

Lung Cancer Screening: current status, guidelines and opportunities

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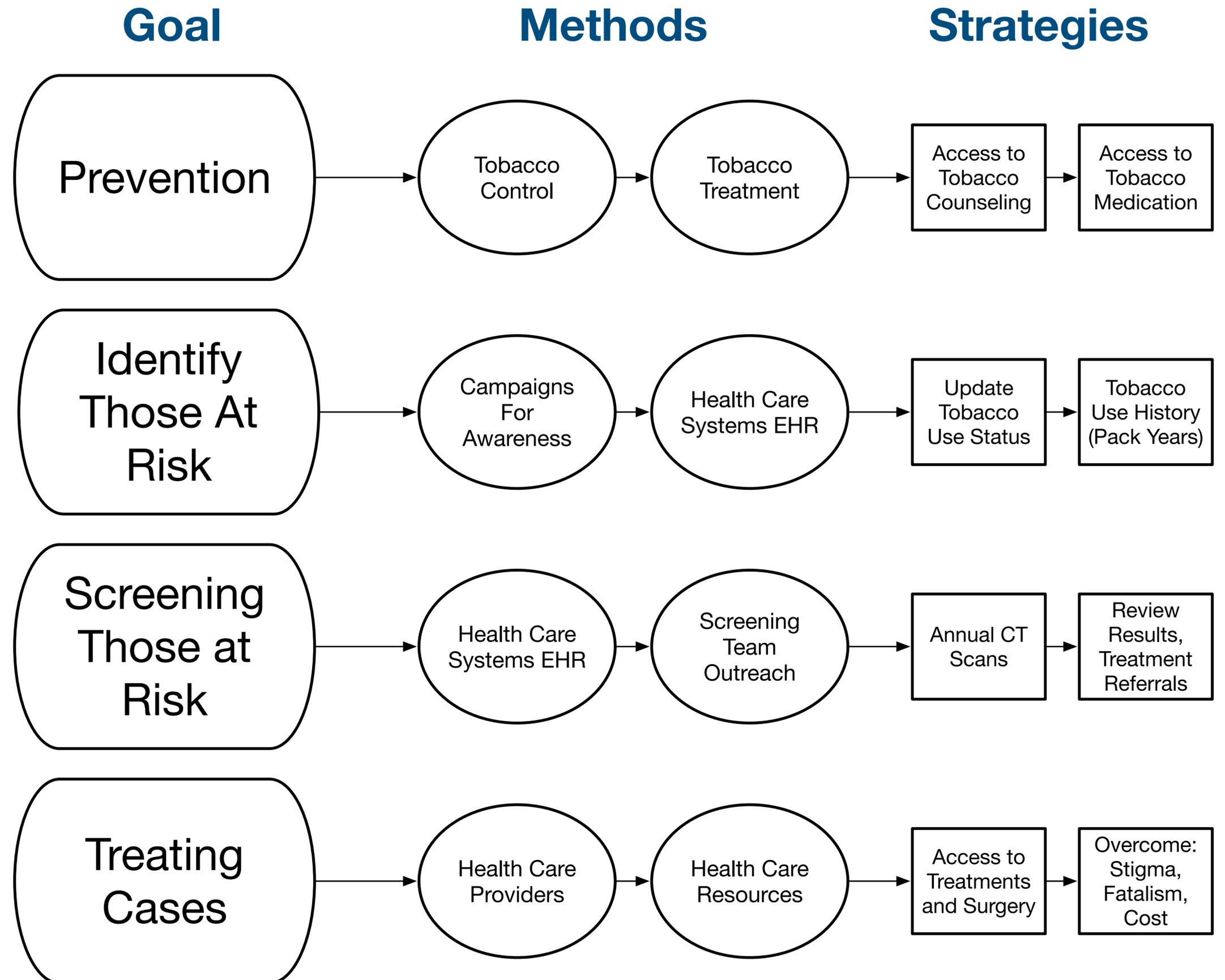
Impact of Lung Cancer is Uneven

Disparities in Tobacco Related Disease

- California has led the nation in reducing tobacco use, particularly among younger age groups
- In the 1970's California did not have the advantage of lower initiation, lower intensity of smoking and higher cessation and lung cancer mortality was higher than in the rest of the US.
- Reductions in tobacco use over the past 20 years has led to a difference in lung cancer mortality in California compared to the rest of the United States
- Reductions in tobacco use and incidence of lung cancer vary across communities.

Lung Cancer

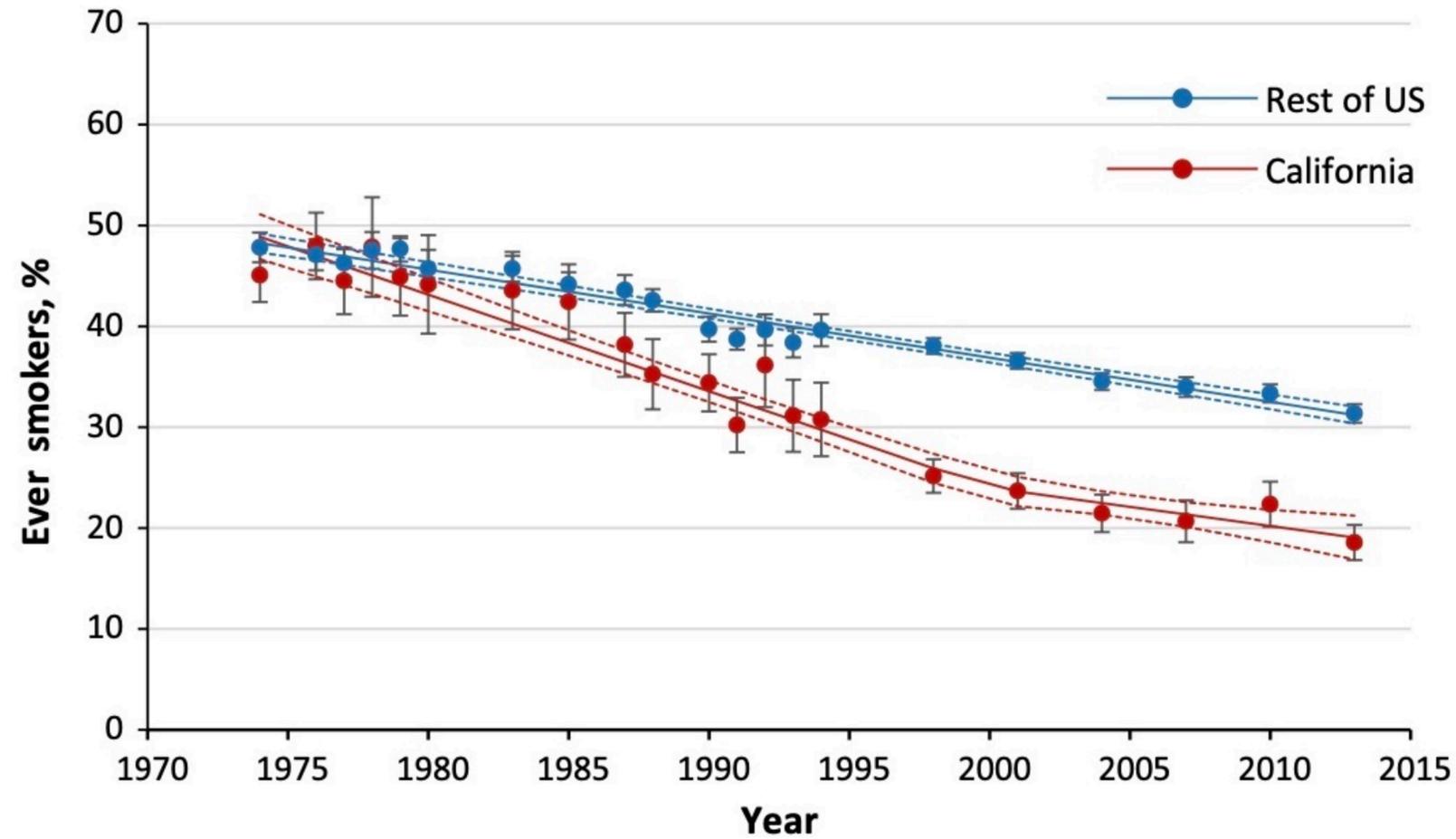
Reducing Cases in California



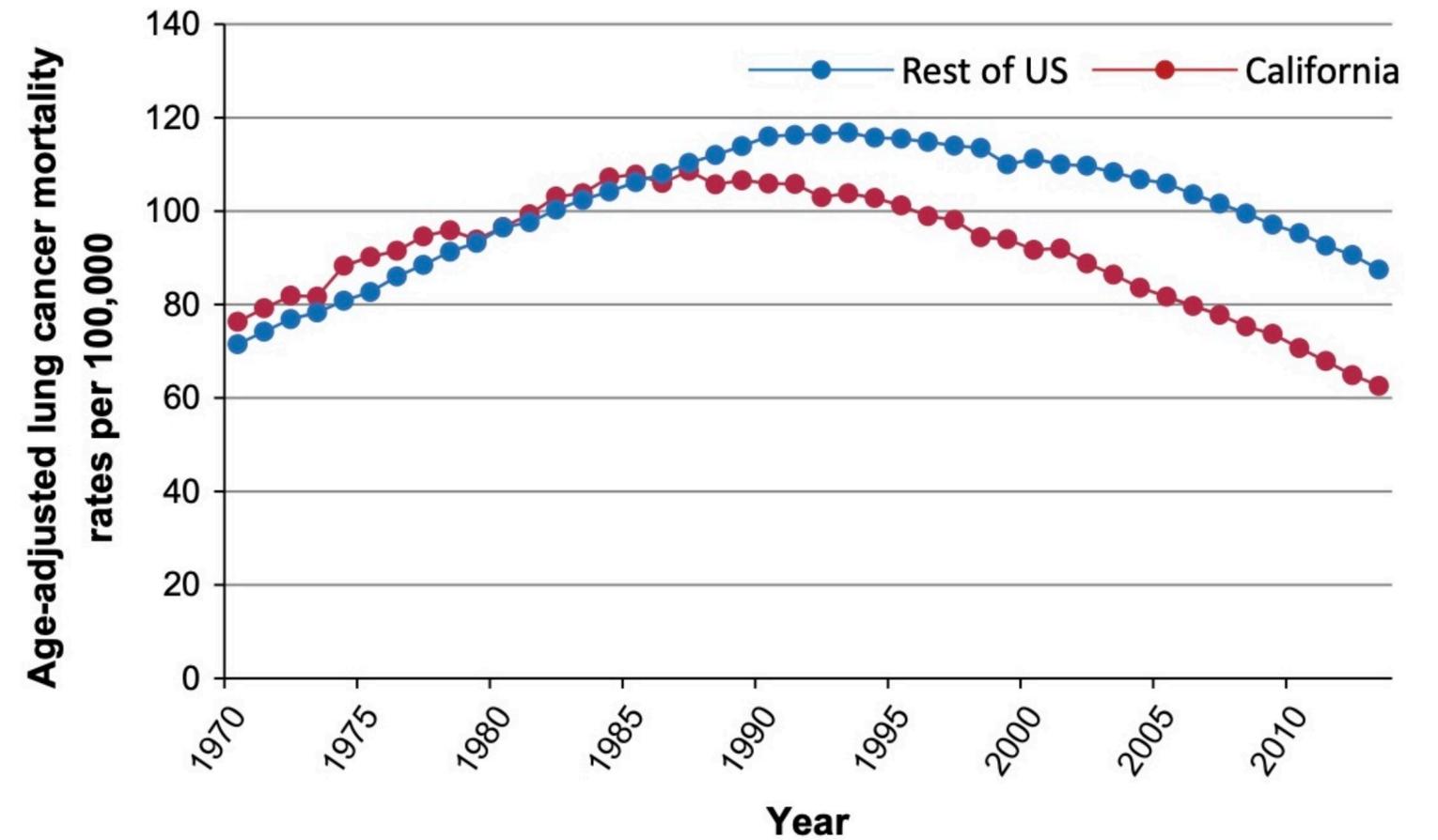
Prevention: Tobacco Control

California vs Rest of United States

Rates of Ever Smoking significantly lower in CA in those 18-34 years old.

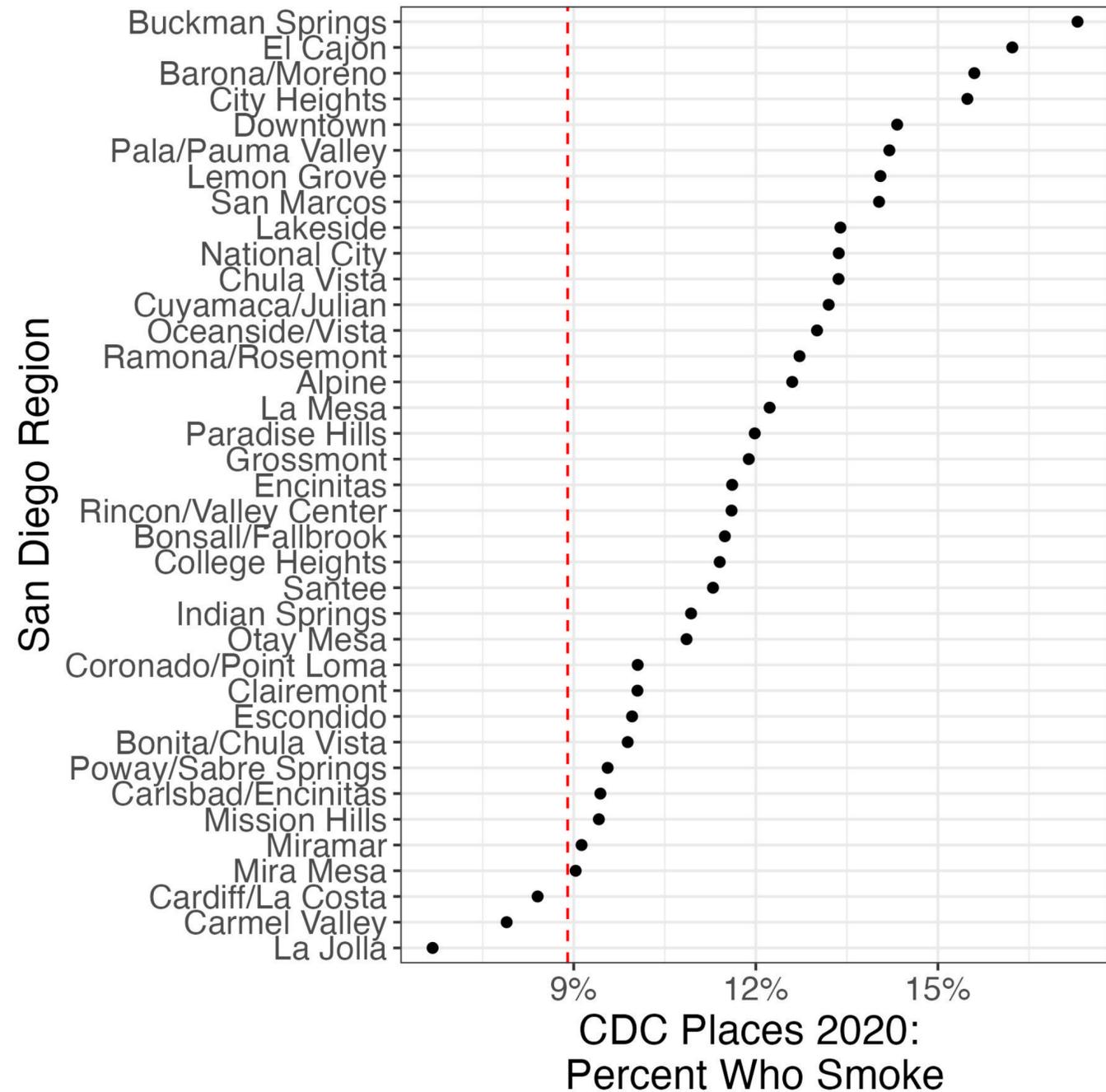


Rates of lung cancer mortality significantly lower in CA

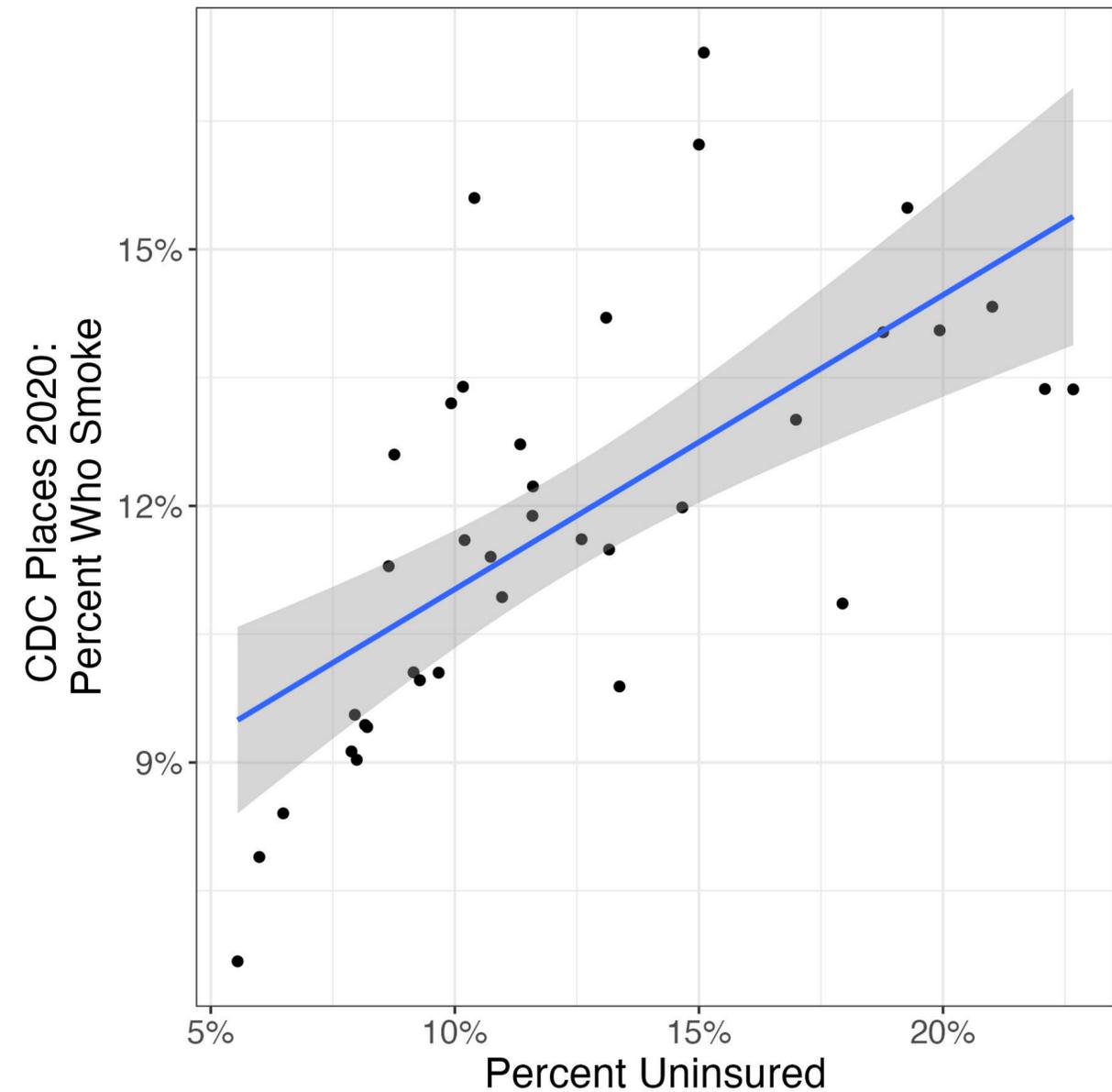


Prevention: Impact on Smoking is Uneven

Prevalence Varies Greatly In San Diego



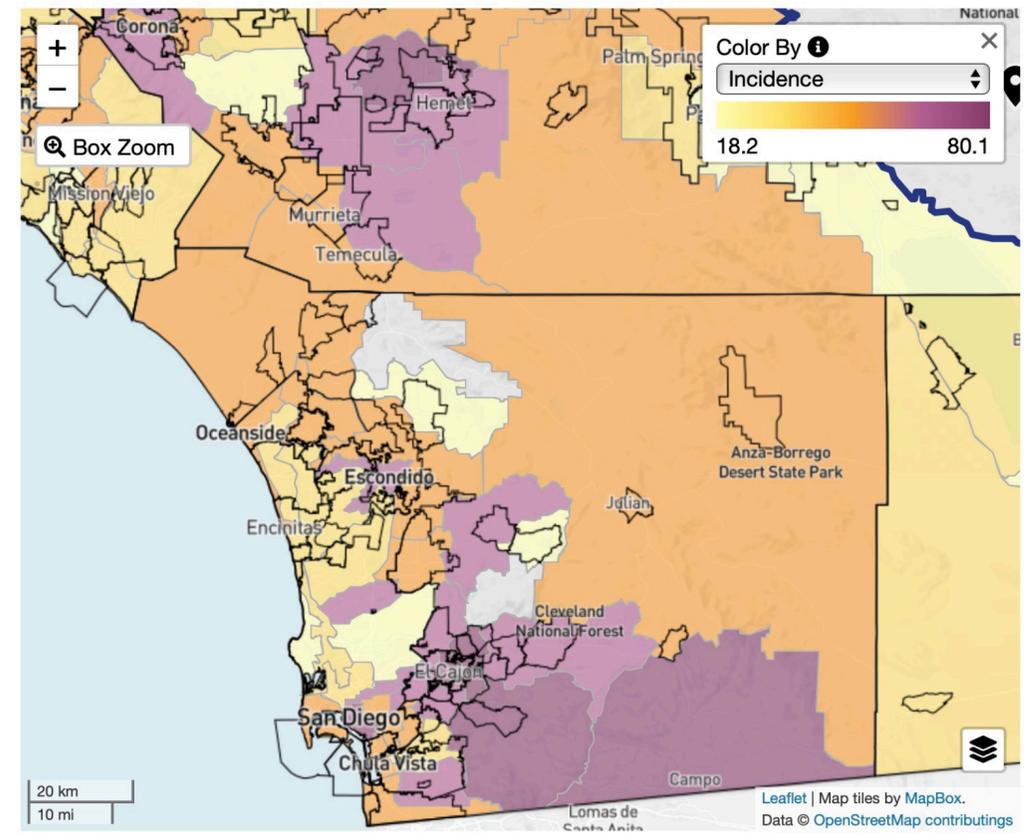
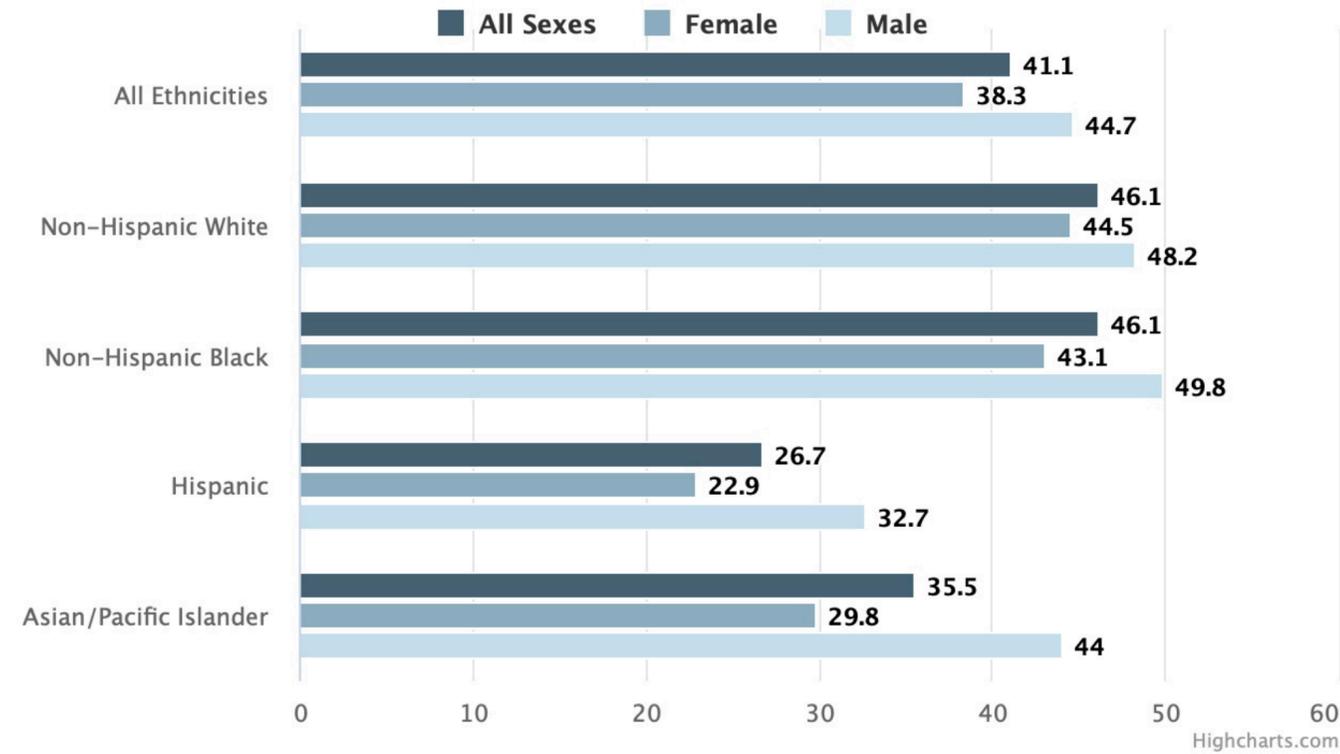
Prevalence Higher In Communities With Higher Rates of the Uninsured



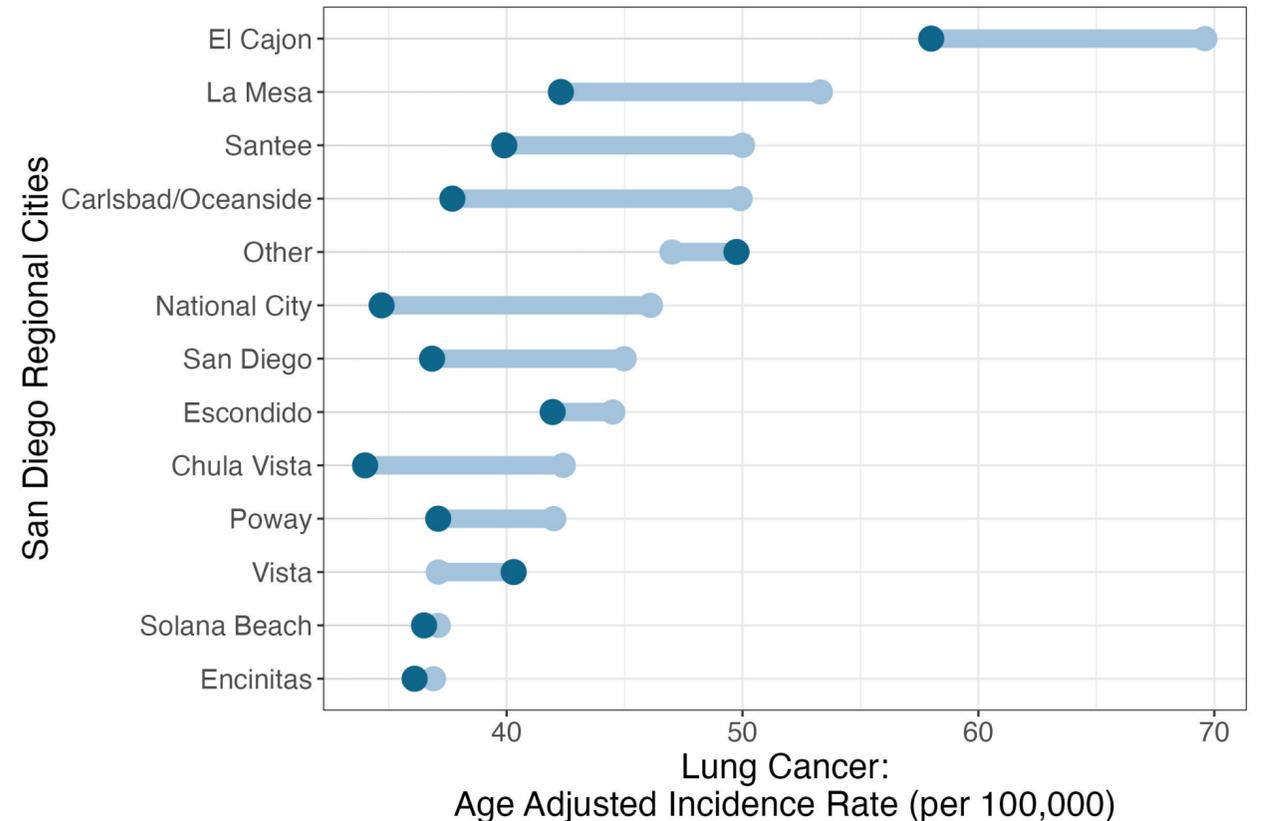
Prevention: Impact on Lung Cancer is Uneven

Incidence Rates of Lung Cancer In California Vary By Race/Ethnicity, Region, and Sex

Age-Adjusted Incidence Rate
Lung Cancer



Rates of Lung Cancer For Women and Men Living In San Diego County



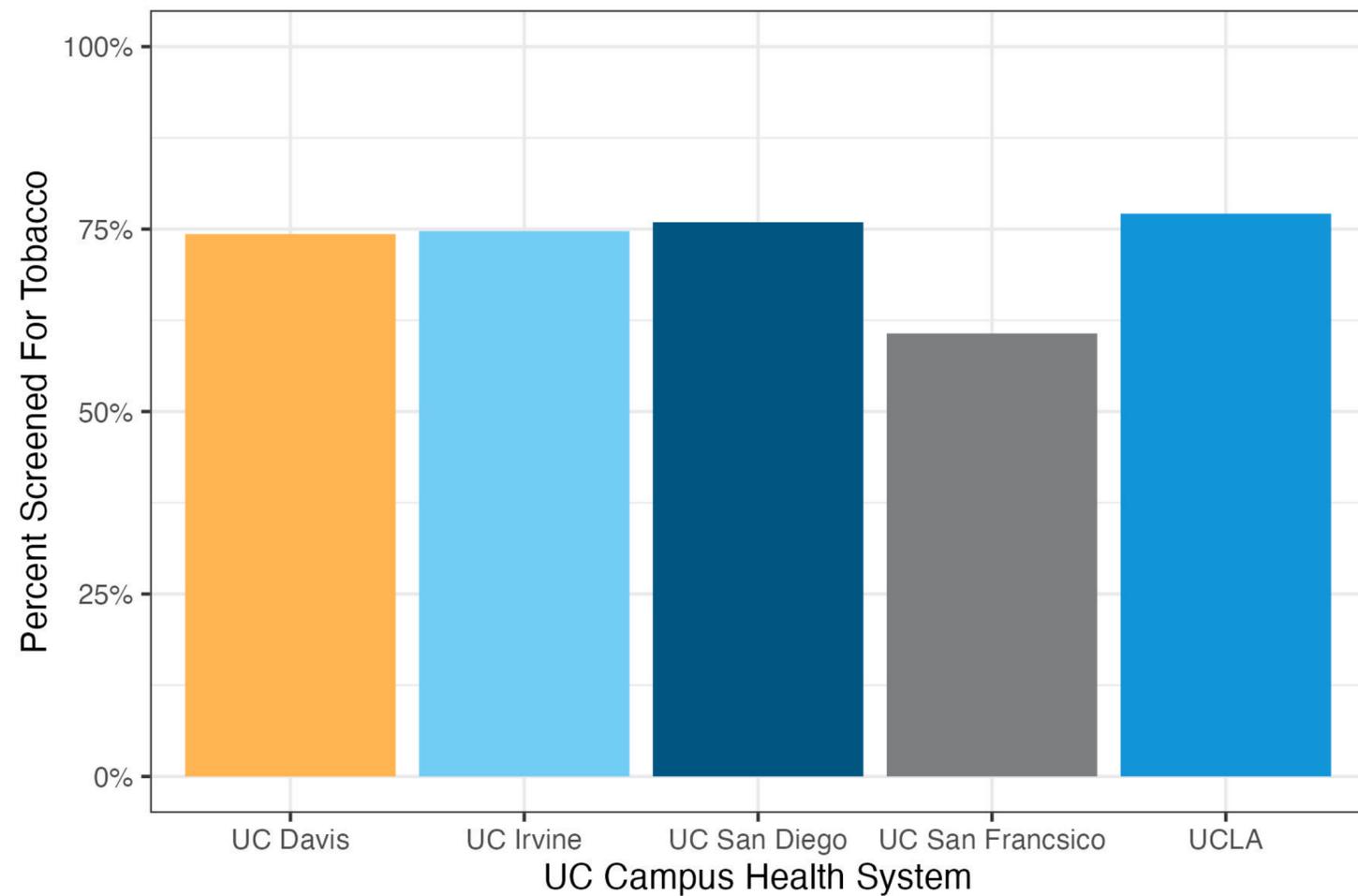
DeRouen MC, Hu L, McKinley M, Gali K, Patel M, et al. (2018) Incidence of lung cancer histologic cell-types according to neighborhood factors: A population based study in California. PLOS ONE 13(5): e0197146. <https://doi.org/10.1371/journal.pone.0197146>

<https://www.lung.org/research/state-of-lung-cancer/states/california>
<https://www.californiahealthmaps.org>

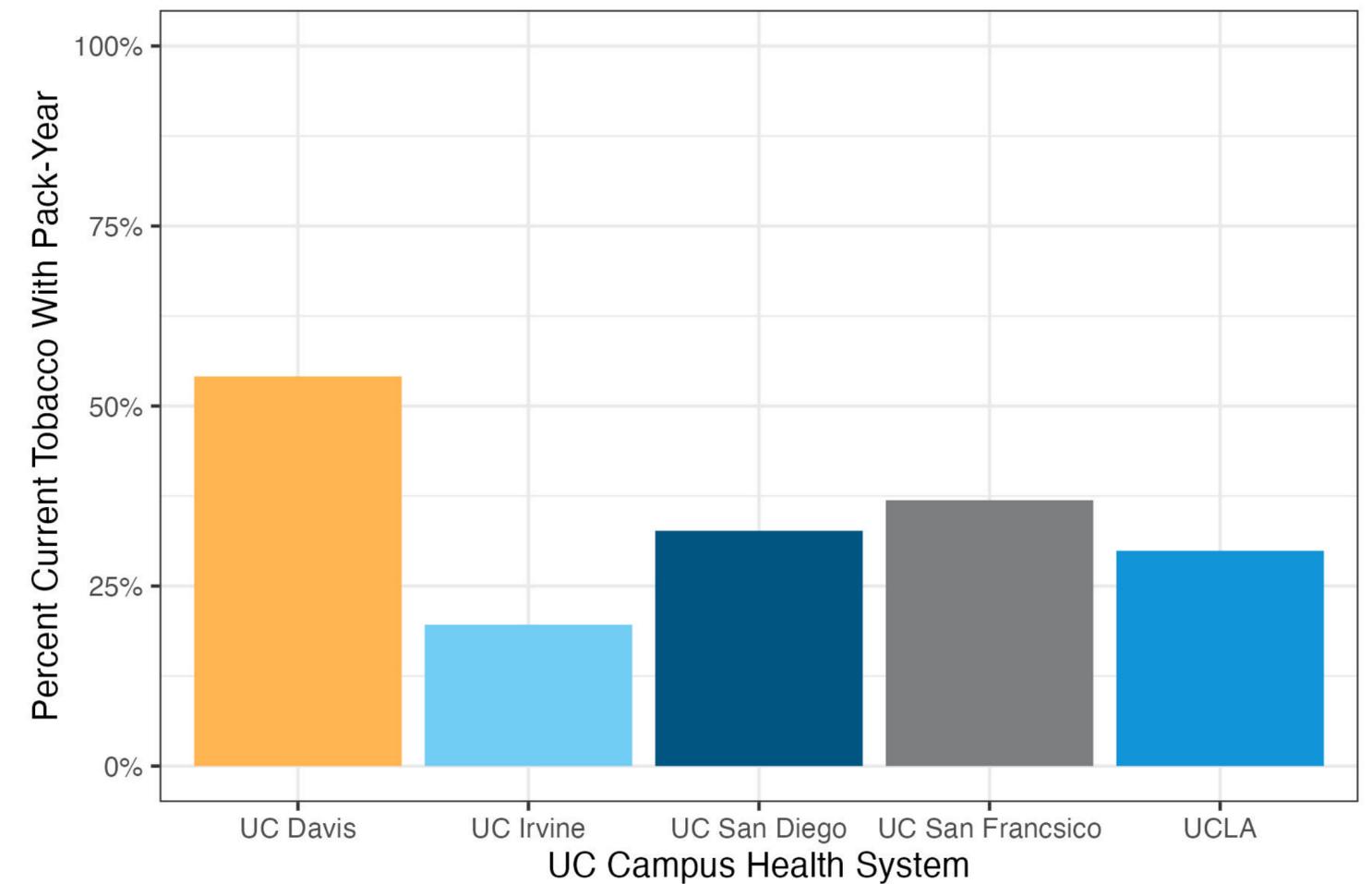
Identifying Those At Risk

Health Systems Designed For Universal Screening For Tobacco Use

Screening For Tobacco Use Status



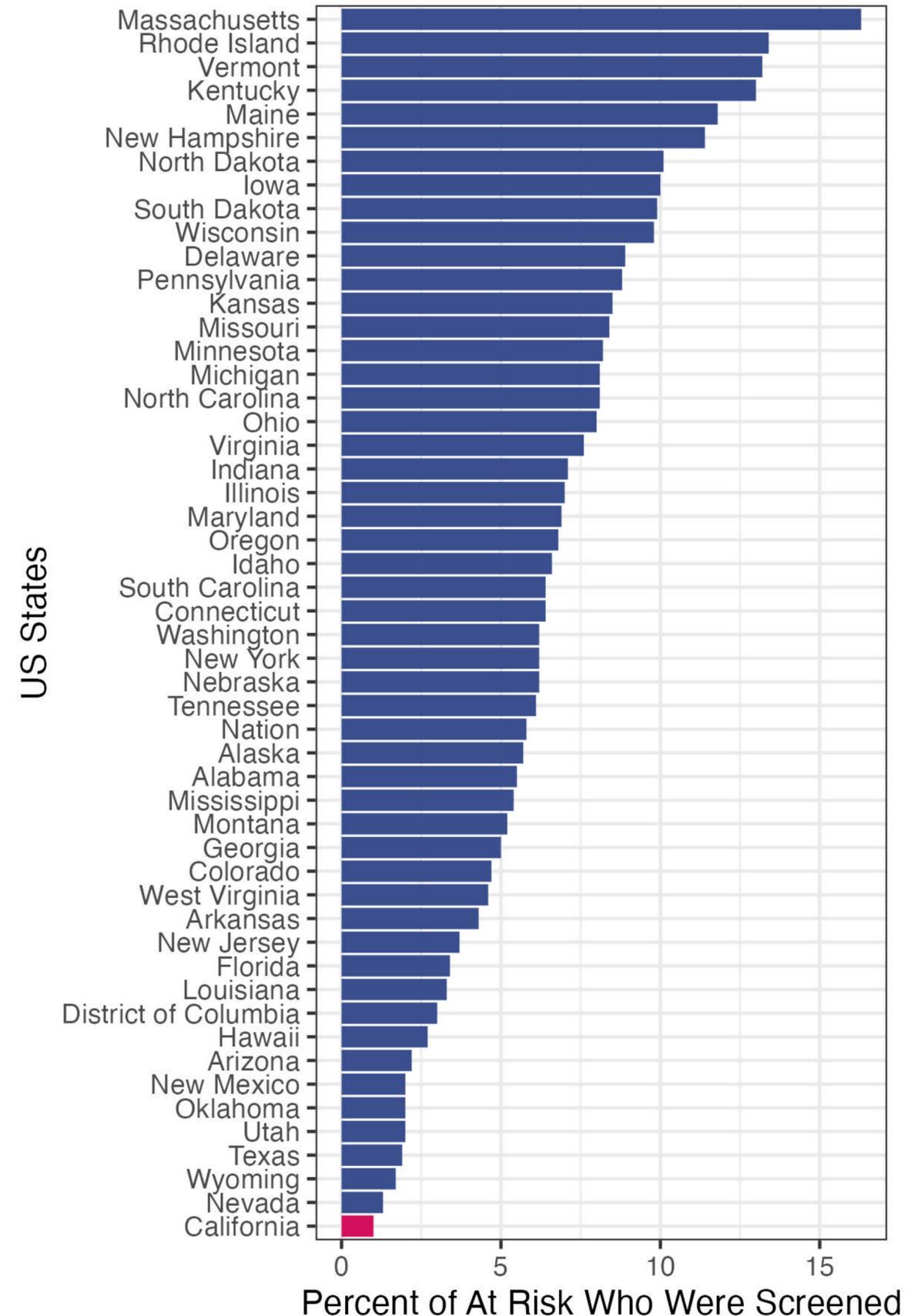
Pack Year Often Missing From Tobacco Users



Lung Cancer Screening

California vs Rest of United States

- Annual low-dose CT scans among those at high risk can reduce the lung cancer death rate by up to 20%
- California was one of the 46 states whose Medicaid fee-for-service programs covered lung cancer screening as of July 2022. **Did not require prior authorization or copays.**
- California ranked **51^{rst}** and screened **1%** of those identified as at-risk.



UC Lung Cancer Consortium

All UC Health Systems

- UC's five Cancer Centers
- Organized to improve lung cancer screening and treatment in California
- Develop UC-wide EPIC reports and data sharing
- Develop public-facing informational resources
- Promote coordinated improvements in care with groups targeting population health/policy and screening/prevention.



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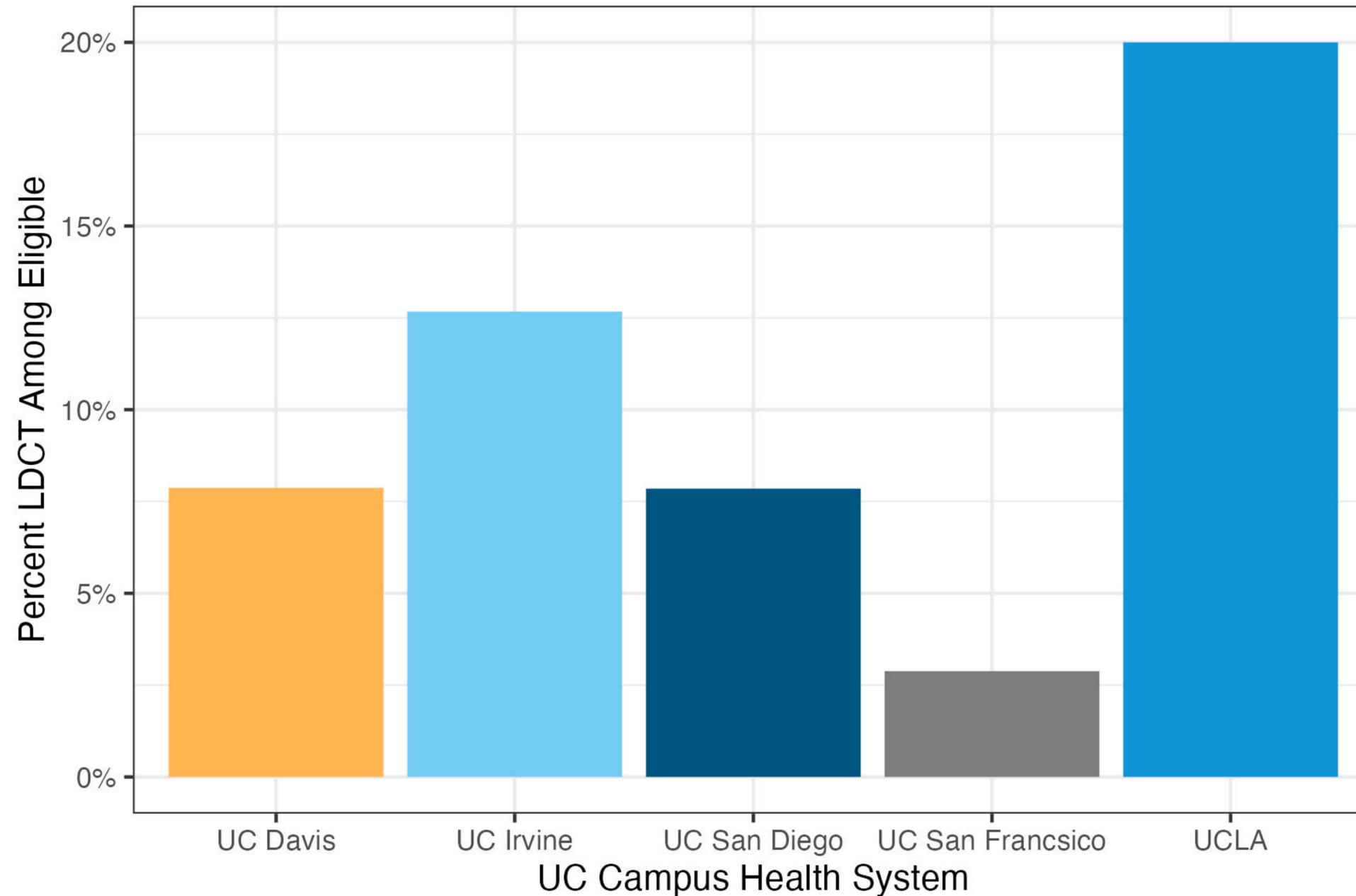
Lung Cancer Screening Guidelines

US Prevention Task Force

- Seven randomized clinical trials (**RCTs**) evaluated LDCT; the National Lung Screening Trial (NLST, N = 53 454) and Netherlands-Leuvens Longkanker Screenings Onderzoek (NELSON, N = 15 792) were the largest.
- The **rate of positive screening tests in NLST was 24.2%** with low-dose CT and 6.9% with radiography over all three rounds.
- **Lung Cancer Mortality reduced for LDCT by ~20%** in both NLST (IRR 0.85 [95% CI, 0.75-0.96]) and NELSON (IRR, 0.75 [95% CI, 0.61-0.90] trials relative to radiography.
- **Harms of screening** included false-positive results (26.3%) leading to unnecessary tests and invasive procedures (1.7%), incidental findings, and increases in distress.
- **Guidelines for screening:** Age 50-80; 20+ pack years; Current Smoker (quit <15years)
 - Shared Decision Making (with 1+ aid: benefits, harms, etc..)
 - Counseling to adhere to annual LDCT
 - Counseling to Engage Tobacco treatment

Screening Those At Risk

Health Systems Facilitate Referral to LDCT

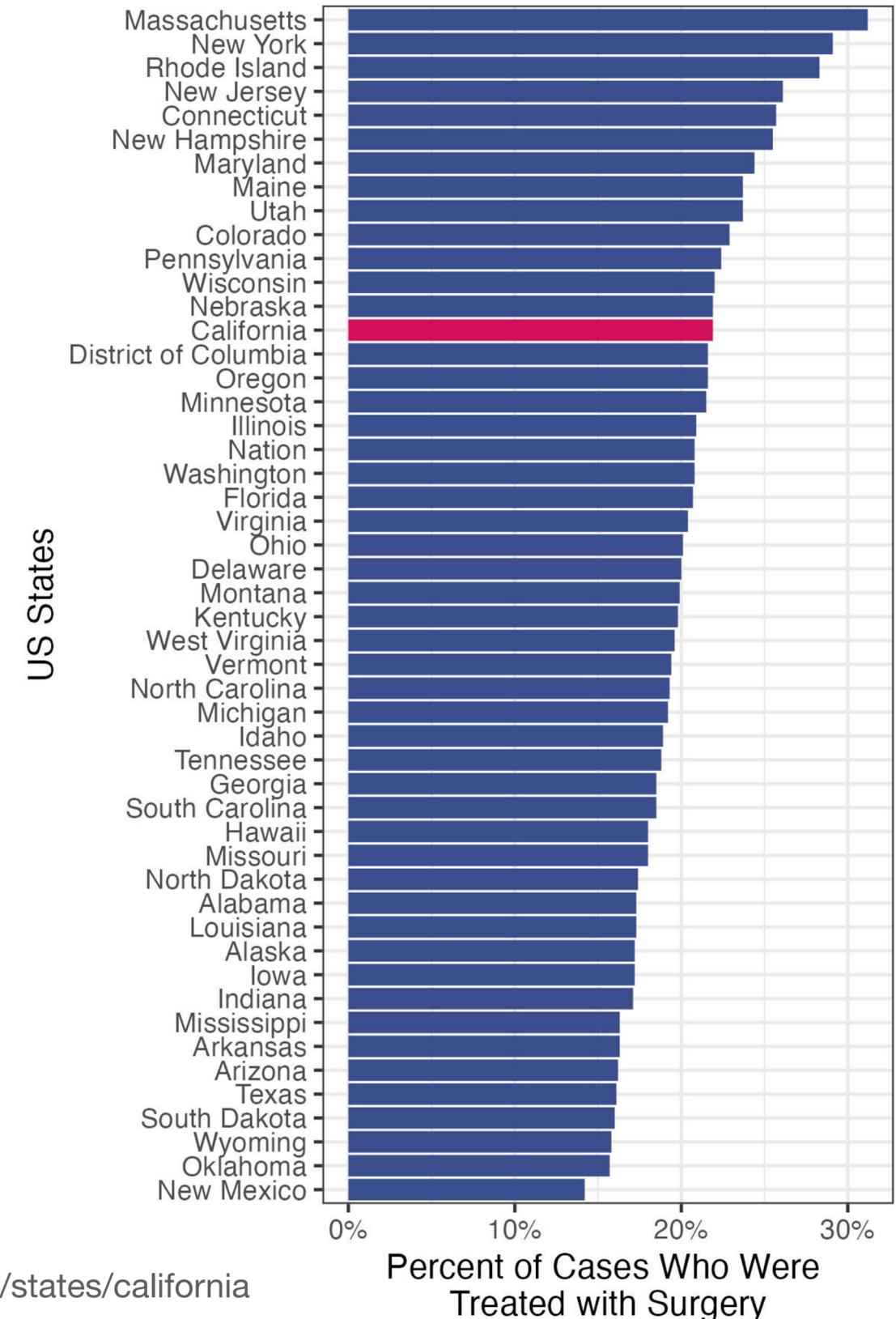
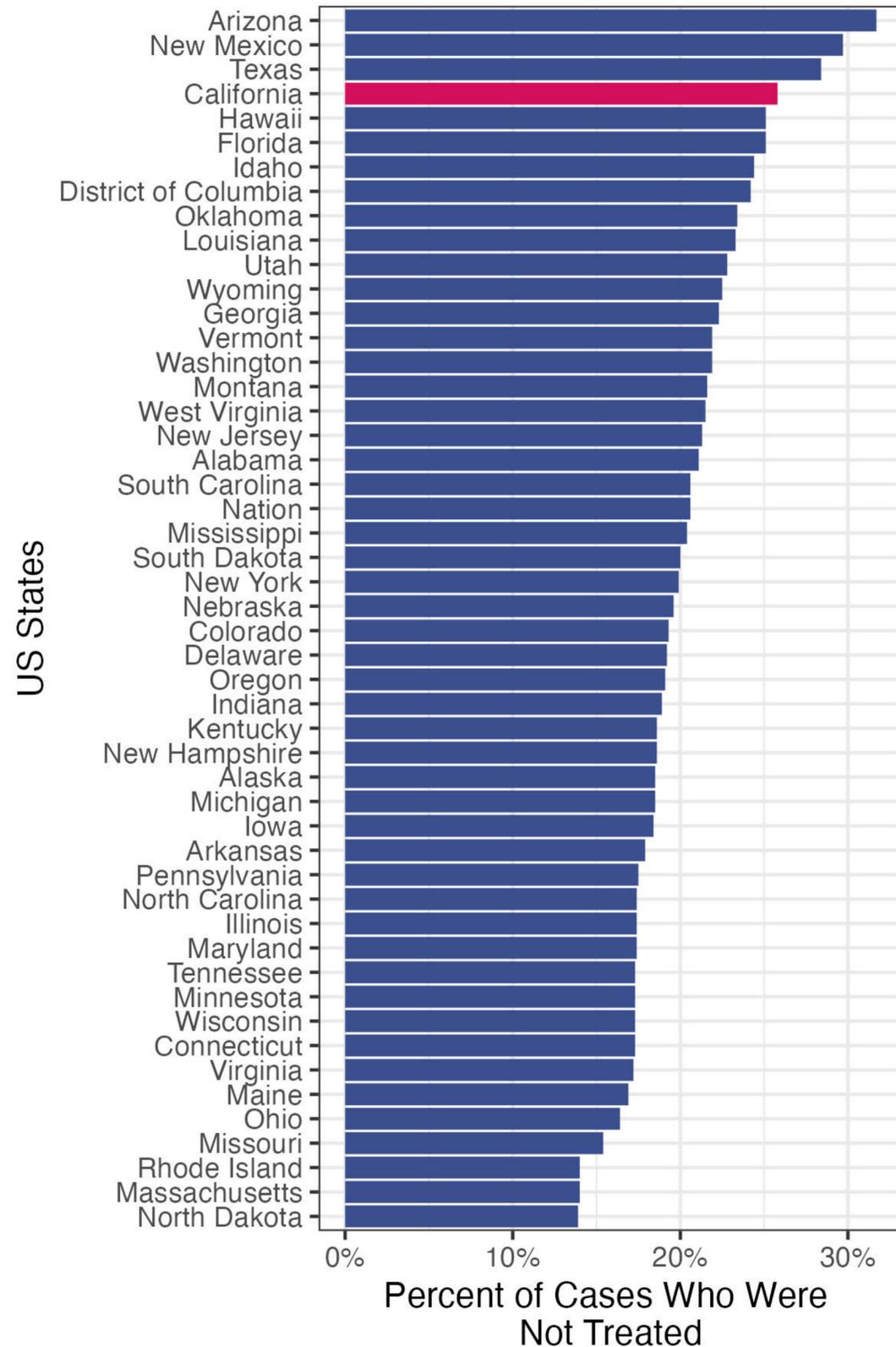


Lung Cancer Treatment

California vs Rest of United States

- California ranked **46th** with **26%** of lung cancer cases not receiving treatment.
- California ranked **13th** with **22%** of cases undergoing surgery as part of the first course of treatment.

<https://www.lung.org/research/state-of-lung-cancer/states/california>

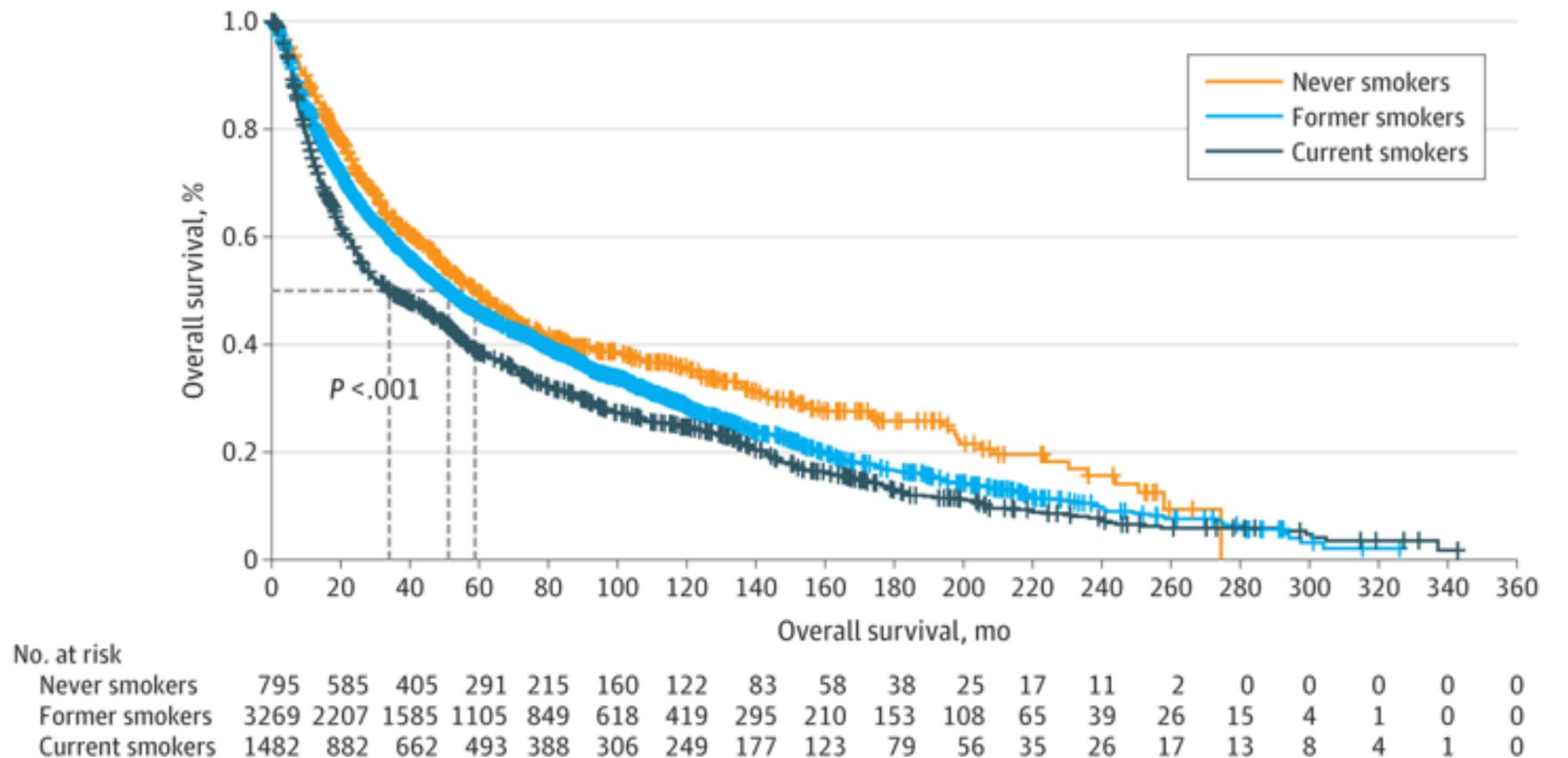


Tobacco Treatment For Patients With Cancer

Stopping Tobacco Improves Cancer Outcomes

- In this cohort of patients with Non-Small Cell Lung Cancer, quitting smoking early in life was associated with reduced mortality following a lung cancer diagnosis.
- Surgeon General’s Report details the reduced risk of recurrence and improved treatment outcomes across multiple cancer types for stopping tobacco, even after cancer diagnosis.

A All patients with NSCLC



Overall Survival Among Patients With Non-Small Cell Lung Cancer (NSCLC) by Smoking Status at Diagnosis
 Graphs show survival among all patients with NSCLC (A),

Tobacco Treatment: NCI Supported Efforts

Funding Improvements In Lung Cancer Outcomes

- NCI committed funds to an RFA to improve tobacco treatments during lung cancer screening (2015).
- SCALE Collaboration (Smoking Cessation within the Context of Lung Cancer Screening). Along with VA there are 8 clinical trials nearly finished.
- NCI Cancer Center Cessation Initiative (C3i): 52 cancer centers. Ongoing projects to improve tobacco treatment for all cancer patients, including those receiving lung cancer screening.
- White House Cancer Moonshot: Cessation Forum including CDC, HHS, FDA, VA and other federal agencies to commit to promoting tobacco treatments.
- TRDRP will support research into the causes, early detection, and effective treatment, care, prevention, and potential cures of cancers. TRDRP expects to release the 2024 Call for Applications on July 1, 2023.

Research and Implementation Projects

Opportunities to Improve Locally and Statewide

- *Prevention:* Tobacco use still prevalent in some communities and efforts to prevent initiation, understand new product use and promote tobacco treatment are needed.
- *Identifying Those At Risk:* campaigns to increase awareness to promote seeking screening and reviewing health systems workflow to reduce disparities.
- *Screening Those At Risk:* understand barriers to accepting referrals, barriers to imaging, appeal of tobacco treatments (timing-modality-access), workflows to facilitate completion and return for follow-up screens, weigh benefits and harms in diverse community settings, biomarkers/technology to reduce false-positives.
- *Treating Cases:* understanding reluctance, barriers to access, patient-provider interactions, resources needed to deliver care and access surgical teams.