations.

### Rank (based on age-adj mortality rate) & % (of all cancer deaths) of top 5 cancer sites, 1990-2008

<table>
<thead>
<tr>
<th>Male (rank)</th>
<th>Asian Indian</th>
<th>Chinese</th>
<th>Filipino</th>
<th>Japanese</th>
<th>Korean</th>
<th>Vietnamese</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lung 19.0%</td>
<td>Lung 28.13%</td>
<td>Lung 30.7%</td>
<td>Lung 23.9%</td>
<td>Lung 22.8%</td>
<td>Lung 28.1%</td>
</tr>
<tr>
<td>2</td>
<td>Colorectal 8.3%</td>
<td>Liver 11.7%</td>
<td>Colorectal 10.8%</td>
<td>Colorectal 13.1%</td>
<td>Stomach 14.6%</td>
<td>Liver 22.3%</td>
</tr>
<tr>
<td>3</td>
<td>Prostate 8.1%</td>
<td>Colorectal 10.4%</td>
<td>Prostate 8.9%</td>
<td>Prostate 8.9%</td>
<td>Liver 12.9%</td>
<td>Colorectal 7.9%</td>
</tr>
<tr>
<td>4</td>
<td>Pancreas 7.0%</td>
<td>Stomach 6.5%</td>
<td>Liver 7.6%</td>
<td>Stomach 8.8%</td>
<td>Colorectal 11.0%</td>
<td>Stomach 6.5%</td>
</tr>
<tr>
<td>5</td>
<td>Leukemia 6.3%</td>
<td>Pancreas 5.9%</td>
<td>Pancreas 5.7%</td>
<td>Pancreas 8.4%</td>
<td>Pancreas 7.4%</td>
<td>Pancreas 4.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Female (rank)</th>
<th>Asian Indian</th>
<th>Chinese</th>
<th>Filipino</th>
<th>Japanese</th>
<th>Korean</th>
<th>Vietnamese</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Breast 19.8%</td>
<td>Lung 22.2%</td>
<td>Breast 19.5%</td>
<td>Lung 21.4%</td>
<td>Lung 18.5%</td>
<td>Lung 21.7%</td>
</tr>
<tr>
<td>2</td>
<td>Ovary 9.7%</td>
<td>Breast 11.8%</td>
<td>Lung 18.1%</td>
<td>Colorectal 12.9%</td>
<td>Stomach 11.6%</td>
<td>Breast 10.3%</td>
</tr>
<tr>
<td>3</td>
<td>Lung 9.3%</td>
<td>Colorectal 11.9%</td>
<td>Colorectal 9.0%</td>
<td>Breast 10.7%</td>
<td>Colorectal 11.4%</td>
<td>Colorectal 9.6%</td>
</tr>
<tr>
<td>4</td>
<td>Colorectal 6.8%</td>
<td>Pancreas 7.2%</td>
<td>Pancreas 6.7%</td>
<td>Pancreas 9.6%</td>
<td>Pancreas 8.2%</td>
<td>Liver 9.3%</td>
</tr>
<tr>
<td>5</td>
<td>Pancreas 5.9%</td>
<td>Stomach 5.4%</td>
<td>Ovary 6.0%</td>
<td>Stomach 6.5%</td>
<td>Liver 7.2%</td>
<td>Stomach 6.3%</td>
</tr>
</tbody>
</table>

Lung Cancer Incidence in AANHPI females

- AANHPI diverse population
- Lung cancer incidence varies widely across AANHPI groups
- In select case series: >50% of lung cancer cases in AANHPI females are never smokers
  - In contrast to 15% of lung cancer among all U.S. females
- Until now, no sufficiently large data source to document incidence by detailed race/ethnicity and smoking status

AANHPI = Asian American, Native Hawaiian, Pacific Islander
A multilevel, integrative approach

Cohort members
N = 2,211,476
(Females N=1,275,838; Males N=935,638)

EHR data extraction & harmonization
Sociodemographic factors
Known and putative risk factors

EHR data
Sutter Health
Northern CA

EHR data
Kaiser Permanente
Hawai‘i

R01 CA204070 Gomez/Cheng
A multilevel, integrative approach

Cohort members
N = 2,211,476
(Females N=1,275,838; Males N=935,638)

Geospatial measures assigned
- Neighborhood SES and ethnic enclave
- Particulate matter exposures (PM2.5 and PM10) and traffic density calculated (Sutter only)

EHR data
Sutter Health
Northern CA

EHR data
Kaiser Permanente
Hawai‘i

EHR data extraction & harmonization
Sociodemographic factors
Known and putative risk factors

R01 CA204070 Gomez/Cheng
A multilevel, integrative approach

**Cohort members**
N = 2,211,476
(Females N=1,275,838; Males N=935,638)

**EHR data**
Sutter Health Northern CA

**EHR data**
Kaiser Permanente Hawai‘i

**EHR data extraction & harmonization**
- Sociodemographic factors
- Known and putative risk factors

**Geospatial measures assigned**
- Neighborhood SES and ethnic enclave
- Particulate matter exposures (PM2.5 and PM10) and traffic density calculated (Sutter only)

**State cancer registry linkage**

**Lung cancer cases**
N = 7274
(Females N=3867; Males N=3407)

**Tumor factors (from registries)**

R01 CA204070 Gomez/Cheng
## Cohort description – Female lung cancer cases (N=3867)

<table>
<thead>
<tr>
<th>Category</th>
<th>Cases (N)</th>
<th>Never (LCINS)</th>
<th>Ever</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>AANHPI</td>
<td>613</td>
<td>38%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>NHPI</td>
<td>201</td>
<td>14%</td>
<td>53%</td>
<td>32%</td>
</tr>
<tr>
<td>Native Hawaiian</td>
<td>160</td>
<td>14%</td>
<td>50%</td>
<td>36%</td>
</tr>
<tr>
<td>Other Pacific Islander</td>
<td>41</td>
<td>20%</td>
<td>58%</td>
<td>22%</td>
</tr>
<tr>
<td>Asian</td>
<td>412</td>
<td>50%</td>
<td>79%</td>
<td>7%</td>
</tr>
<tr>
<td>Chinese</td>
<td>75</td>
<td>24%</td>
<td>53%</td>
<td>23%</td>
</tr>
<tr>
<td>Filipina</td>
<td>80</td>
<td>24%</td>
<td>53%</td>
<td>22%</td>
</tr>
<tr>
<td>Japanese</td>
<td>74</td>
<td>24%</td>
<td>53%</td>
<td>22%</td>
</tr>
<tr>
<td>Other Asian (single group)</td>
<td>67</td>
<td>24%</td>
<td>53%</td>
<td>22%</td>
</tr>
<tr>
<td>Multiple Asian</td>
<td>116</td>
<td>40%</td>
<td>58%</td>
<td>3%</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>1489</td>
<td>21%</td>
<td>58%</td>
<td>21%</td>
</tr>
<tr>
<td>Black</td>
<td>91</td>
<td>14%</td>
<td>38%</td>
<td>48%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>81</td>
<td>14%</td>
<td>38%</td>
<td>48%</td>
</tr>
</tbody>
</table>
Cohort description – Female lung cancer cases (N=3867)

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>Never (LCINS)</th>
<th>Ever</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>AANHPI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHPI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native Hawaiian</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Pacific Islander</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filipina</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japanese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Asian (single group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple Asian</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cases (N):
- AANHPI: 613
- NHPI: 201
- Native Hawaiian: 160
- Other Pacific Islander: 41
- Asian: 412
- Chinese: 75
- Filipina: 80
- Japanese: 74
- Other Asian (single group): 67
- Multiple Asian: 116
- Non-Hispanic White: 1489
- Black: 91
- Hispanic: 81
Incidence of Lung Cancer Among Never-Smoking Asian American, Native Hawaiian, and Pacific Islander Females

Mindy C. DeRouen, PhD, MPH,1,2,* Alison J. Canchola, MS,1,3 Caroline A. Thompson,4,5,6 PhD, MPH,6 Anqi Jin, PhD,6 Sixiang Nie, MS,7 Carmen Wong, MBA,7 Daphne Lichtensztajn, MD, MPH,1,3 Laura Allen, BA,1 Manali I. Patel, MD, MPH,8 Yihe G. Daida, PhD, MS,7 Harold S. Luft, PhD,6 Salma Shariff-Marco, PhD, MPH,1,2,3 Peggy Reynolds, PhD, MPH,1,2 Heather A. Wakelee, MD,9 Su-Ying Liang, PhD,6 Beth E. Waitzfelder, PhD,7 Iona Cheng, PhD, MPH,1,2,3 Scarlett L. Gomez, PhD, MPH1,2,3
Incidence of lung cancer among females never smokers are 2 times higher in AANHPI compared to NH White

<table>
<thead>
<tr>
<th></th>
<th>AAIR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AANHPI</td>
<td>17.1</td>
<td>(14.9, 19.4)</td>
</tr>
<tr>
<td>NHPI</td>
<td>15.2</td>
<td>(10.2, 21.2)</td>
</tr>
<tr>
<td>Native Hawaiian</td>
<td>16.7</td>
<td>(10.5, 24.3)</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>~</td>
<td></td>
</tr>
<tr>
<td>Asian American</td>
<td>17.5</td>
<td>(15.0, 20.2)</td>
</tr>
<tr>
<td>Chinese American</td>
<td>22.8</td>
<td>(17.3, 29.1)</td>
</tr>
<tr>
<td>Filipinx American</td>
<td>20.1</td>
<td>(14.1, 27.1)</td>
</tr>
<tr>
<td>Japanese American</td>
<td>6.4</td>
<td>(3.6, 10.0)</td>
</tr>
<tr>
<td>Other Asian (single group)</td>
<td>20.3</td>
<td>(13.4, 28.5)</td>
</tr>
<tr>
<td>Asian multiple</td>
<td>22.2</td>
<td>(16.1, 29.3)</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>10.1</td>
<td>(9.0, 11.3)</td>
</tr>
<tr>
<td>Black</td>
<td>~</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>8.5</td>
<td>(5.7, 11.8)</td>
</tr>
<tr>
<td>Non-AANHPI multiple races</td>
<td>~</td>
<td></td>
</tr>
<tr>
<td>Unknown/Missing</td>
<td>18.1</td>
<td>(15.9, 20.4)</td>
</tr>
</tbody>
</table>

DeRouen et al. Incidence of Lung Cancer Among Never Smoking Asian American, Native Hawaiian, and Pacific Islander Females JNCI 2021
Incidence of lung cancer among females never smokers are 2 times higher in AANHPI compared to NH White

<table>
<thead>
<tr>
<th>Group</th>
<th>AAIR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AANHPI</td>
<td>17.1</td>
<td>(14.9, 19.4)</td>
</tr>
<tr>
<td>NHPI</td>
<td>15.2</td>
<td>(10.2, 21.2)</td>
</tr>
<tr>
<td>Native Hawaiian</td>
<td>16.7</td>
<td>(10.5, 24.3)</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>~</td>
<td></td>
</tr>
<tr>
<td>Asian American</td>
<td>17.5</td>
<td>(15.0, 20.2)</td>
</tr>
<tr>
<td>Chinese American</td>
<td>22.8</td>
<td>(17.3, 29.1)</td>
</tr>
<tr>
<td>Filipinx American</td>
<td>20.1</td>
<td>(14.1, 27.1)</td>
</tr>
<tr>
<td>Japanese American</td>
<td>6.4</td>
<td>(3.6, 10.0)</td>
</tr>
<tr>
<td>Other Asian (single group)</td>
<td>20.3</td>
<td>(13.4, 28.5)</td>
</tr>
<tr>
<td>Asian multiple</td>
<td>22.2</td>
<td>(16.1, 29.3)</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>10.1</td>
<td>(9.0, 11.3)</td>
</tr>
<tr>
<td>Black</td>
<td>~</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>8.5</td>
<td>(5.7, 11.8)</td>
</tr>
<tr>
<td>Non-AANHPI multiple races</td>
<td>~</td>
<td></td>
</tr>
<tr>
<td>Unknown/Missing</td>
<td>18.1</td>
<td>(15.9, 20.4)</td>
</tr>
</tbody>
</table>

DeRouen et al. Incidence of Lung Cancer Among Never Smoking Asian American, Native Hawaiian, and Pacific Islander Females JNCI 2021
Incidence rates of lung cancer in female never-smokers

• Highest among Asian American females
  – Chinese: 22.8 cases per 100,000, other Asian American females ~ 20
  – Exception is Japanese females: 6.4
• Slightly lower in Native Hawaiian and Pacific Islander females: 17.1
• Non-Hispanic White females: 10.1
• Hispanic females: 8.5

→ Incidence rates about 2 times higher in most Asian American female never-smokers, relative to non-Hispanic White female never-smokers.
Ongoing work (R01 CA204070)

Risk analysis in six exposure domains

1. Smoking
2. Previous lung disease
3. Infectious disease
4. Reproductive factors
5. Body size
6. Environment
   - Air pollution
   - Neighborhood

Electronic Health Records

Geocoded residential address
Linked to PM2.5 & neighborhood factors

Machine learning – iterative random forests (M. DeRouen)
Joint contributions of multilevel factors to LCINS risk
Elucidating lung cancer etiology among Asian American female never smokers

Funded by the National Institute of Minority Health and Health Disparities

R01MD014859-01

Scarlett Gomez (UCSF), Moon Chen (UC Davis), Iona Cheng (UCSF)
FANS Study Team

UCSF
- Salma Shariff-Marco
- Mindy DeRouen
- Peggy Reynolds
- Mi-Ok Kim
- Christine Duffy
- Debby Oh
- Valerie McGuire
- Janice Seto
- Kathie Lau
- Mei Chin Kuo
- Michelle Wadhwa
- Annie Zhou
- Zinnia Loya
- Esperanza Castillo

UC Davis
- Moon Chen
- Cliff Tepper

Stanford
- Heather Wakelee

Community/Patient Advisory Committee (CPAC)
- Joyce Cheng
- Kim Rhoads
- Lei-Chun Fung
- Wil Yu
- Roxanna Bautista
- Mickie Grace
- Amita Jain
- Heather Law
- Victoria Ni
- Michael Sigua
- Trish Hom
- Cindy Ng
FANS Study: Aims

• Identify the attributable risk of known, putative, and suspected multi-level risk factors, over the lifecourse, for lung cancer among Asian American female never smokers
  a) genetic ancestry;
  b) individual-level exposures;
  c) contextual-level risk factors including indoor and ambient air pollutants and social environment

• Characterize mutational landscape in lung tumors & identify associated multi-level risk factors
Study design overview

- Population-based case-control study
  - 600 cases
    - Newly-diagnosed, past 12 months
    - Living in the Greater Bay Area
    - Mostly identified via Early Case Ascertainment from Greater Bay Area Cancer Registry (9 Bay Area counties)
    - Expect ~ 300 Chinese, 100 Filipina, 90 Vietnamese
  - 600 matched (age, Asian ethnicity) controls
    - Multiple sources per our prior approach
      - Directories, community outreach, health centers, religious centers, online (advertisement, social networks, Craigslist), ethnic media, etc.
What we ask of FANS study participants?

• Women with lung cancer
  • Survey (interviewer-administered by phone, online, paper)
  • Saliva sample
  • Authorization for study team to access tumor tissue

• Women without lung cancer
  • Survey (interviewer-administered by phone, online, paper)
  • Saliva sample
Data to be collected

• Survey
  – Sociodemographics, second hand smoke exposure (over lifetime), cooking oil fumes (over lifetime), (charred) meats, medical history (e.g., lung diseases), health behaviors, family history of lung cancer, reproductive factors, weight/height, residential history

• Geospatial contextual data
  – Air pollution, traffic density, neighborhood social environments (socioeconomic status, ethnic enclave)

• Genetic ancestry

• Tumor genomic profiles, via whole exome sequencing
Addressing anti-Asian racism and violence
Rise in Anti-Asian American Racism

After March 15 2020, Former President Trump tweets “Chinese Virus” dramatic increase in number of anti-Asian Twitter hashtags under #chinesevirus than #covid19

Hswen et al. AJPH 2021
National Rhetoric and racism have consequences

10,370 hate incidents against Asian American and Pacific Islander people, 3/19/2020-9/30/2021

Types of Discrimination

- 63% verbal harassment
- 16% shunning (deliberate avoidance)
- 16% physical assault
- 11% civil right violations (workplace discrimination, refusal of service, barred from transportation)

National Trends

- 31% of incidents in public streets; 27% in businesses
- 62% of hate reports were made by women
- Youth (ages 0-17) reported 10% of incidents
- Seniors (ages ≥60 years) reported 7% of incidents
- Chinese reported most hate incidents (43%) of all ethnic groups, followed by Korean (16%), Filipinx (9%), Japanese (8%), and Vietnamese (8%)

National Survey Reveals 1 in 5 Experienced a Hate Incident the Past Year

Stop AAPI Hate National Report, November 18, 2021
Impact of COVID-19 pandemic on Asian American Women

• Cancer patients have a greater COVID-19 burden

• COVID-19 symptom severity, hospitalizations, and mortality are highest among lung cancer patients relative to other cancer sites

• In San Francisco, Asian Americans accounted for 14% of COVID-19 cases yet represented 51% of COVID-19 associated deaths as of May 5, 2020

• Cancer patients may have social, mental health, and economic impacts due to interruptions in medical care, greater worry and psychosocial impacts due to possible job or home exposure, and greater economic impacts due to cost of medical care

• Asian Americans have experienced increased racial discrimination, xenophobia, and hate crimes during the pandemic, which can further negatively impact well-being
FANS Study: COVID-19 Aims

1. Compare the social, mental health, and economic impacts of COVID-19 among Asian American female never smokers newly diagnosed with lung cancer relative to those without lung cancer

2. Assess the prevalence of experiences of discrimination, xenophobia, racial bias and its impacts on social, mental, and economic well-being among Asian American female lung cancer cases and controls
Data to be collected

- **Survey**
  - **COVID-19 diagnosis**: symptom, infection, hospitalization, vaccination
  - **Disruptions in medical and cancer care**: concerns about impacts on health and cancer (cases), delays or disruptions to diagnostic testing and treatments
  - **Telehealth**: internet access, barriers/concerns/satisfaction
  - **Discrimination and xenophobia**: verbal/physical assault, racially motivated unfair treatment, coping mechanisms
  - **Social and economic impact**: stress due social distancing, coping behaviors, mental well-being
  - **Patient reported outcomes**: overall health-related quality of life, medical appointments affected, social and emotional quality of life
How to get engaged

• Spread the word
  – About lung cancer risk in Asian American, Native Hawaiian, and Pacific Islander females.
  – About the FANS Study (fansstudy.ucsf.edu)

• Things we know that can reduce risk:
  – Avoid smoking
  – Avoid second-hand smoke
  – Avoid cooking oil fumes

• Advocate for more NIH research in AANHPIs
  – Only 0.17% of NIH research focused on AANHPIs
Q & A

This Community Health Talk Series was made possible through the generous support of the Vincent V.C. Woo Memorial Foundation.