

Cancer Control in AI/AN Populations

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Presentation to TCAC

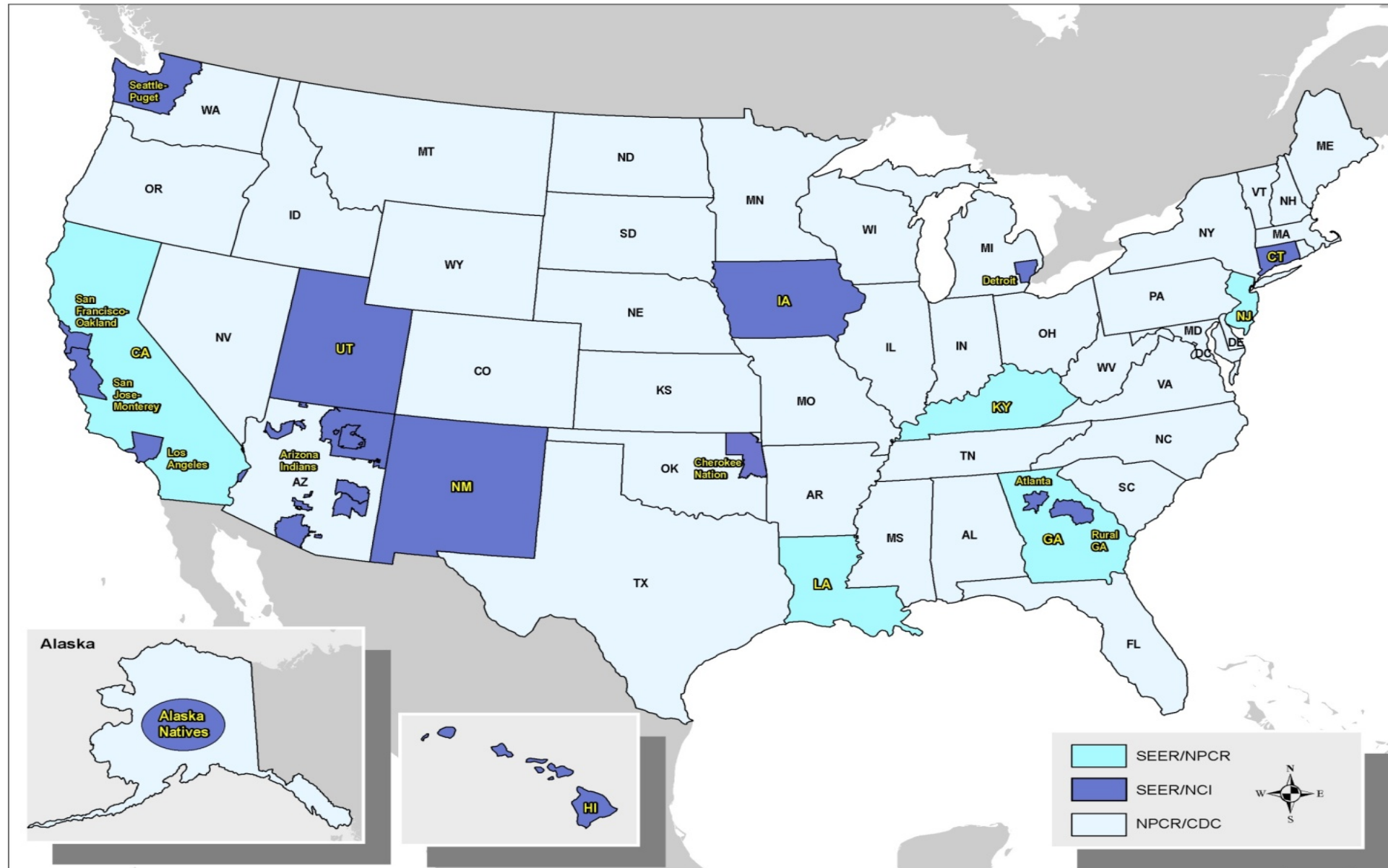
September 16, 2016

Outline

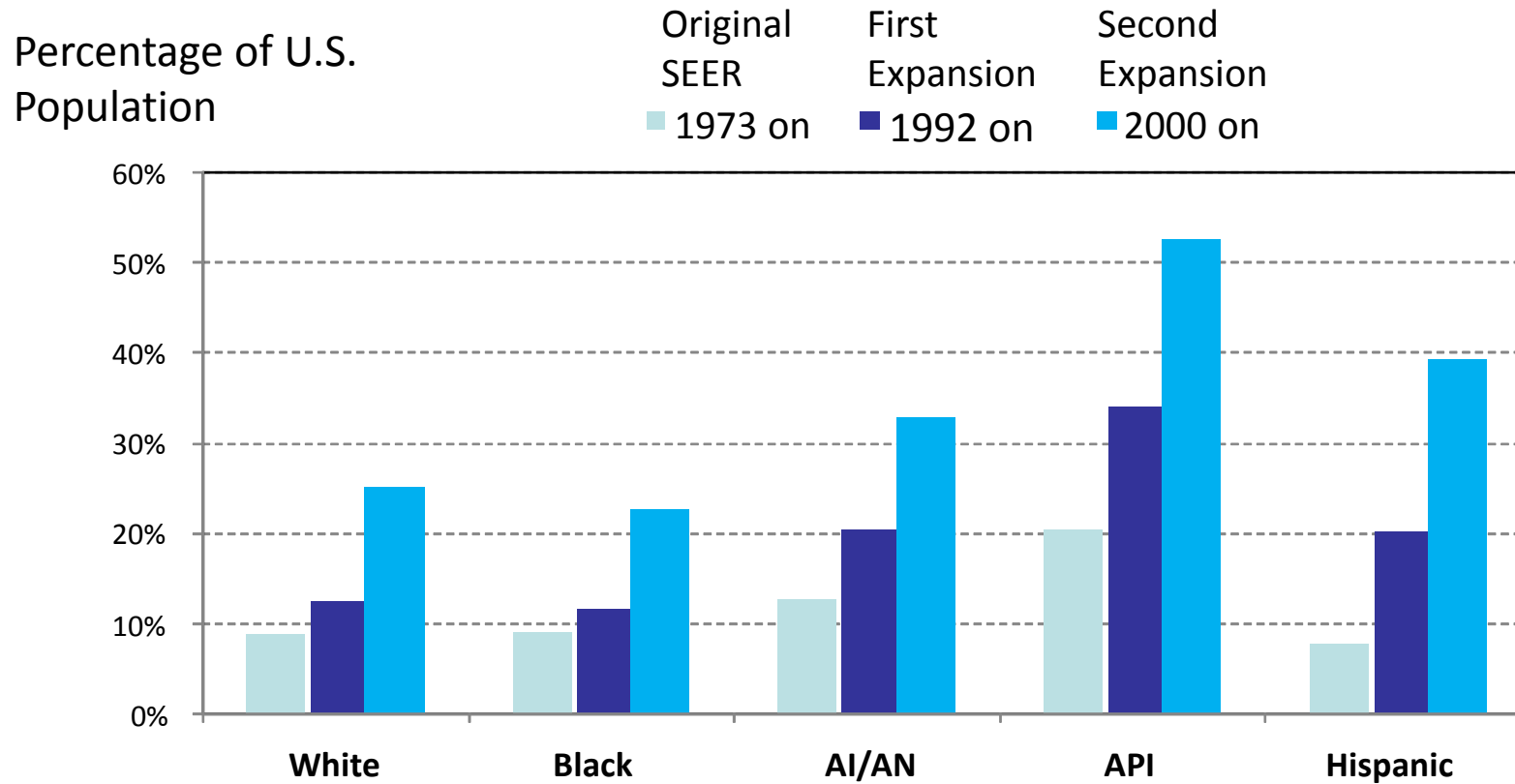
- Cancer trends
- Risk factors
- NCI response: disease prevention interventions and treatment
- Future directions

Cancer Trends

NCI SEER Registries



Population Coverage by Race/Ethnicity

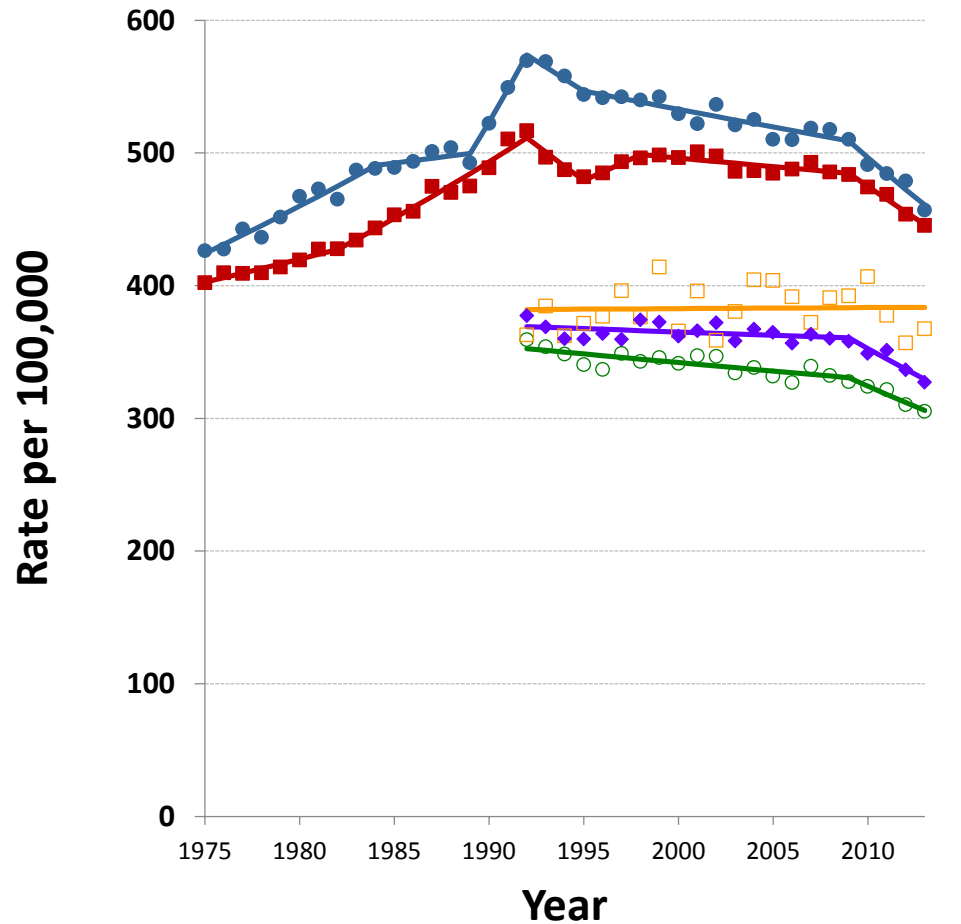


AI/AN: American Indian and Alaska Native

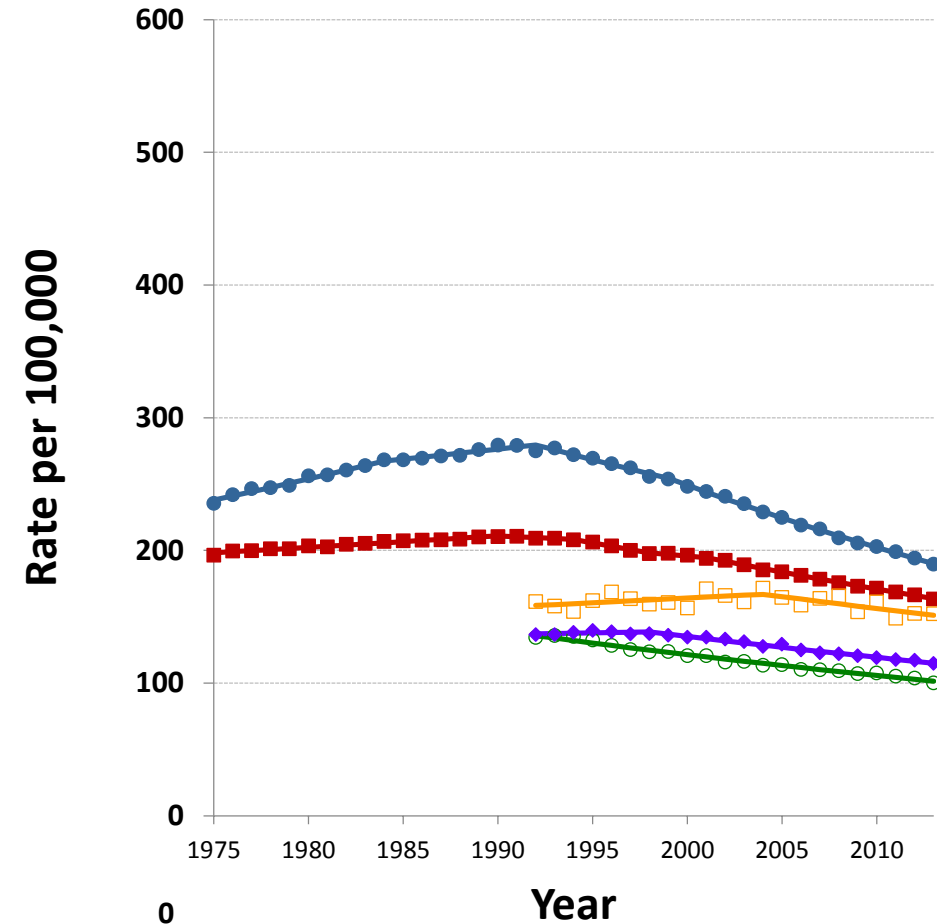
API: Asian and Pacific Islander

All Sites, Incidence Rates 1975-2013

Incidence

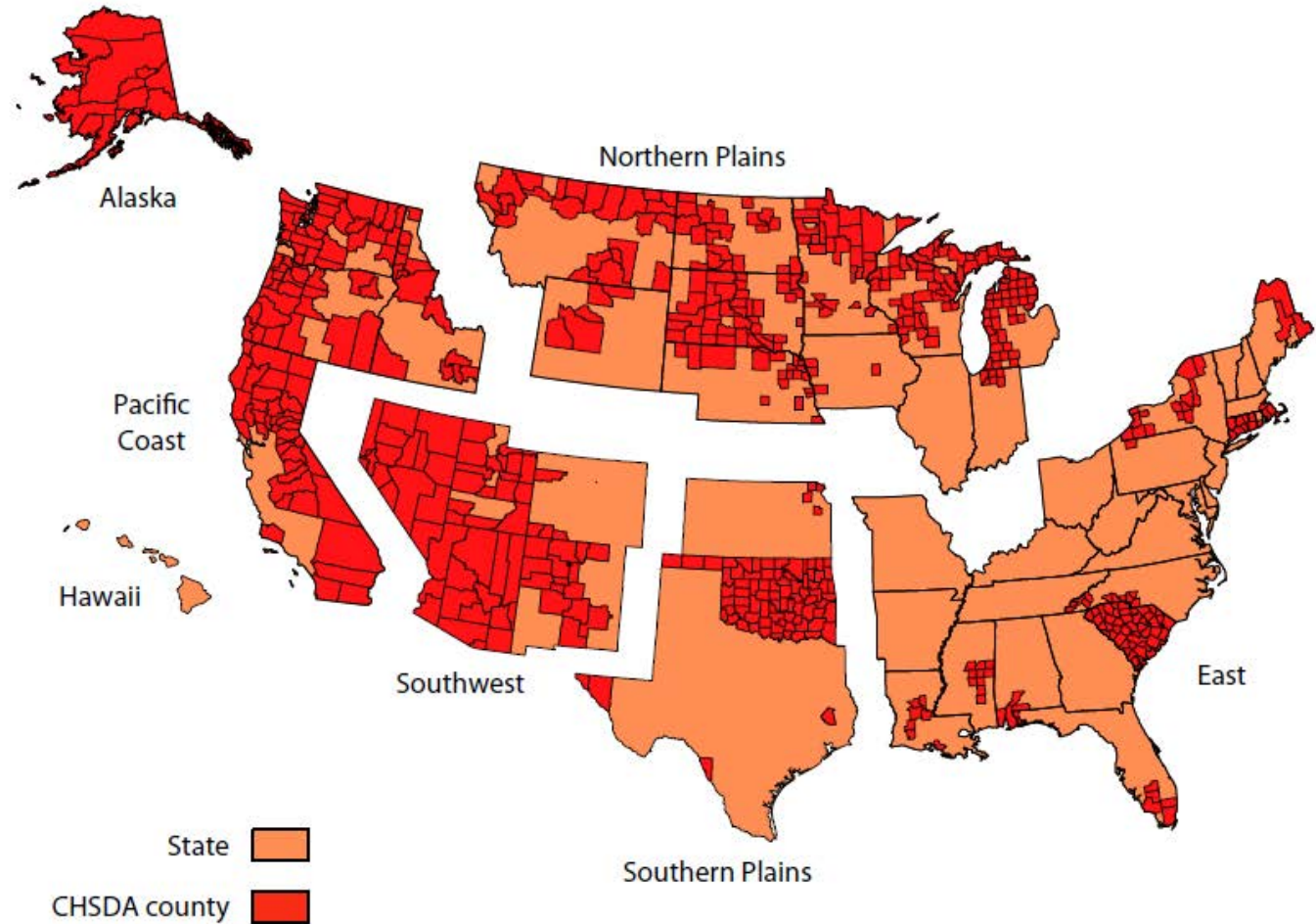


Mortality



Source: Incidence data for whites and blacks are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta). Incidence data for Asian/Pacific Islanders, American Indians/Alaska Natives and Hispanics are from the SEER 13 Areas (SEER 9 Areas, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Mortality data are from US Mortality Files, National Center for Health Statistics, CDC.

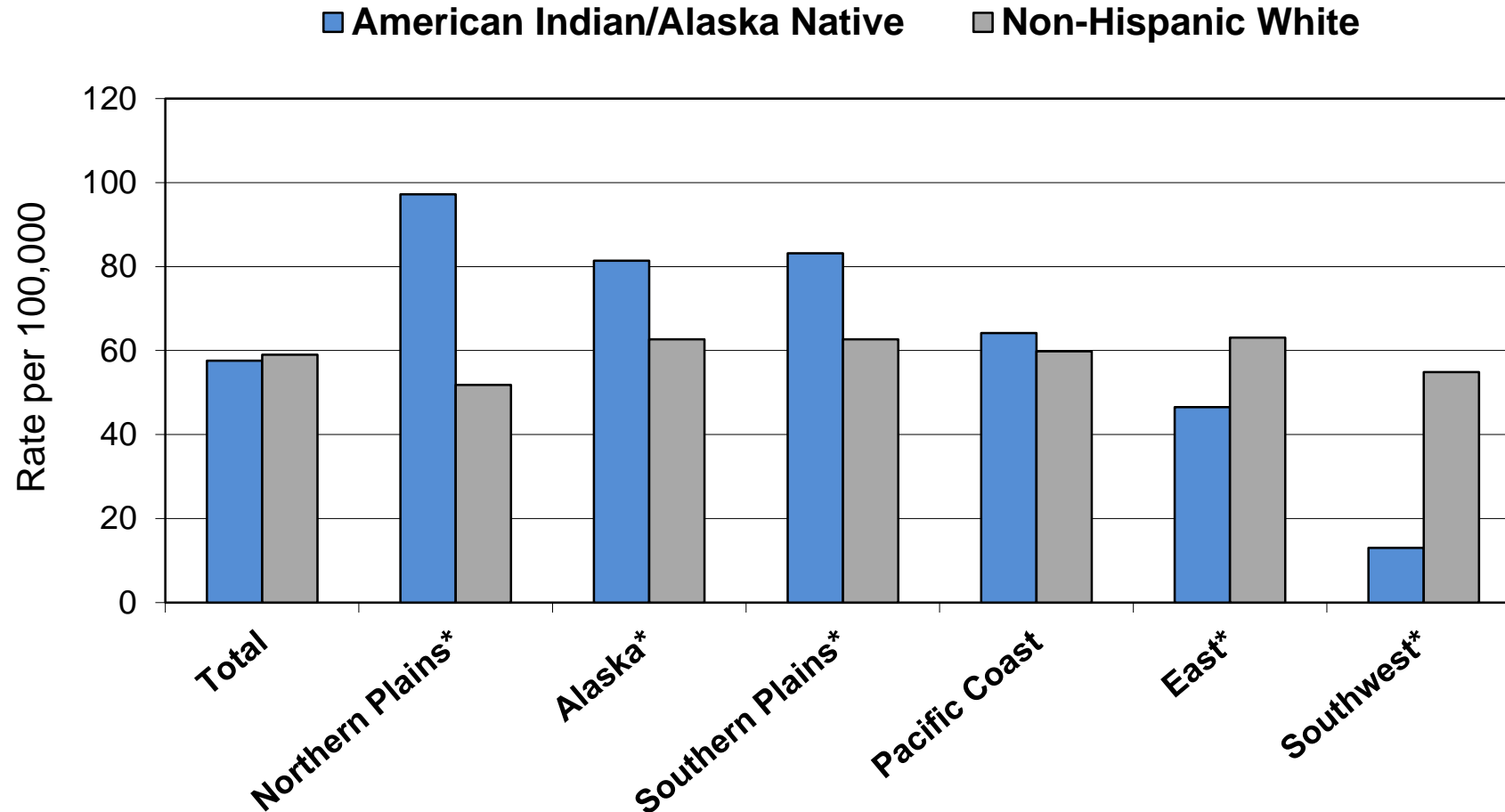
Cancer incidence and mortality rates for American Indians and Alaska Natives by geographic region were published in American Journal of Public Health in 2014



Note. CHSDA = Contract Health Service Delivery Area.

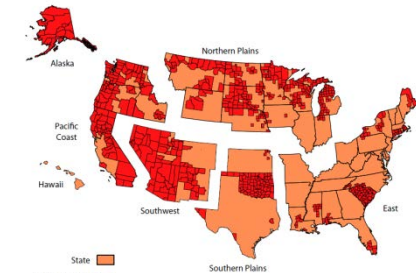
SOURCE: White et al. Am J Public Health 2014; 104:S377-S387.

Lung cancer incidence rates for American Indian/Alaska Native females vary by geographic region within the United States



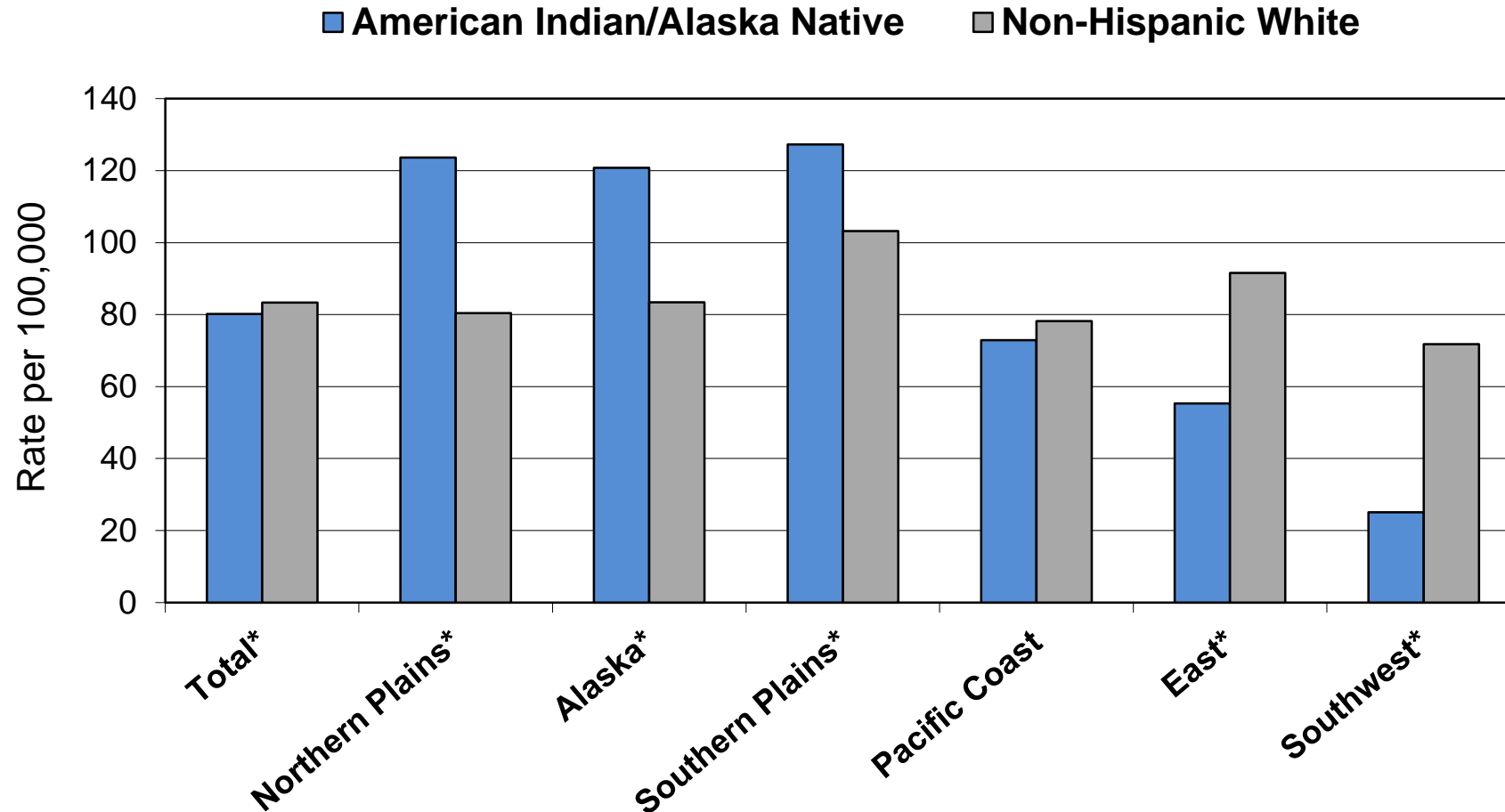
- Average annual age-adjusted incidence rates (US 2000 standard)
- United States by region (CHSDA only), 1999-2009
- Asterisk (*) denotes statistically significant difference ($p < 0.05$)

SOURCE: White et al. Am J Public Health 2014; 104:S377-S387.



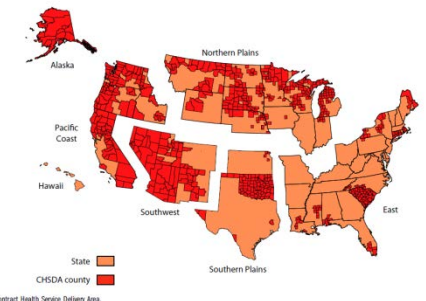
Note: CHSDA = Contract Health Service Delivery Area.

Lung cancer incidence rates for American Indian/Alaska Native males vary by geographic region within the United States

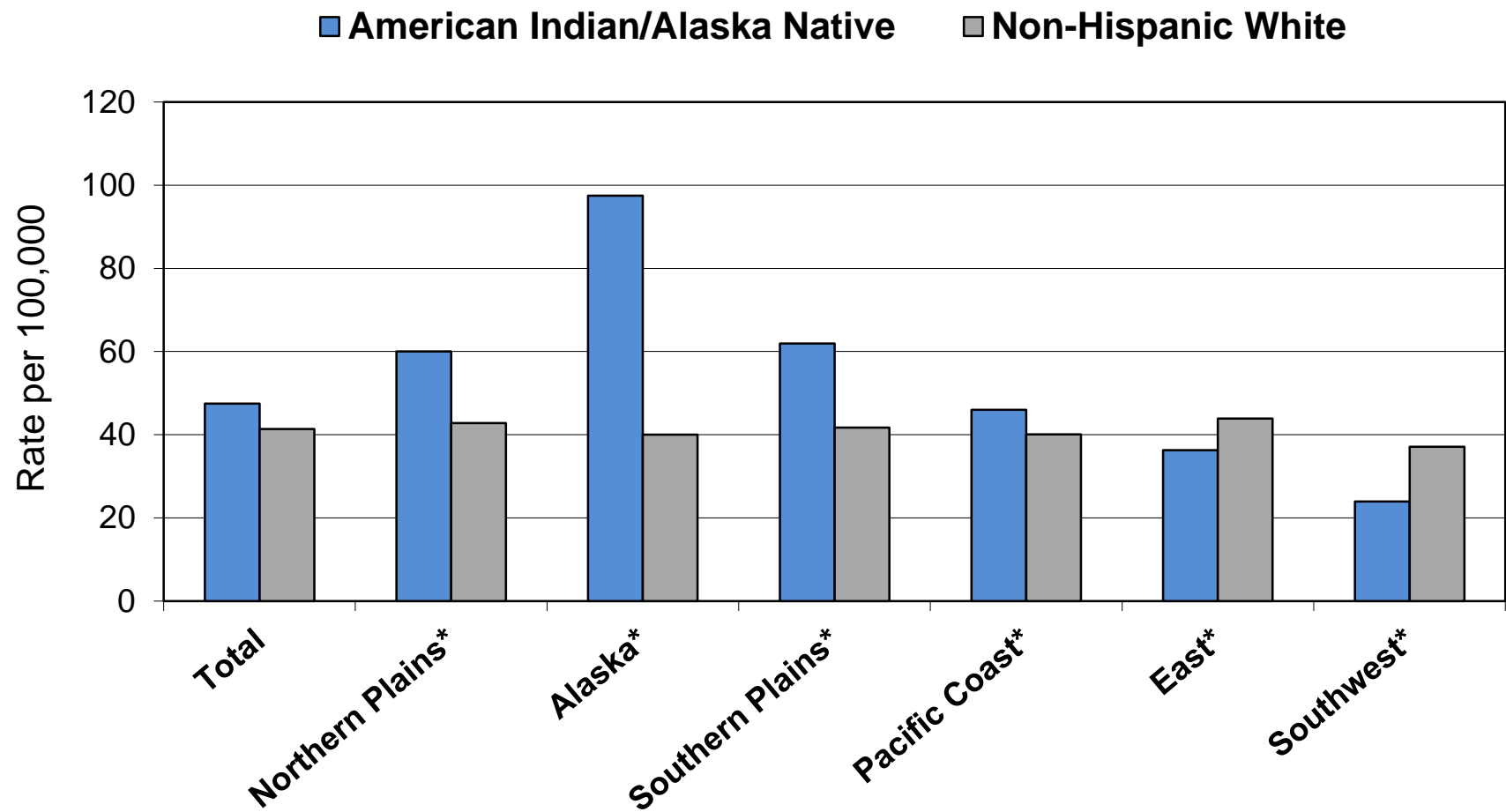


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SOURCE: White et al. Am J Public Health 2014; 104:S377-S387.

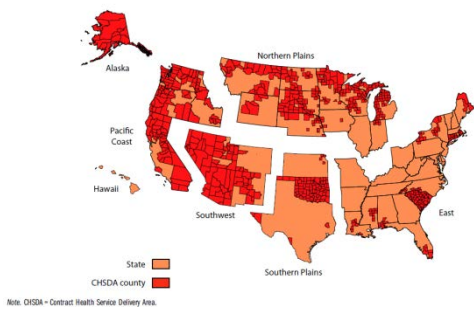


Colon and rectum cancer incidence rates for American Indian/Alaska Native females vary by geographic region within the United States

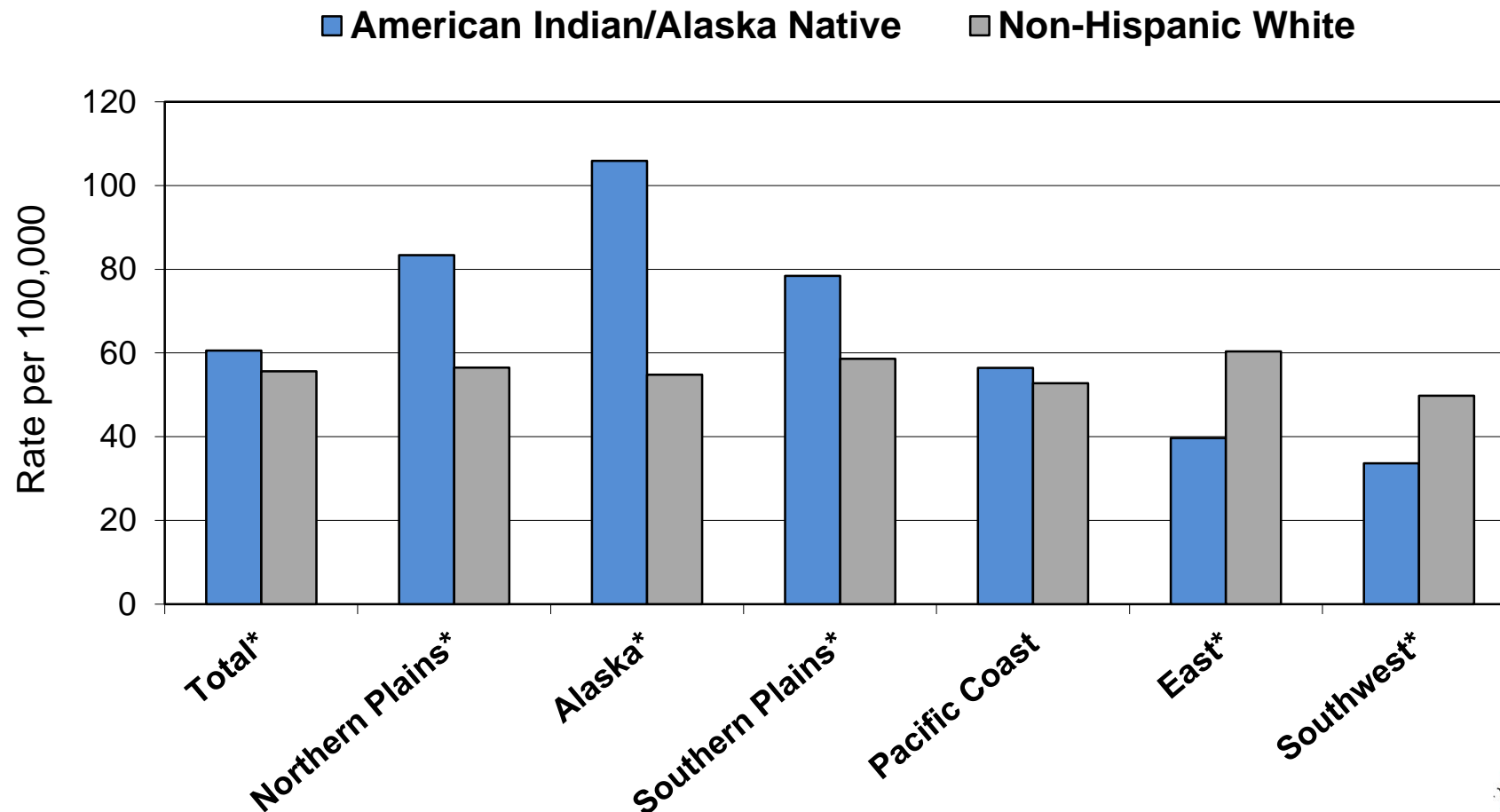


- Average annual age-adjusted incidence rates (US 2000 standard)
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- Asterisk (*) denotes statistically significant difference ($p < 0.05$)

SOURCE: White et al. Am J Public Health 2014; 104:S377-S387.

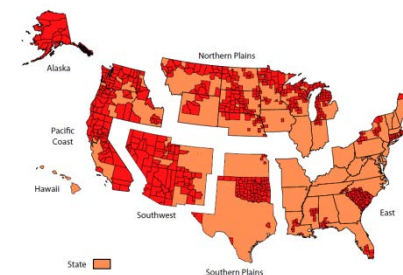


Colon and Rectum cancer incidence rates for American Indian/Alaska Native males vary by geographic region within the United States



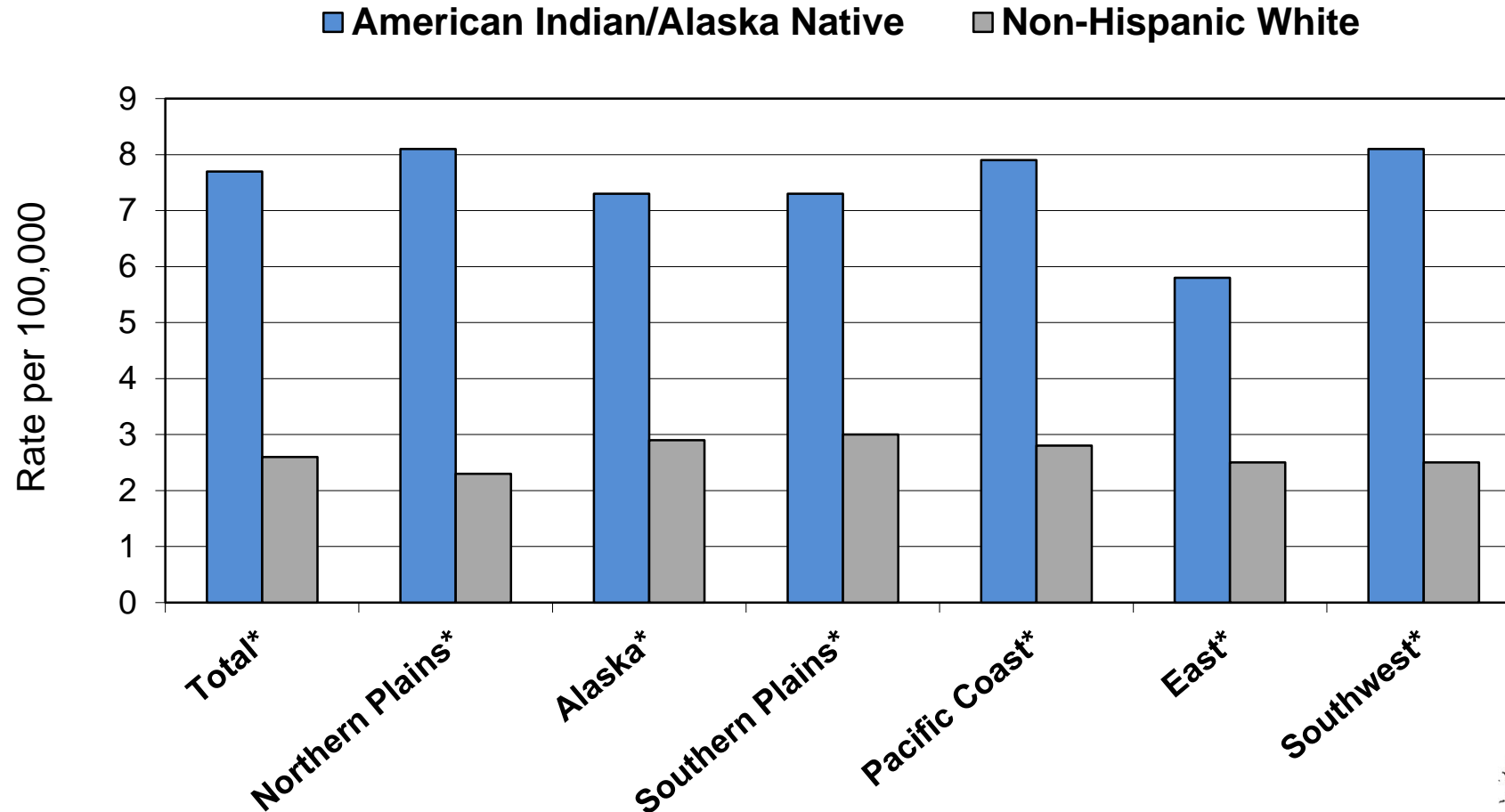
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SOURCE: White et al. Am J Public Health 2014; 104:S377-S387.



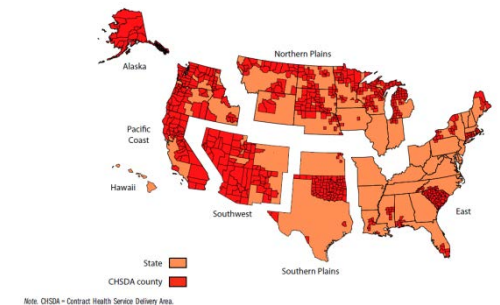
Note: CHSDA = Contract Health Service Delivery Area.

Liver cancer incidence rates for American Indian/Alaska Native females vary by geographic region within the United States

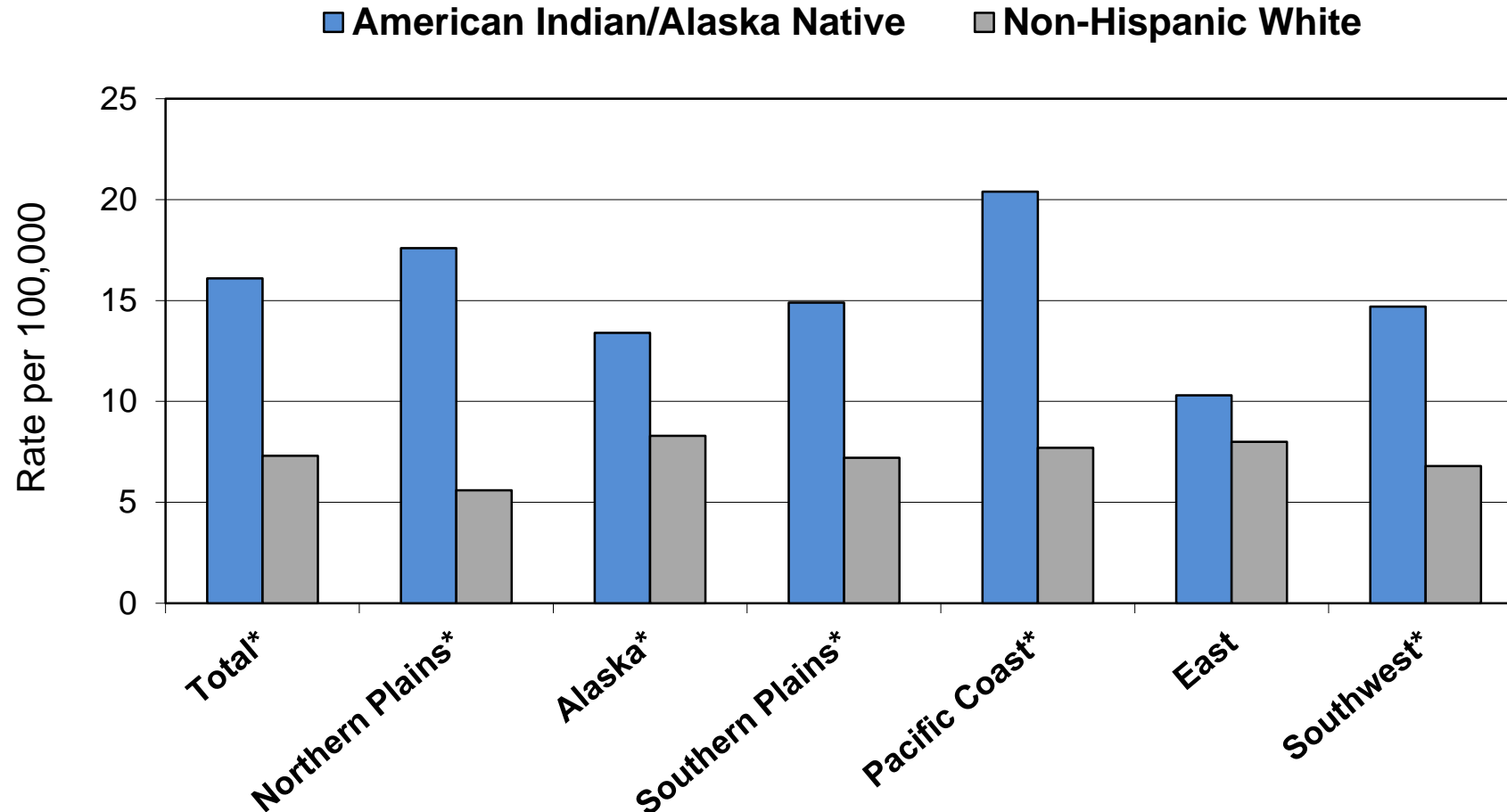


- Average annual age-adjusted incidence rates (US 2000 standard)
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- Asterisk (*) denotes statistically significant difference ($p < 0.05$)

SOURCE: White et al. Am J Public Health 2014; 104:S377-S387.

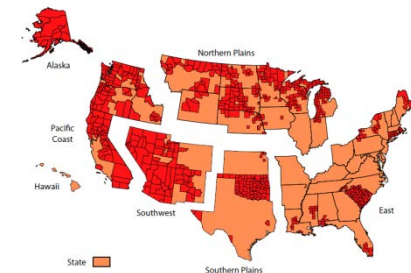


Liver cancer incidence rates for American Indian/Alaska Native males vary by geographic region within the United States



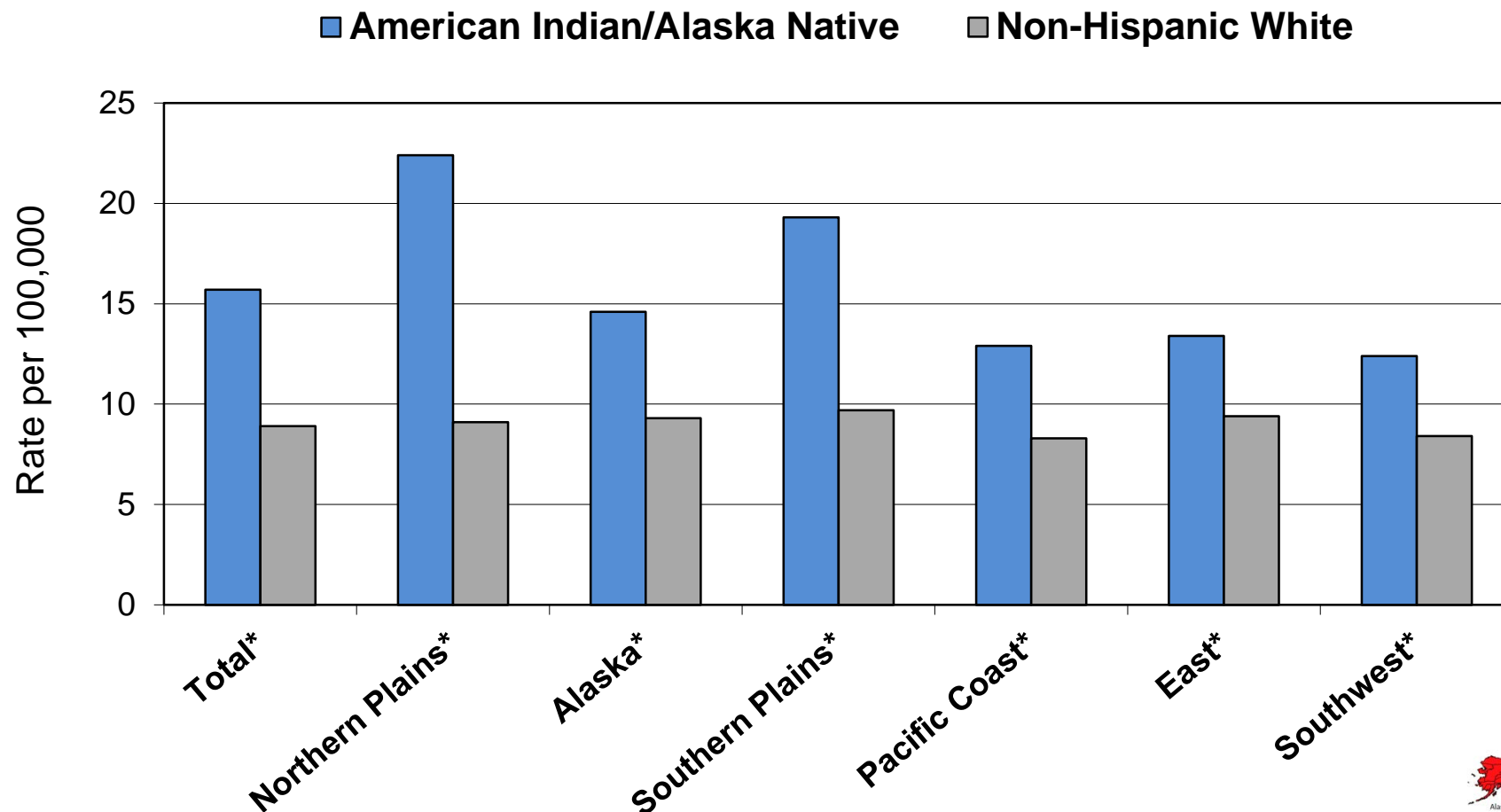
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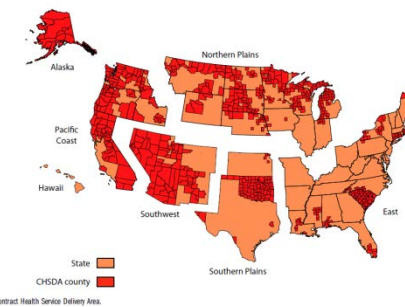
Note: CHSDA = Contract Health Service Delivery Area.

Kidney cancer incidence rates for American Indian/Alaska Native females vary by geographic region within the United States

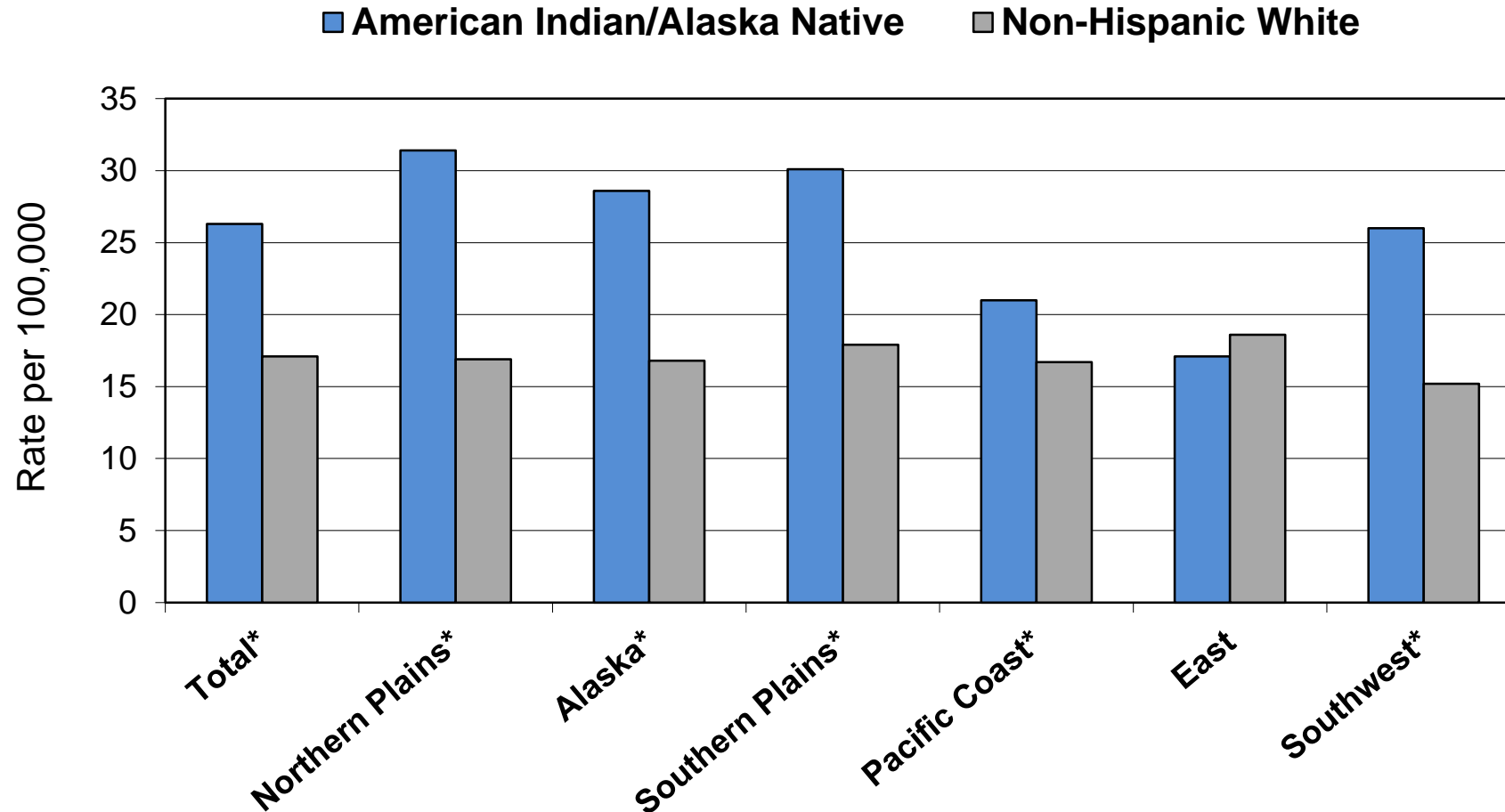


- Average annual age-adjusted incidence rates (US 2000 standard)
- United States by region (CHSDA only), 1999-2009
- Asterisk (*) denotes statistically significant difference ($p < 0.05$)

SOURCE: Li et al. Am J Public Health 2014; 104:S396-S403.

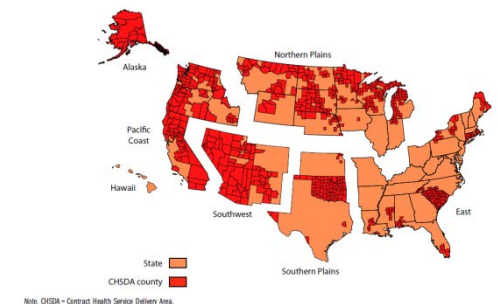


Kidney cancer incidence rates for American Indian/Alaska Native males vary by geographic region within the United States



- Average annual age-adjusted incidence rates (US 2000 standard)
- United States by region (CHSDA only), 1999-2009
- Asterisk (*) denotes statistically significant difference ($p < 0.05$)

SOURCE: Li et al. Am J Public Health 2014; 104:S396-S403.



Cancer Death Rates per 100,000 – Men (2008-2012)

Cancer	American Indian	Non-Hispanic White	American Indian/Non-Hispanic White Ratio
All Sites	186.7	210.6	0.9
Kidney & Renal Pelvis	8.7	5.9	1.5
Liver & IBD*	13.9	7.6	1.8
Stomach	7.4	3.6	2.1
Colon & Rectum	18.8	18.2	1.0
Prostate	20.2	19.9	1.0

Source: NCI 2015. Seer Cancer Statistics Review, 1975-2012. Table 1.21.

http://seer.cancer.gov/csr/1975_2012/sections.html

Cancer Death Rates per 100,000 - Women (2008-2012)

Cancer	American Indian Women	Non-Hispanic White Women	American Indian/Non-Hispanic White Ratio
All Sites	133.9	149.2	0.9
Cervical	3.5	2.0	1.8
Kidney & Renal Pelvis	4.7	2.6	1.8
Liver & IBD*	6.3	3.1	2.0
Stomach	3.6	1.8	2.0
Breast	15.0	21.9	0.7
Colon and Rectum	15.6	12.9	1.2

Source: NCI 2015. Seer Cancer Statistics Review, 1975-2012. Table 1.21.

http://seer.cancer.gov/csr/1975_2012/sections.html

Risk Factors

Smoking Prevalence Among Adults - 2015

Race/Ethnicity	Prevalence (percent)
American Indian/Alaska Natives	29.2
Asians	9.5
Blacks	17.5
Hispanics	11.2
Multiple Races	27.9
White	18.2

Source: Centers for Disease Control and Prevention. [Current Cigarette Smoking Among Adults—United States, 2005–2014](#). Morbidity and Mortality Weekly Report 2015;64(44):1233–40 [accessed 2015 Dec 7].

Adults aged 50-75 who had any colorectal test or procedure, 2013

American Indian Alaska Native	Non-Hispanic White	American Indian Alaska Native/Non- Hispanic White Ratio
49.3	60.4	0.8

AI/AN – Obesity Rates – 18 years and older

	American Indian & Alaska Native	Non-white Hispanic
Overweight – Not Obese	31.2	34.1
Obese	42.3	27.4

Percent Inactive physical activity among adults: 2014 (Did not meet federal physical activity guidelines)

American Indian Alaska Native	Non-Hispanic White	African American/ Non-Hispanic White Ratio
51.6	43.4	1.2

NCI Response: disease prevention
interventions and treatment

NCI Funding Collaborations

SEER/IHS linkage

- <http://seer.cancer.gov/>



Native CIRCLE

- http://cancercenter.mayo.edu/native_circle.cfm

Interventions for Health Promotion & Disease Prevention in Native American Populations

Trans-NIH Program Announcement:

<http://cancercontrol.cancer.gov/nativeamericanintervention/>



- National Cancer Institute
- National Institute on Alcohol Abuse and Alcoholism
- National Institute on Drug Abuse
- National Institute of Environmental Health Sciences
- National Institute of Mental Health
- National Institute of Nursing Research
- National Institute of Minority Health and Health Disparities
- Office of Behavioral and Social Sciences Research

Purpose of the Funding Opportunity Announcement

- Develop interventions for health promotion including cancer prevention
- Solicit research to adapt, develop, test and implement interventions in AI/AN populations to improve risk profiles at individual, familial, and community levels
- Researchers to partner with communities to:
 - Incorporate concerns and issues of the community
 - Adopt methodologies that are relevant to AI/AN populations
 - Study designs to address the complex and multi-layered causes of health inequities

Examples of Funded Projects

- Reducing tobacco use-risk of tobacco-related maternal, fetal, and infant adverse health outcomes

Principal Investigator: Christi A. Patten, Mayo Clinic, Rochester

- Interventions for uptake of colorectal cancer screening in Southwest tribes

Principal Investigators:

- Shiraz Mishra, University of New Mexico Cancer Center
- Kevin English, Albuquerque Area Indian Health Board

NCI Clinical Trials Accrual – By Cancer Site

	Breast	Prostate	Colorectal	Myeloma	Lung	Total
Number of Accruals (# trials)	5,424 (16)	2,709 (7)	1,350 (4)	629 (5)	1,679 (25)	11,791 (57)
% to Ph 2 Trials (# Ph 2 trials)	1% (2)	0% (0)	11% (2)	22% (1)	16% (8)	5% (13)
% to Ph 3 Trials (# Ph 3 trials)	99% (14)	100% (7)	64% (1)	58% (2)	61% (8)	87% (32)

- Other disease areas with 500+ accruals in from March 2014-February 2016 (combining pediatric and adult accruals):
 - Leukemia: 6,785
 - Brain: 1,296
 - Head and neck: 1,058
 - Lymphoma: 1,020
 - Renal: 861
 - Melanoma: 725
 - Ovarian: 542

25% of colorectal accruals to Ph2/3
 20% of myeloma accruals to Ph1/2
 9% of lung accruals to Ph1/2 and 14% to Ph2/3

Key Disease Areas - Accruals: Colorectal, Multiple Myeloma, Lung

March 2014 – February 2016

Circles indicate differences >5%

	White	Black	AI/AN	Asian/PI	#	Hispanic	Not Hispanic	#
Colorectal Incidence	77.6%	17.0%	0.7%	4.6%		13.9%	86.1%	
Colorectal Accruals	84.0%	10.9%	0.7%	4.4%	1,307	8.4%	91.6%	1,317
Expected – Observed	+6.4%	-6.1%	0.0%	-0.2%		-5.5%		
Myeloma Incidence	69.6%	26.9%	0.5%	3.0%		15.1%	84.9%	
Myeloma Accruals	83.0%	13.4%	1.0%	2.6%	605	6.7%	93.3%	599
Expected – Observed	+13.4%	-13.5%	+0.5%	-0.4%		-8.4%		
Lung Incidence	80.6%	15.4%	0.5%	3.4%		8.7%	91.3%	
Lung Accruals	86.0%	10.2%	0.8%	3.0%	1,633	2.6%	97.4%	1,633
Expected – Observed	+5.4%	-5.2%	+0.3%	-0.4%		-6.1%		

Colorectal: 37 NR/UK and 6 Multiple Race; 33 NR/UK Ethnicity
 Myeloma: 23 NR/UK and 1 Multiple Race; 30 NR/UK Ethnicity
 Lung: 43 NR/UK and 3 Multiple Race; 46 NR/UK Ethnicity

Future Directions



CONFERENCE ON GEOSPATIAL APPROACHES TO CANCER CONTROL AND POPULATION SCIENCES

September 12-14, 2016

Natcher Conference Center, NIH Campus, Bethesda MD

[Welcome](#)[Agenda](#)[Logistics](#)[Submit Abstract](#)[Register Now](#)

This conference, sponsored by NCI's Division of Cancer Control and Population Sciences (DCCPS), will address spatial and contextual aspects of cancer across the entire cancer control continuum, including etiology, prevention, detection, diagnosis, treatment, and survivorship.

Conference Goals

Growing technological capacity in mapping and spatial technology along with increasing sophistication in has resulted in the emergence of a growing research community using geospatial approaches on diverse aspects of cancer prevention and control.

The conference aims to bring together a community of researchers across the cancer control continuum using geospatial tools, models and approaches to address cancer prevention and control to:

- Support and build this research community;
- Accelerate the integration of state-of-the-art tools and theories from spatial research into cancer control and population sciences; and
- Identify future directions for data, resource, training and research funding in cancer control.

Presentations include:

[Health Service Accessibility and Risk in Cervical Cancer Prevention: Comparing Rural Versus Non-Rural Residence in New Mexico](#)



National Meeting on Precision Medicine and Cancer in **AMERICAN INDIAN & ALASKA NATIVE COMMUNITIES**

MEETING OVERVIEW

National Meeting on Precision Medicine and Cancer in American Indian & Alaska Native Communities

Precision medicine is an emerging approach for disease treatment and prevention that takes into account individual variability in genes, tissue and tumor profiles, environment, and lifestyle for each person. To understand how precision medicine can inform cancer diagnosis and treatment in American Indian and Alaska Native communities, the Stephenson Cancer Center at the University of Oklahoma will host a meeting in Oklahoma City on Thursday, Nov. 10.

GUEST SPEAKERS include Congressman Tom Cole (OK-04) and National Cancer Institute Acting Director Dr. Douglas Lowy. The primary group of invitees will be scientists and community partners at NCI-designated cancer centers.

**SAVE
THE
DATE**

**NOV 10
2016**

Samis Education Center
OU Health Sciences Center
Oklahoma City, Oklahoma

<http://www.precisionmedicineandcancernationalmeeting.com/>

SEER Program Expansion

Currently covers 30% of the US population (450,000+ incident cases reported annually)

Scientific priorities include:

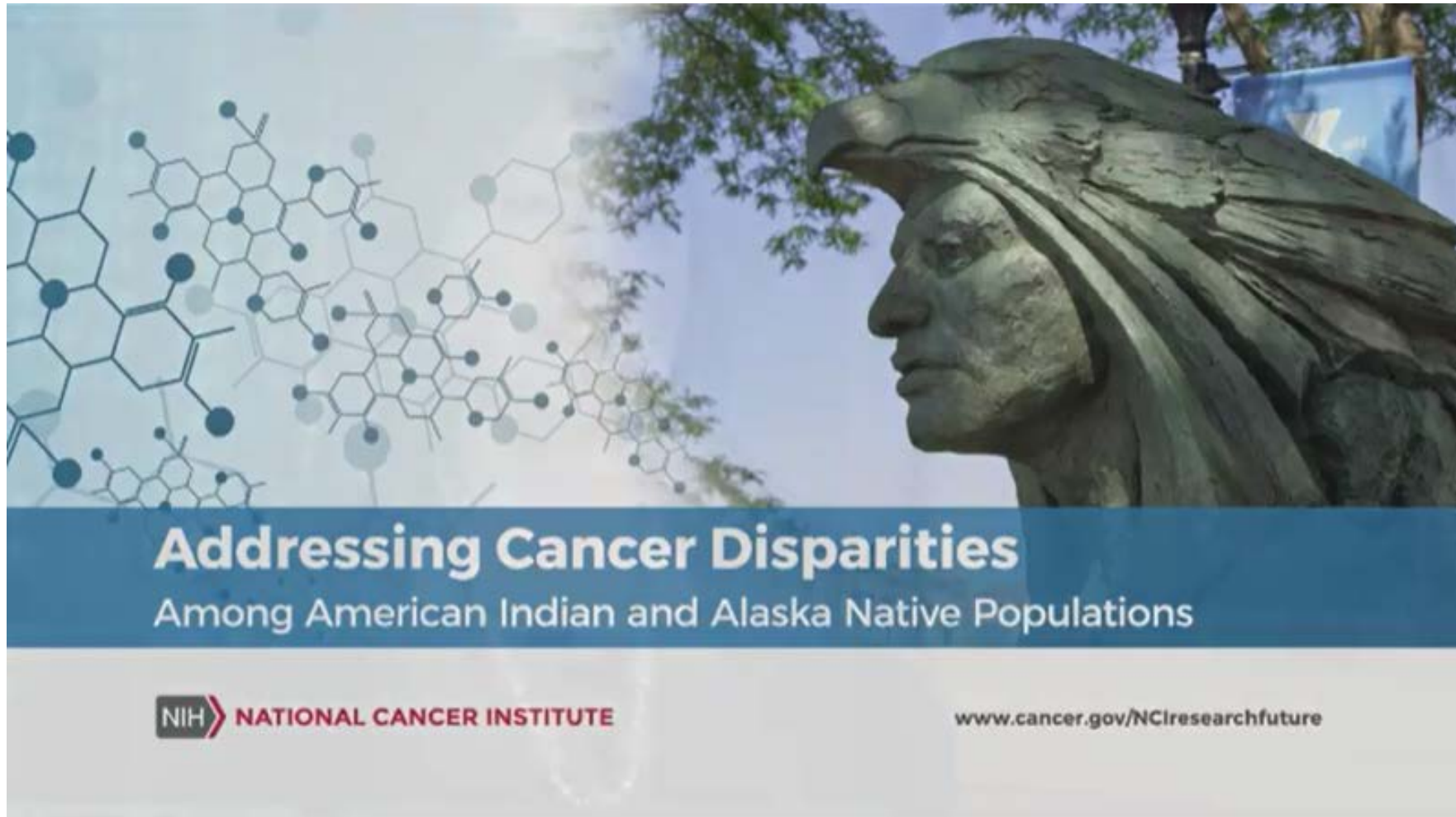
1. Represent data in more clinically relevant categories with better representation of special U.S. populations
2. Automate and directly capture data via
Linkages
Auto-processing of data (Natural Language Processing)
3. Expand outcomes data collection
4. Expand the capacity of SEER to support cancer research

New Mexico Registry with CDC and IHS

- Has spearheaded the collection of AI/AN cancer incidence and mortality data
- Works on misclassification of AI/AN
- In partnership with Mayo's Spirit of Eagles
 - Creating a searchable database of AI/AN cancer incidence & mortality
 - Allows for comparison with local community data

Small Data – Implications for AI/AN communities

- Those for which the size, dispersion, or accessibility of the population may make it difficult to obtain adequate sample sizes for specific research questions
- What statistical tools are needed to analyze this kind of data?
- What are the factors that need to be considered when testing and implementing multilevel interventions?
- Is there sufficient statistical power to assess the effect of each level and tease them apart?



Addressing Cancer Disparities

Among American Indian and Alaska Native Populations

NIH **NATIONAL CANCER INSTITUTE**

www.cancer.gov/NCIresearchfuture

<https://youtu.be/KkmRfnSk9c4>