

## Introduction

- Cigarette smoking is the leading preventable cause of premature death in the United States and is a known cause of lung cancer.
- Data from the National Health Interview Survey (NHIS) showed that the prevalence of cigarette smokers in the United States declined from 20.9% in 2005 to 15.5% in 2016.
- A variety of sociodemographic factors, including ethnicity and gender, are associated with the rate of cigarette smoking.
- Although there have been significant efforts to decrease smoking rates in the US, lung cancer disparities may be related to smoking behavior among high risk populations.
- The goal of this study was to examine changes in the prevalence of current smoking among incident lung cancer patients from 2005-2016. We hypothesized that the percent of smokers among lung cancer patients changed differentially over time by race-gender group.

## Methods

- We conducted a cross-sectional study using deidentified data collected at the time of lung cancer diagnosis from Thomas Jefferson Cancer (TJU) Registry from 2005-2016.
- We described characteristics of patients and smoking patterns in our cohort by gender and by the three largest racial groups represented in our clinic populations (whites, blacks, Asians).
- We divided our time periods into 2005-08, 2009-12, and 2013-16 and calculated the percent of current smokers by race and gender group for each time period.
- Analytic Methods
  - We used chi-square tests and Fisher's exact tests to determine differences in current smoking prevalence at each time period for each patient group.
  - All the analyses were performed with the use of Stata software, version 13.1 (StataCorp) and Microsoft Excel.

## Results

- Demographics: Our sample included 4251 lung cancer patients. The median age of our population was 68 years (range: 20-96) and 53% were female. Our race/ethnic demographics were as follows: 73.7% self-identified as white, 20.7% black, 4.3% Asian.

### Demographics of Male Lung Cancer Patients (TJU, 2005-2016)

Variable of interest	Asian males (n=104)	Black males (n=366)	White males (n=1504)
Median age (years)	68.5	64	68
Never smokers (%)	20 (19.4%)	21 (5.7%)	84 (5.7%)
Former smokers (%)	46 (44.7%)	165 (45.0%)	829 (56.0%)
Current smokers (%)	30 (29.1%)	159 (43.4%)	488 (33.0%)
Stage I or II (%)	26 (25.0%)	82 (22.4%)	428 (28.5%)
Stage III or IV (%)	74 (71.2%)	257 (70.2%)	965 (64.2%)

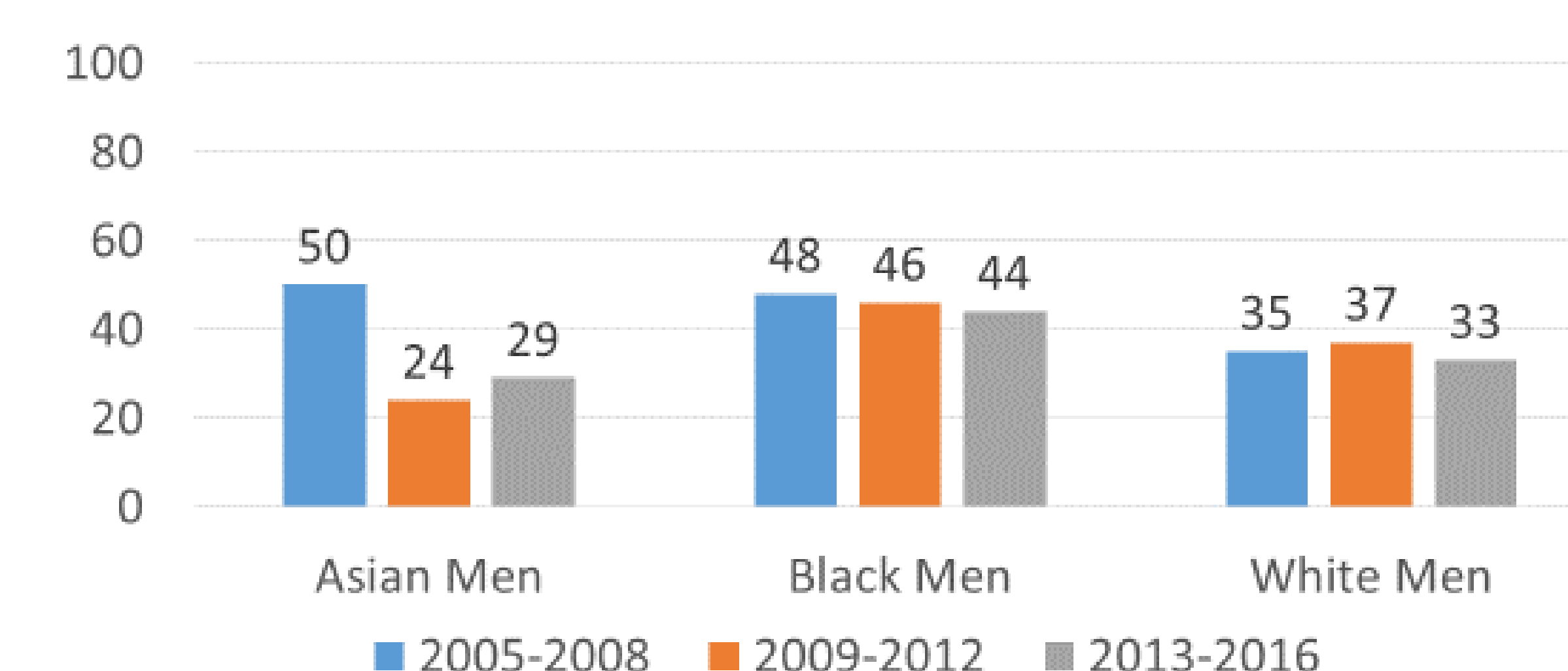
### Demographics of Female Lung Cancer Patients (TJU, 2005-2016)

Variable of interest	Asian females (n=79)	Black females (n=516)	White females (n=1628)
Median age (years)	64	64	68
Never smokers (%)	51 (64.6%)	51 (9.9%)	162 (10.1%)
Former smokers (%)	14 (17.7%)	235 (45.6%)	842 (52.2%)
Current smokers (%)	8 (10.1%)	203 (39.4%)	521 (32.3%)
Stage I or II	22 (27.9%)	144 (27.9%)	480 (29.5%)
Stage III or IV	50 (63.3%)	340 (65.9%)	1014 (62.3%)

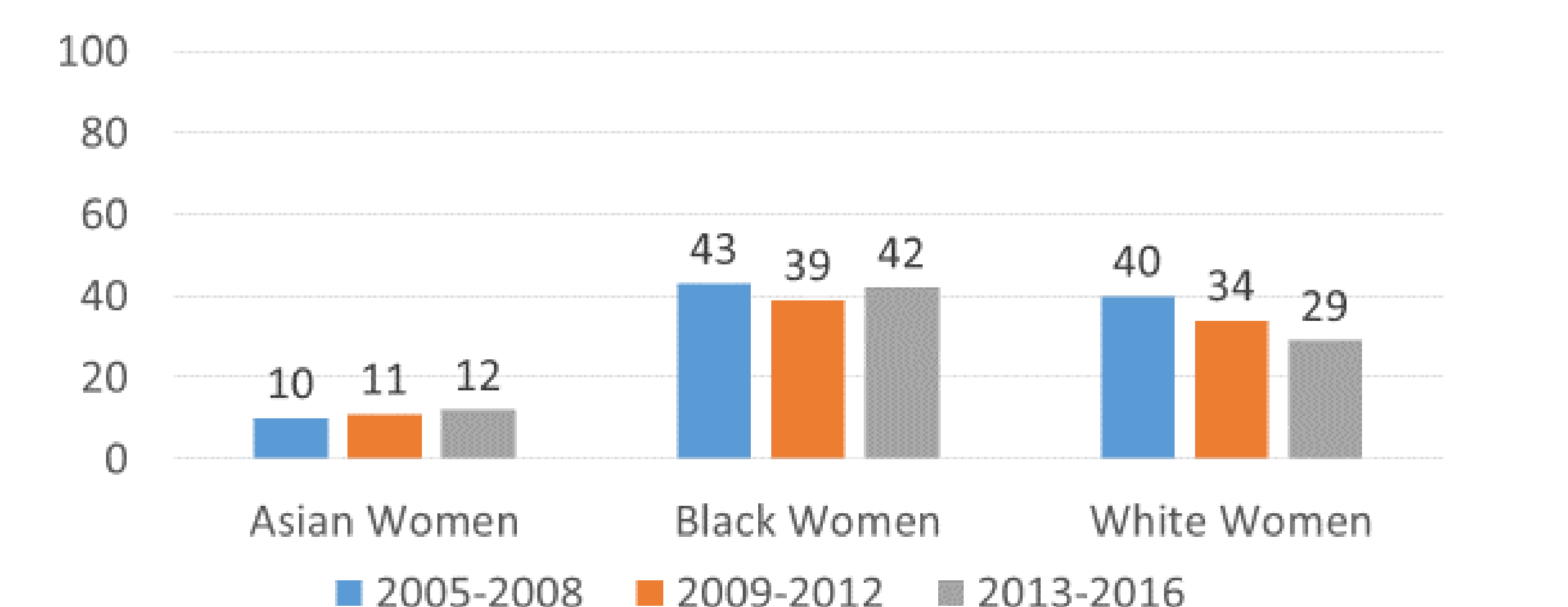
## Results Continued

- Smoking Status: At the time of diagnosis, 33% of the cohort were current cigarette smokers and <1% were cigar or pipe smokers. Asians were most likely to be never-smokers in this cohort. The highest rates of current smoking were in black males, with an overall smoking rate of 46.1%. The prevalence of current smoking decreased significantly over time in white females ( $p < 0.005$ ). Multivariable analyses demonstrated a significant interaction indicating that current smoking decreased over time in white women ( $p = 0.031$ ).

Prevalence (%) of Current Smoking at Lung Cancer Diagnosis in Men



Prevalence (%) of Current Smoking at Lung Cancer Diagnosis in Women



$p = 0.005$  for white women

## Conclusion

The overall prevalence of tobacco smokers in our patients was much higher than that of the general population captured through NHIS surveys. Despite a declining number of tobacco users in the United States, the prevalence of tobacco use in our cohort of incident lung cancer cases remained unchanged from 2005-2016 in all groups except white females. Increased efforts to augment tobacco cessation are warranted and investigation to determine whether different interventions might be more effective in different race and gender groups should be considered.