

SOUTHEASTERN AMERICAN INDIAN CANCER HEALTH EQUITY PARTNERSHIP

Live Webinar

Melissa Jim, VPH

Improving AI/AN Cancer Surveillance Data in the US

May 1

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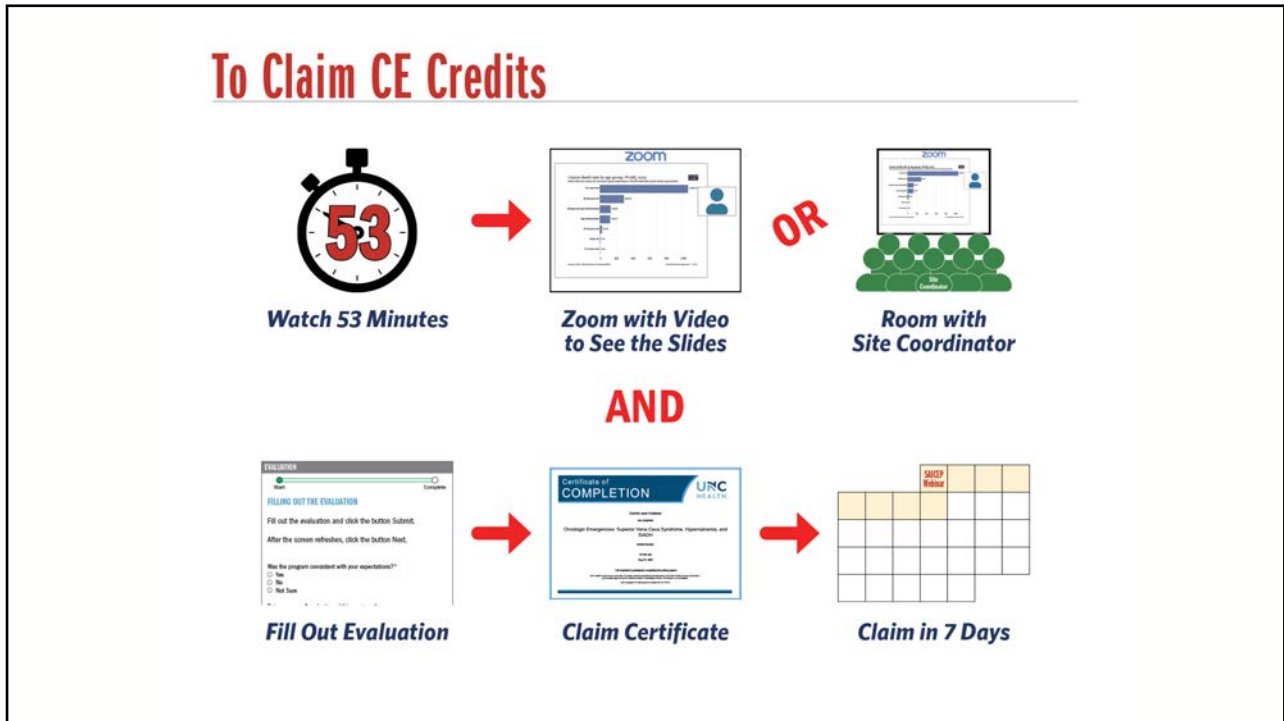
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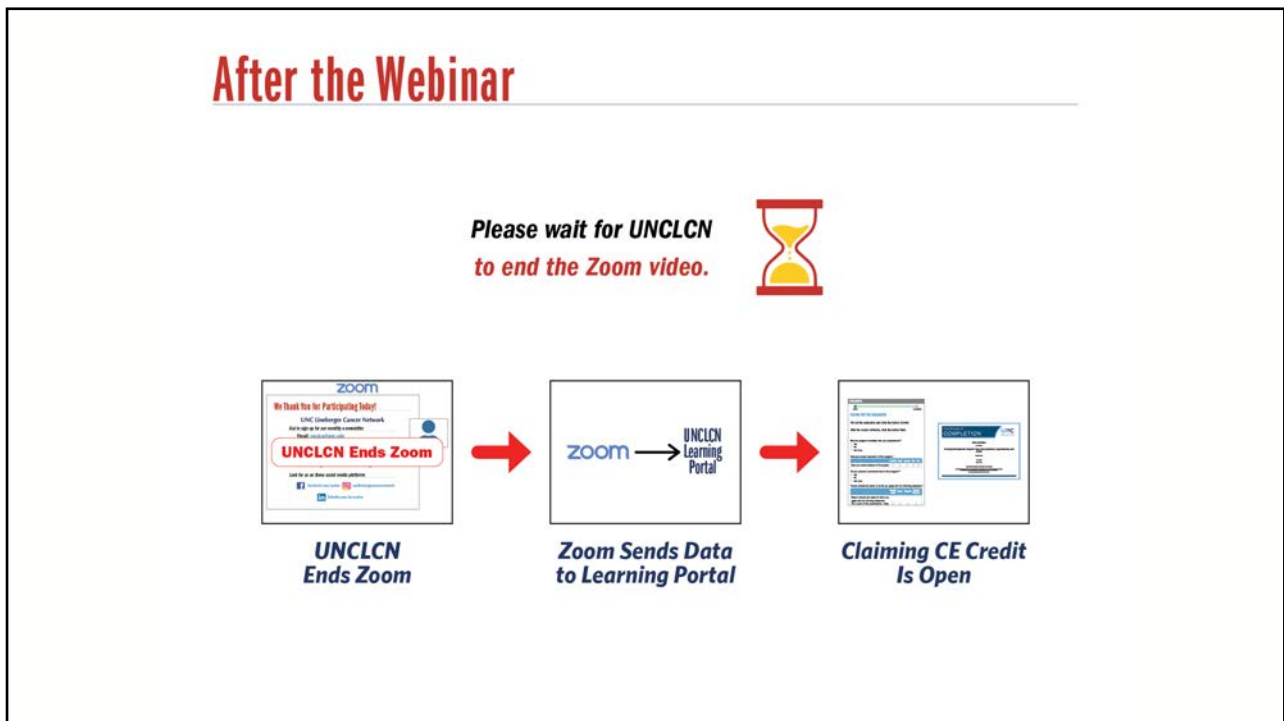
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Improving AI/AN Cancer Surveillance Data in the US

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UNC Lineberger Cancer Network

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Our Presenter

Melissa Jim, MPH (Diné)

Melissa A. Jim, MPH (Diné) graduated from the MPH program at the University of New Mexico School of Medicine in 2004. She has been an Epidemiologist with the Cancer Surveillance Branch in the Division of Cancer Prevention and Control at the Centers for Disease Control and Prevention in Albuquerque, NM since 2005. She conducts data linkages between all central cancer registries in the United States with the Indian Health Service (IHS) patient registration database, with results so significant that the linkage has become an annual central cancer registry requirement. She is co-PI on a project involving the linkage of the National Death Index which is maintained by the National Center for Health Statistics with the IHS patient registration database to improve the quality of race data for death records. She also provides technical assistance and analytic support to HIS and tribal organizations. Prior to working for CDC she worked at the New Mexico Tumor Registry for 5 years.

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Our Presenter

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 SAICEP is the abbreviation for Southeastern American Indian Cancer Health Equity Partnership

(A) True 0%

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This activity has been planned and implemented under the sole supervision of the Course Director, Stephanie Wheeler, PhD, MPH, in association with the UNC Office of Continuing Professional Development (CPD). The course director received research support from AstraZeneca (ended June 2023) and Pfizer Medical Foundation (ended December 2023). These financial relationships have been mitigated. CPD staff have no relevant financial relationships with ineligible companies as defined by the ACCME.

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SAICEP is the abbreviation for Southeastern American Indian Cancer Health Equity Partnership

True 0%

False 0%

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Improving American Indian/Alaska Native (AI/AN) cancer surveillance data in the United States

Melissa A. Jim, MPH (*Diné*)
Epidemiologist

SAICEP Webinar
May 1, 2024



Centers for Disease Control and Prevention
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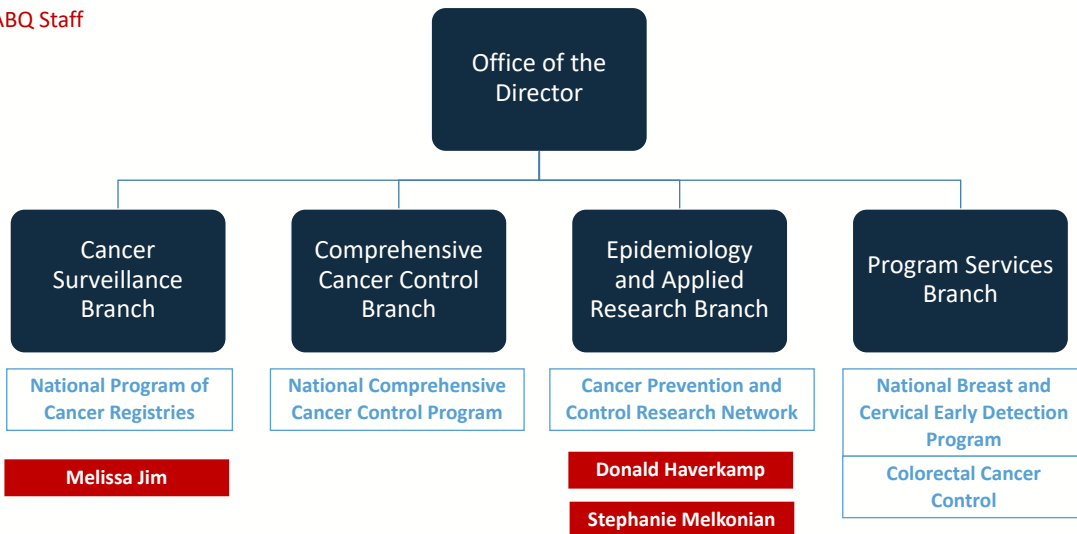
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Overview

- Background
- United States Cancer Statistics
- Methods to improve the estimation of cancer burden among AI/AN
 - 1) IHS Linkage
 - 2) Restriction to IHS Purchased/Referred Care Delivery Area (PRCDA) counties
 - 3) Restriction to non-Hispanic populations
- USCS Data Visualization Tool

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Background



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Background

- Race misclassification of AI/AN occurs in cancer surveillance & vital statistics databases
- More AI/AN are misclassified as another race on death certificate records than other race groups
- Results in underestimates of cancer incidence & death rates among AI/AN
- This project compared self-report Census race to race on the death certificate
 - Only 55% of those who self-reported as AI/AN were coded as AI/AN on the death certificate
 - 41% of those who self-reported as AI/AN were coded as White on the death certificate

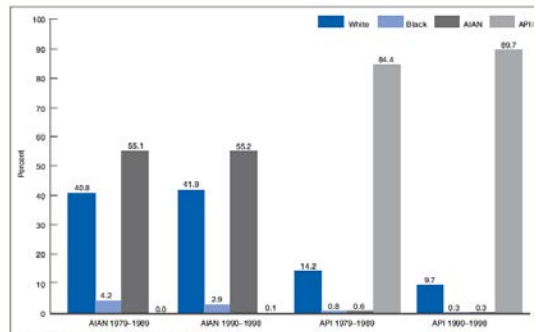
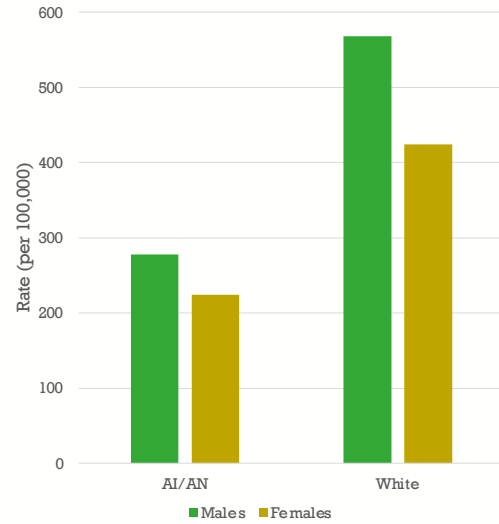


Figure 1. Race distribution on death certificate among self-identified American Indian or Alaska Native and Asian or Pacific Islanders: United States, 1979-1989 and 1990-1999.

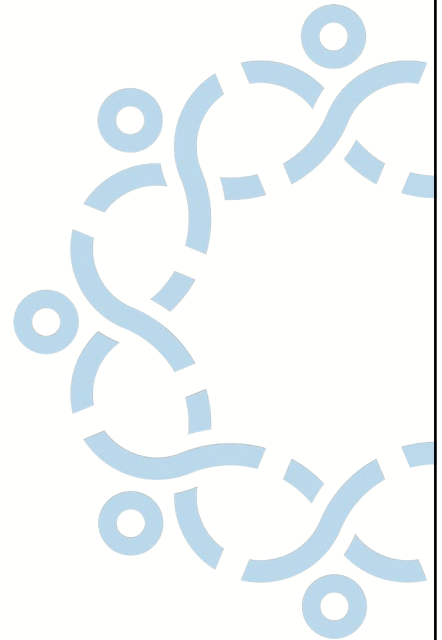
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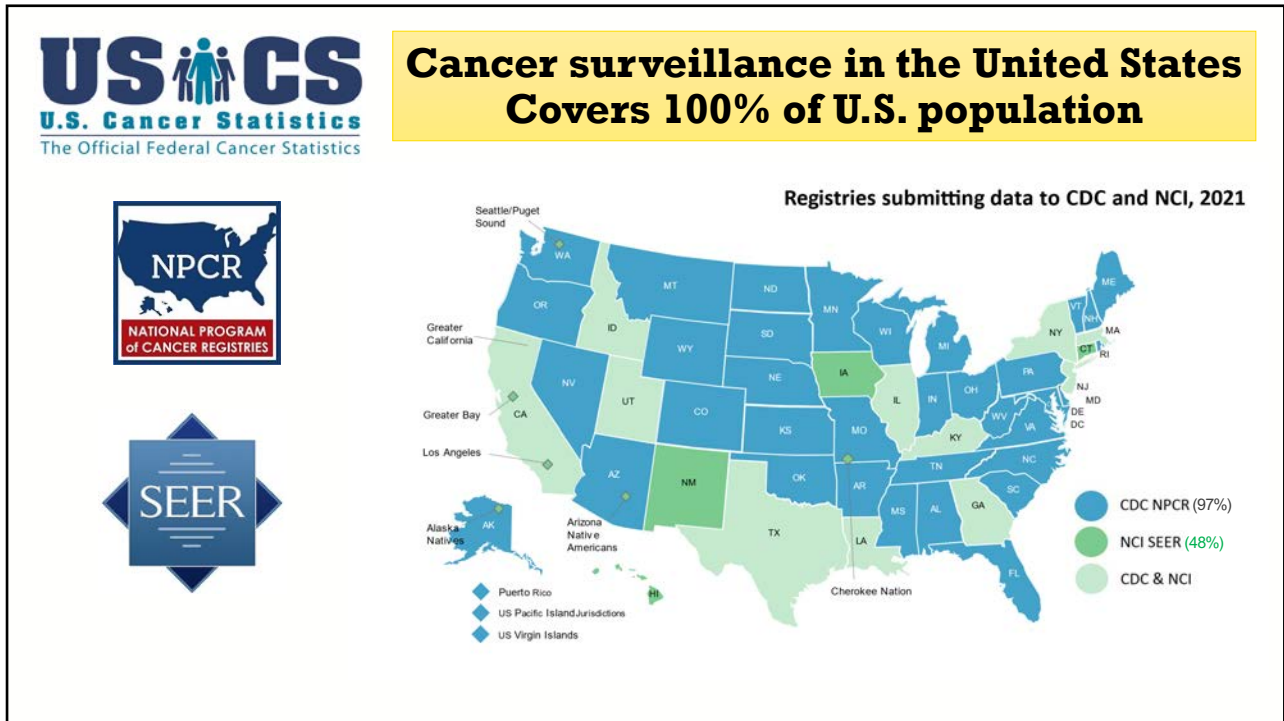
AI/AN cancer incidence, 1992-1999

- 12 SEER geographic areas
 - AK, Atlanta, CT, Detroit, HI, IA, Los Angeles, NM, San Francisco-Oakland, San Jose-Monterrey, Seattle-Puget Sound, and UT
- 818,685 AI/AN cases
 - 32% lived in NM
 - 21% lived in AK
 - 12% lived in Seattle-Puget Sound
 - 11% lived in Los Angeles



CDC's role in cancer surveillance





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Improving cancer surveillance data in AI/AN populations

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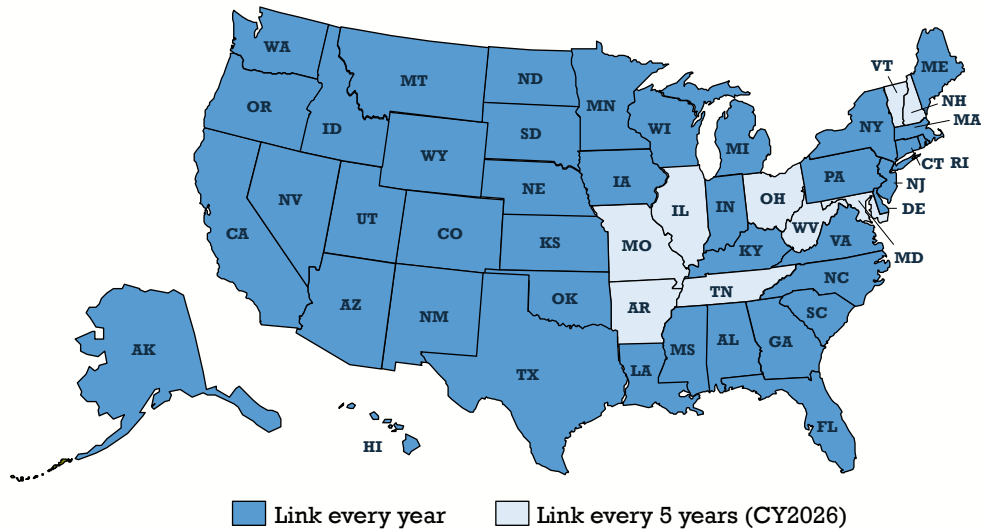
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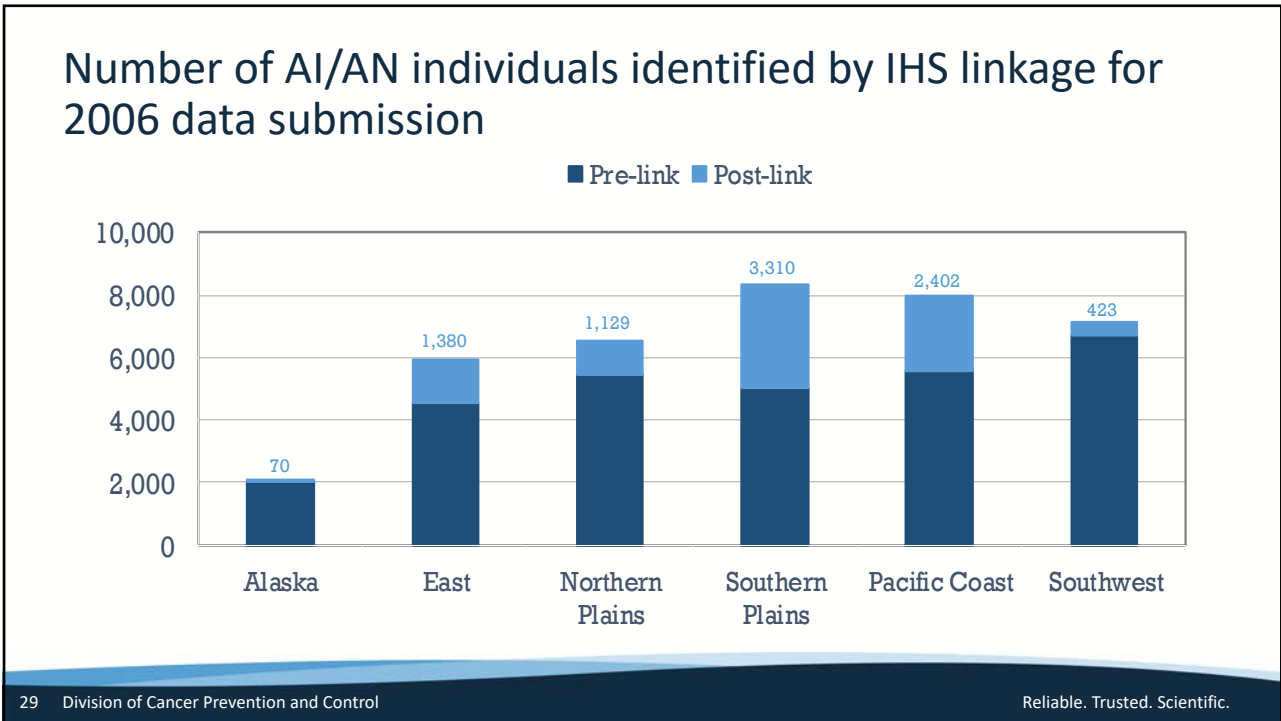
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Method 1: Link with IHS administrative records

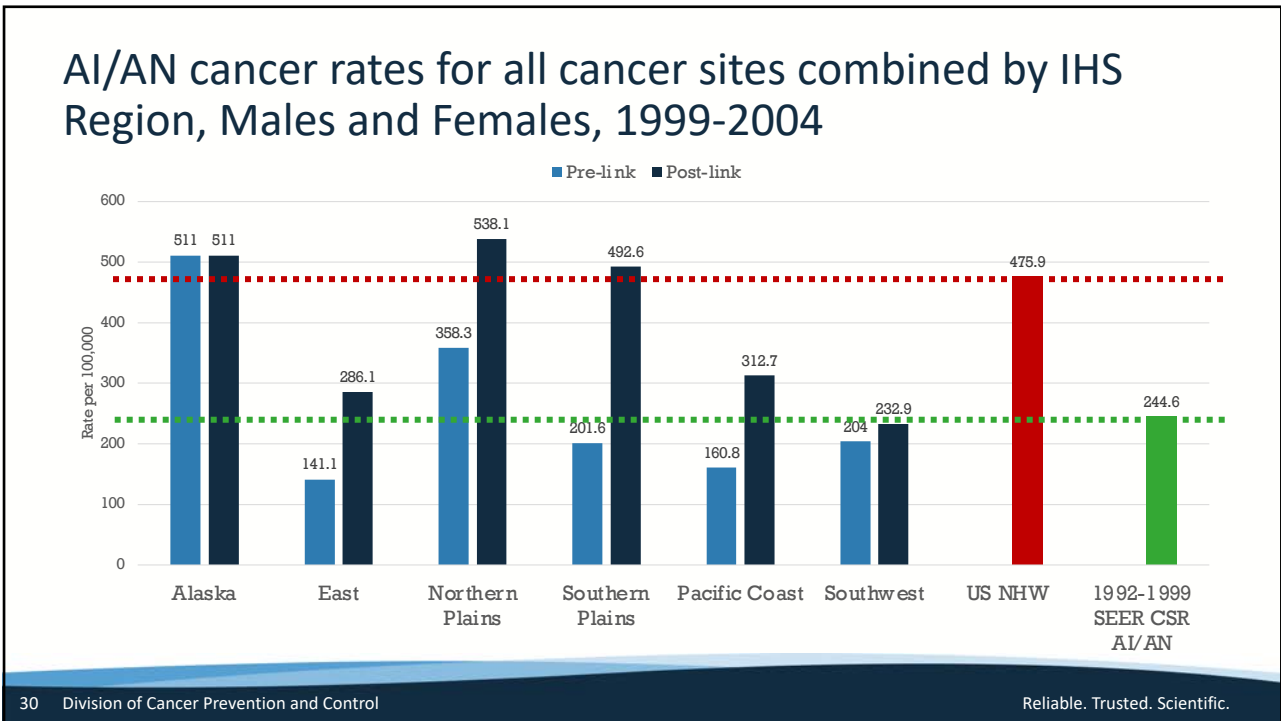
- Link administrative records from IHS with cancer records from:
 - CDC’s National Program of Cancer Registries (NPCR)
 - NCI’s Surveillance, Epidemiology, and End Results (SEER)
- Identify AI/AN cases misclassified as non-AI/AN
- Results captured in IHS Link (NAACCR data item 192) in NPCR & SEER annual data submissions
- Race recode (Race1, Race2, and IHS Link)
 - Various USCS databases
 - USCS AI/AN Incidence Analytic Database (AIAD)
 - Various SEER databases

IHS-NPCR/SEER Linkage Schedule



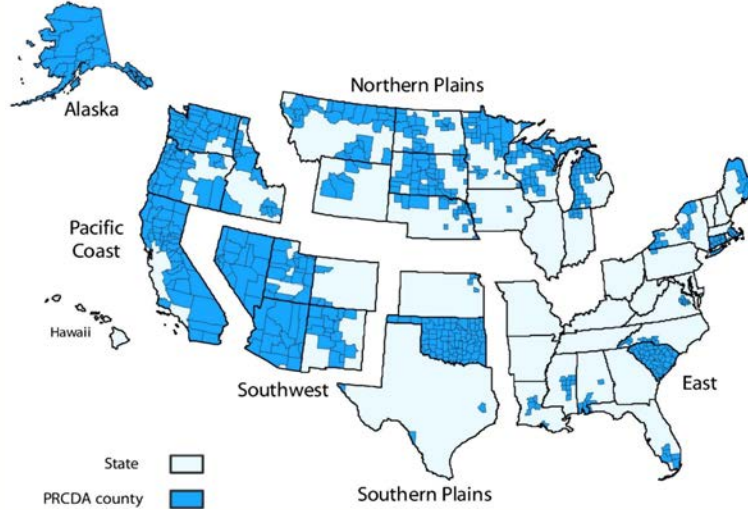


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Method 2: Restriction to IHS Purchased/Referred Care Delivery Areas (PRCDA)



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Sensitivity & classification ratios for decedents that linked to IHS: US, NPCR/SEER, 1990-2009

Group	Sensitivity		Classification Ratio	
	CHSDA	Non-CHSDA	CHSDA	Non-CHSDA
Male and Female	77.6	39.0	1.29	2.56
Male	77.3	39.8	1.29	2.51
Female	77.9	38.4	1.28	2.60
Northern Plains	88.2	71.4	1.13	1.40
Alaska	99.4	NA	1.01	NA
Southern Plains	56.2	13.9	1.78	7.22
Southwest	89.1	63.2	1.12	1.58
Pacific Coast	86.6	57.1	1.15	1.75
East	52.8	15.2	1.90	6.60
Urban	72.9	41.6	1.37	2.40
Rural	80.8	52.1	1.24	1.92

Sensitivity

- % of cases that linked to IHS and were correctly classified by cancer registries

Classification ratio

- IHS linkage identified an additional X% of AI/AN cases compared to cancer registries alone

Less misclassification in CHSDA counties

Jim MA, Arias E, Seneca DS, Hoopes MJ, Jim CC, Johnson NJ, Wiggins CL. Racial Misclassification of American Indians and Alaska Natives by Indian Health Service Contract Health Service Delivery Area. *Am J Public Health*. 2014; 104:S295-S302.

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Sensitivity & classification ratios for decedents that linked to IHS: US, IHS-NVSS, 1990-2009

Group	Sensitivity		Classification Ratio	
	CHSDA	Non-CHSDA	CHSDA	Non-CHSDA
Male and Female	83.6	54.8	1.20	1.82
Male	84.3	55.9	1.19	1.79
Female	82.7	53.6	1.21	1.87
Northern Plains	91.9	74.2	1.09	1.35
Alaska	93.5	NA	1.07	NA
Southern Plains	65.3	38.4	1.53	2.61
Southwest	94.3	72.3	1.06	1.38
Pacific Coast	75.2	52.9	1.33	1.89
East	83.2	38.8	1.20	2.57
Urban	77.8	55.4	1.29	1.81
Rural	87.1	53.1	1.15	1.88

Sensitivity better in CHSDA counties

Classification ratios reflect significantly better agreement between IHS and the death certificate in CHSDA counties

Jim MA, Arias E, Seneca DS, Hoopes MJ, Jim CC, Johnson NJ, Wiggins CL. Racial Misclassification of American Indians and Alaska Natives by Indian Health Service Contract Health Service Delivery Area. *Am J Public Health.* 2014; 104:S295-S302.

Sensitivity & classification ratios for self-reported AI/AN decedents: US, National Longitudinal Mortality Study, 1990-2002

Group	Sensitivity		Classification Ratio	
	CHSDA	Non-CHSDA	CHSDA	Non-CHSDA
Male and Female	68.8	28.3	1.18	1.81
Male	69.7	30.2	1.20	1.77
Female	67.8	26.8	1.16	1.84
Northern Plains	85.5	38.6	1.00	1.20
Alaska	95.3	NA	0.96	NA
Southern Plains	42.6	29.9	1.51	2.00
Southwest	79.9	2.8	1.14	1.18
Pacific Coast	64.9	10.7	1.16	3.34
East	12.3	28.9	3.34	1.90
Urban	49.5	23.2	1.36	1.86
Rural	81.4	36.9	1.08	1.74

AI/AN decedents were significantly more likely to be classified on death certificates in CHSDA than in non-CHSDA counties

An exception in the East – likely due to small sample size

Jim MA, Arias E, Seneca DS, Hoopes MJ, Jim CC, Johnson NJ, Wiggins CL. Racial Misclassification of American Indians and Alaska Natives by Indian Health Service Contract Health Service Delivery Area. *Am J Public Health.* 2014; 104:S295-S302.

Method 3: Restriction to non-Hispanic population

- Modified race process increasing size of Hispanic AI/AN & API populations
 - After edits & imputations

Modified race	2000	2010
Hispanic AI/AN	↑ 39%	↑ 115%
Hispanic API	↑ 99%	↑ 152%

$$\frac{100}{100,000} = 100 \text{ per } 100,000$$

$$\frac{100}{139,000} = 71.9 \text{ per } 100,000$$

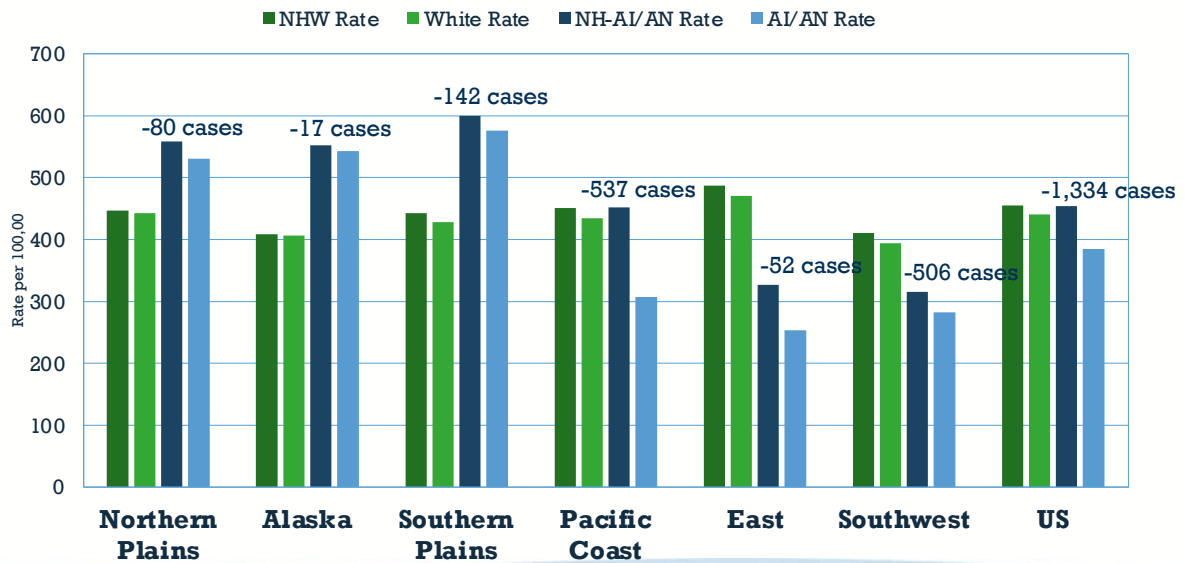
$$\frac{100}{215,000} = 46.5 \text{ per } 100,000$$

Rate decreases when:

- Numerator stays the same
- Denominator increases

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All malignant cancer sites combined, US, PRCDA, 2013-2017

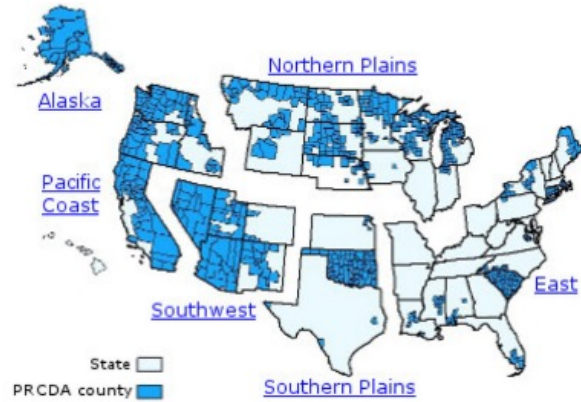


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USCS AI/AN Incidence Analytic Database (USCS AIAD)

<https://www.cdc.gov/cancer/uscs/about/tools/AIAN-incidence-analytic-db.htm>

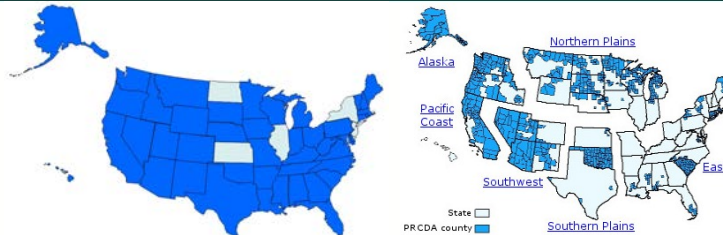
- Aggregated at IHS Region
 - Northern Plains
 - Alaska
 - Southern Plains
 - Pacific Coast
 - East
 - Southwest
 - US
- Race recode that incorporates IHSLink
- PRCDA county flag
- Includes data for 1999-2021 dx years
- AI/AN Data Briefs
 - <https://www.cdc.gov/cancer/uscs/about/data-briefs/index.htm>



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United States Cancer Statistics: Data Visualizations

The official federal statistics on cancer incidence and deaths, produced by the Centers for Disease Control and Prevention (CDC) and the National Cancer Institute (NCI).



Methods to improve AI/AN cancer data	USCS Data Viz*	USCS Data Viz – AI/AN Incidence Analytic Database module**
1) IHS Linkage	Yes	Yes
2) Restrict to PRCDA counties	No	Yes
3) Restrict to non-Hispanic AI/AN	No	Yes

* <https://gis.cdc.gov/Cancer/USCS/#/AtAGlance/> - State- and county-specific data for non-Hispanic American Indian and Alaska Native persons are not presented for states that opted not to present these data: Illinois, Kansas, New Jersey, New York, and North Dakota.

** <https://gis.cdc.gov/Cancer/USCS/#/AIAN/> - data for all states included.

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 **All American Indian/Alaska Native cancer data is accurate.**


True 0%

False 0%

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This slide features a light blue background with a white header area. In the top left corner, there is a red, black, and yellow cancer awareness ribbon icon. The main text is in a bold, dark blue font. Below the text, there are two horizontal bars representing poll results, one for 'True' and one for 'False', both showing 0% completion. At the bottom, there is a small grey footer with white text.

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 **Cancer Incidence means the number of new cases for a given cancer.**

True 0%

False 0%

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USCS Data Visualization Tool –
AI/AN restricted to PRCDA only



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United States Cancer Statistics: Data Visualizations

American Indian and Alaska Native, Non-Hispanic restricted to PRCDA only

Rate of New Cancers in American Indian and Alaska Native, Non-Hispanic*

All IHS Regions, United States, 2016-2020
All Types of Cancer, Both Sexes

*Data are restricted to Non-Hispanic American Indian and Alaska Native living in IHS Purchased/Referred Care Delivery Area (PRCDA) counties.

To improve accuracy of American Indian and Alaska Native cancer statistics, analyses are restricted to areas with health care services provided by Indian Health Service (IHS). IHS Purchased/Referred Care Delivery Areas (PRCDA) consist of counties which include all or part of an American Indian and Alaska Native reservation and any county or counties which have a common boundary with a reservation. These cancer incidence data are restricted to Non-Hispanic populations residing in PRCDA counties (defined in the October 14, 2020 *Federal Register*) and are grouped at the IHS Region level.

White, Non-Hispanics living in PRCDA counties are presented for comparison.

Attention users: Use caution when interpreting 2020 data. The COVID-19 pandemic disrupted health services, leading to delays and reductions in cancer screening, diagnosis, and reporting to some central cancer registries. This may have contributed to the decline in new cancer cases for many sites in 2020.

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American Indian and Alaska Native, Non-Hispanic

Rate of New Cancers by Leading Cancer Sites
Male and Female, East, United States, 2016-2020
Rate per 100,000 people

95% Confidence Interval: Hide Show

Cancer Site	Rate per 100,000 people
All Types of Cancer	337.3
Lung and Bronchus	47.9
Colon and Rectum	35.0
Kidney and Renal Pelvis	18.7
Liver and Intrahepatic Bile Duct	12.6
Non-Hodgkin Lymphoma	10.9
Thyroid	10.1
Leukemias	9.8
Oral Cavity and Pharynx	9.7
Pancreas	9.2
Urinary Bladder	9.0
Stomach	7.1
Melanomas of the Skin	6.9
Myeloma	5.1
Brain and Other Nervous System	4.2
Esophagus	3.3
Larynx	2.9
Kaposi Sarcoma	Data not presented
Mesothelioma	Data not presented
Gallbladder	Data not presented
Hodgkin Lymphoma	Data not presented

White, Non-Hispanic

Rate of New Cancers by Leading Cancer Sites
Male and Female, East, United States, 2016-2020
Rate per 100,000 people

95% Confidence Interval: Hide Show

Cancer Site	Rate per 100,000 people
All Types of Cancer	477.4
Lung and Bronchus	61.6
Colon and Rectum	35.9
Melanomas of the Skin	29.8
Urinary Bladder	23.5
Non-Hodgkin Lymphoma	20.2
Kidney and Renal Pelvis	17.3
Leukemias	15.6
Thyroid	15.2
Pancreas	13.8
Oral Cavity and Pharynx	13.6
Brain and Other Nervous System	7.4
Liver and Intrahepatic Bile Duct	7.2
Myeloma	6.5
Stomach	5.6
Esophagus	5.0
Larynx	3.3
Hodgkin Lymphoma	2.9
Gallbladder	0.9
Mesothelioma	0.8
Kaposi Sarcoma	0.2

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Footnotes

A decline in 2020 cancer incidence counts and rates may in part be due to impact of the COVID-19 pandemic on health services and subsequent delays and reductions in cancer screening, diagnosis, and reporting to some central cancer registries. For more information see [USCS Highlights from 2020 incidence](#).

Incidence data are compiled from selected central cancer registries meeting U.S. Cancer Statistics data quality criteria in states that have at least one county designated as a PRCDA (Purchase/Referred Care Delivery Area). See [Technical Notes](#).

Incidence data from Indiana and Nevada are not presented as these states did not meet U.S. Cancer Statistics publication criteria.

States that have at least one PRCDA-designated county, grouped by Indian Health Service (IHS) region are: Alaska (Alaska), Pacific Coast (California, Idaho, Oregon, and Washington), Southwest (Arizona, Colorado, Nevada, New Mexico, and Utah), Northern Plains (Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming), Southern Plains (Kansas, Oklahoma, and Texas), and East (Alabama, Connecticut, Florida, Louisiana, Massachusetts, Maine, Mississippi, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, and Virginia). The percentage of the American Indian and Alaska Native, Non-Hispanic population living in a PRCDA-designated county from 2016-2020 was 54.0% for the United States; by IHS region, these percentages were: Alaska-100%; Pacific Coast-61.0%; Southwest-86.4%; Northern Plains-54.6%; Southern Plains-56.3%, and East-17.9%.

Rates are the number of cases per 100,000 people and are age-adjusted to the 2000 U.S. standard population (19 age groups - Census P25-1130). See [Incidence and Death rates](#).


Rates and counts are suppressed if fewer than 16 cases were reported in a specific category, such as sex, cancer type, and IHS region.

Cancer incidence data from the central cancer registries displayed here have been linked with the IHS patient registration database for improved accuracy of racial classification. To further minimize misclassification, these data are further restricted to American Indian and Alaska Native, Non-Hispanic race of non-Hispanic origin. Data for white race of non-Hispanic origin are presented for comparison. Studies have shown higher rates of certain cancers for the American Indian and Alaska Native, Non-Hispanic population, compared with the Non-Hispanic white population, with substantial variation in rates by geographic region.


82 FR 47004 (October 14, 2020) Federal Register: Notice of Purchased/Referred Care Delivery Area Redesignation for the Minnesota Chippewa Tribe, Minnesota, Mille Lacs Band of Ojibwe.

Suggested Citation


U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2022 submission data (1999-2020). U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; <https://www.uscscancer.gov/cancer/daaviz>, released in November 2023.



USCS
U.S. Cancer Statistics
The Official Federal Cancer Statistics



NPCR
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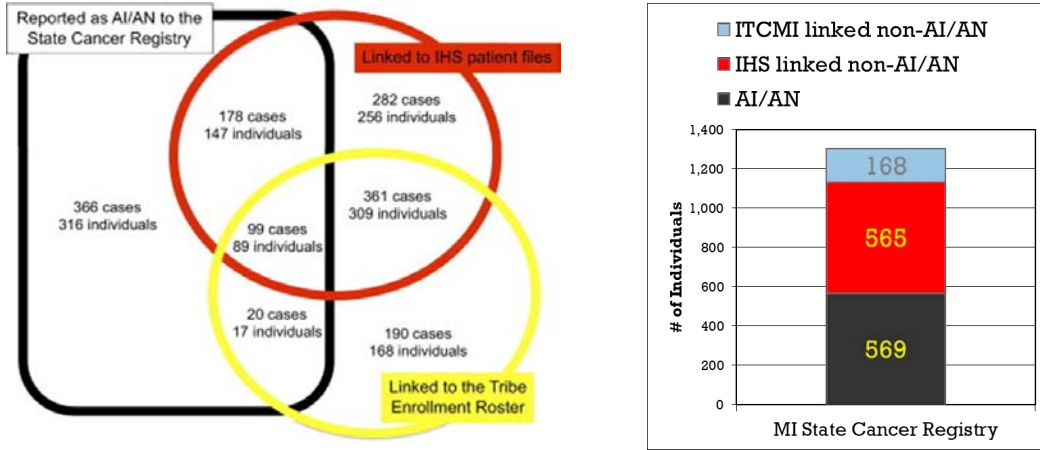
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The official federal cancer statistics, produced by the Centers for Disease Control and Prevention (CDC) and the National Cancer Institute (NCI).

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Results from ITCMI Tribal Linkage, 1995-2004



JC Johnson, AS Soliman, D Tadjerson, GE Copeland, DA Seefeld, NL Pingatore, R Haverkate, M Banerjee, MA Roubidoux. Tribal Linkage and Race Data Quality for American Indians in a State Cancer Registry. *Am J Prev Med* 2009;36(6):549-554.

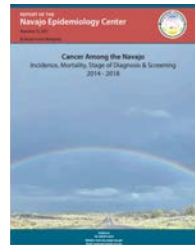
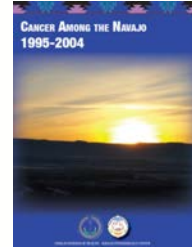
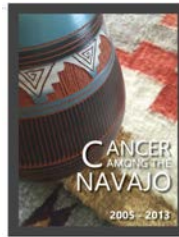
Data Dissemination Strategies



Cancer among the Navajo

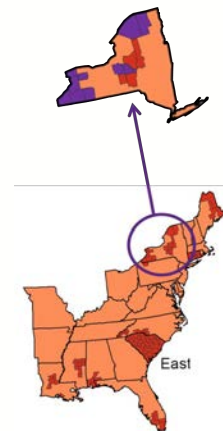
<https://nec.navajo-nsn.gov/Portals/0/Reports/NavajoCancerReport%2013Nov2023.pdf>

- Report produced in response to professional & community concerns that cancer may be increasing among the Navajo
- 3rd report recently completed
 - 2014-2018
- Data sources:
 - Arizona Cancer Registry
 - New Mexico Tumor Registry
 - USCS AI/AN Incidence Analytic DB
 - US Mortality Data



Cancer among the Haudenosaunee (People of the Longhouse)

- Utilize national datasets (USCS AIAD and USCS AMD) to provide an accurate picture of health disparities for all enrolled and non-enrolled members of the Haudenosaunee
- Provide data for modifying interventions and health systems
- Analysis restricted to counties that comprise the following territories:
 - Allegany
 - Cattaraugus
 - Oil Springs
 - Oneida Indian Nation
 - Onondaga
 - St. Regis Mohawk
 - Tonawanda
 - Tuscarora
- Previous publication:
 - Haring RC, Jim MA, Erwin D, Kaur J, Henry WAE, Haring ML, Seneca DS. Mortality disparities: A Comparison with the Haudenosaunee in New York State. *Cancer Health Disparities*. 2018 ;2:e1-e20
- Upcoming Publication
 - Breast and Prostate Cancer Incidence
- Collaborator- Roswell Park Comprehensive Cancer Center: Center for Indigenous Health Research



USCS Data Briefs

USCS
U.S. Cancer Statistics
Data Brief
November 2021 | No. 52

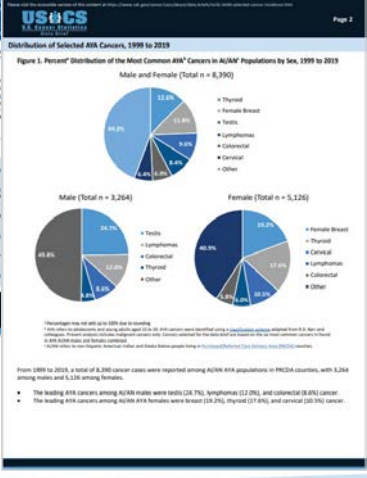
Incidence of Selected Cancers in Non-Hispanic American Indian and Alaska Native Adolescent and Young Adult (AYA) Populations, 1999-2015 (Purchased/Referred Care Delivery Areas)

Incidence rates for cancers in adolescents and young adults (AYAs) increased from 1999 to 2015 in American Indian and Alaska Native (AI/AN) populations. Incidence rates for AYA cancers are not region-specific, except for lung, breast, and prostate, which are region-specific. Incidence rates for AYA cancers are not cancer-specific, except for lung, breast, and prostate, which are cancer-specific. Incidence rates for AYA cancers are not cancer-specific, except for lung, breast, and prostate, which are cancer-specific.

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Publications That Use U.S. Cancer Statistics Data | CDC
<https://www.cdc.gov/cancer/uscs/about/publications.htm>

- Incidence of Selected Cancers in Non-Hispanic American Indian and Alaska Native Adolescent and Young Adult (AYA) Populations, 1999-2015 (Purchased/Referred Care Delivery Areas)
- Colorectal Cancer in the American Indian and Alaska Native Population, United States—2011-2015 (Purchased/Referred Care Delivery Areas)
- The American Indian and Alaska Native population experiences excess colorectal cancer in many regions. Article Date: 5/13/19
Categories: American Indian/Alaska Native, Colorectal Cancer
- Incidence rates for cancers in adolescents and young adults (AYAs) increased from 1999 to 2015 in non-Hispanic American Indian and Alaska Native (AI/AN) populations. Article Date: 9/18/22
Categories: American Indian/Alaska Native
- Incidence of Screening-Detectable Cancers Among Non-Hispanic American Indian and Alaska Native Populations 2014-2018 (Purchased/Referred Care Delivery Areas)
- Cancer incidence among American Indian and Alaska Native populations living in select urban areas varies by geographic region. Rates in certain regions, such as Alaska and the Southern Plains, are higher in urban AI/AN compared with those populations. Article Date: 10/28/18
Categories: American Indian/Alaska Native
- Colorectal, lung, female breast, and cervical cancers make up the majority of cancers among non-Hispanic American Indian and Alaska Native people. Article Date: 5/13/19
Categories: American Indian/Alaska Native, Colorectal Cancer, Other Cancers
- Cancers Associated with Human Papillomavirus in the American Indian and Alaska Native Population, United States—1999-2015
- The most common types of cancer among American Indian and Alaska Native populations in 8 geographic regions. Article Date: 10/28/18
Categories: American Indian/Alaska Native, HPV
- Liver Cancer Incidence in the American Indian and Alaska Native Population, United States—2012-2016 (Purchased/Referred Care Delivery Areas)
- American Indian and Alaska Native people have higher rates of getting liver cancer than non-Hispanic white people in 81 regions. Article Date: 10/28/18
Categories: American Indian/Alaska Native, Liver Cancer
- Lung Cancer Incidence in the American Indian and Alaska Native Population, United States—2012-2016 (Purchased/Referred Care Delivery Areas)
- Alaska Natives and American Indians in the Northern and Southern Plains experience disproportionately high lung cancer incidence rates compared to non-Hispanic white people in 81 regions.

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AI/AN Cancer Data 101

Race Recode
 • SEER Submission
 • Race recode using Race) and DIBlink added to BEER incidence data

IHS-NCI Submission

ICD-O-3	ICD-O-3	ICD-O-3	ICD-O-3	ICD-O-3	ICD-O-3
A	Black	AI/AN	1	Black	
B	White	AI/AN	1	White	
C	AI/AN	White	1	AI/AN	
D	Black	Other	1	Black	
E	White	Other	1	White	
F	White	AI/AN	1	AI/AN	
G	Other	Nonwhite	1	AI/AN	
H	Unknown	Unknown	1	AI/AN	

- Major site groupings**
- All cancer sites combined
 - Oral cavity and pharynx
 - Diaphragm
 - Bronchus
 - Colon and rectum
 - Liver and intrahepatic bile duct
 - Pancreas
 - Larynx
 - Lung and bronchus
 - Melanoma of the skin
 - Female breast
 - Cervix
 - Cervix and uterus
 - Ovary
 - Prostate
 - Testis
 - Uterus
 - Uterine bladder
 - Gallbladder and extrahepatic
 - Bladder and other urinary system
 - Thyroid
 - Multiple myeloma
 - Non-Hodgkin lymphoma
 - Myeloid
 - Lymphoid
 - Leukemia
 - Myelodysplasia
 - Extranodal sarcoma
 - Chondrosarcoma

Cancer Data Sources – 1 of 3

Source	Year	Population	Cancer Sites
SEER	1999-2015	U.S. (except Alaska and Hawaii)	23
IHS-NCI	1999-2015	AI/AN	23
NCI	1999-2015	U.S. (except Alaska and Hawaii)	23

- Webinar for Tribal Epi Centers
- Topics covered:
 - IHS-NPCR/SEER Linkage
 - Race recode
 - Cancer site groupings
 - Cancer data sources
 - AI/AN Cancer Incidence
 - IHS-NDI Linkage
 - Update

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Manuscripts (planned and in-process)

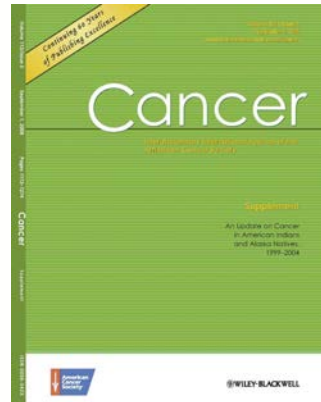
<https://www.cdc.gov/cancer/uscs/about/publications.htm>

- Kidney cancer (accepted by not published yet)
- USCS AI/AN Mortality Database
 - Leading causes of death, 2020
 - IHS Region
 - IHS Area
 - Urban
 - COVID-19, 2020
 - IHS Region
 - IHS Area
 - Urban

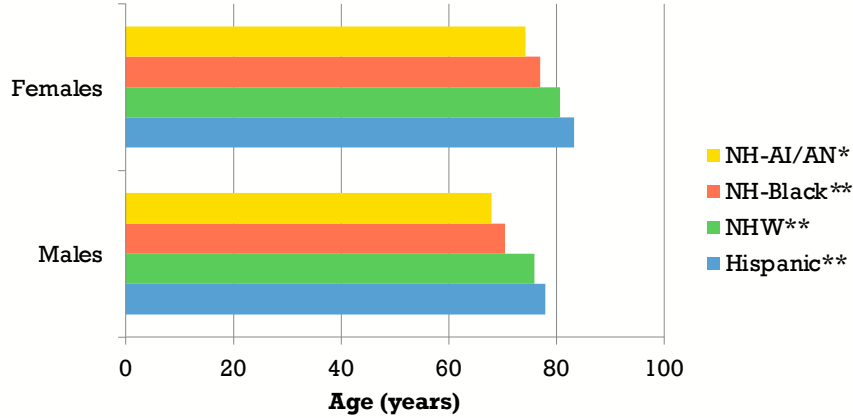
https://nccd.cdc.gov/DCPC_SCS/index.aspx#!/results?titleMatches=American%20Indian&titleMatchType=exact&sort=publicationYear&dir=true

Supplements

- IHS-NDI linkage and IHS-NPCR/SEER linkage (cancer papers)
- <https://ajph.aphapublications.org/toc/ajph/104/S3>
- IHS-NPCR/SEER Linkage
- <https://acsjournals.onlinelibrary.wiley.com/doi/full/10.1002/cncr.23729>



Life expectancy at birth by sex in CHSDA counties, 2007-2009



* 2007-2009

** 2008

Arias E, Xu J, Jim MA. Period Life Tables for the Non-Hispanic American Indian and Alaska Native Population, 2007-2009. *Am J Public Health*. 2014;104:S312-S319.

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Top 10 cancer causes of cancer death for AI/AN Males by IHS Region: CHSDA, 1999-2009

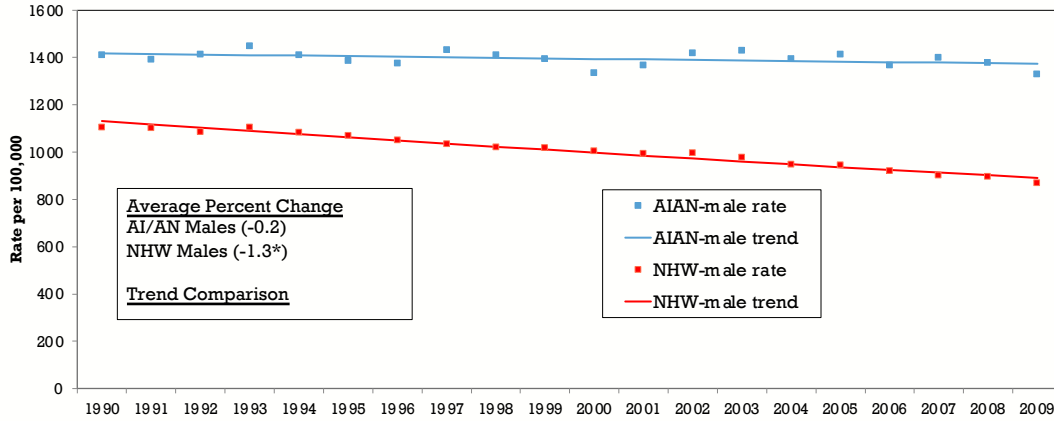
#	Northern Plains	Alaska	Southern Plains	Southwest	Pacific Coast	East	US
.	All cancers 1.51*	All cancers 1.44*	All cancers 1.31*	All cancers 0.79*	All cancers 1.05	All cancers 0.83*	All cancers 1.11*
1	Lung (1) 1.71*	Lung (1) 1.43*	Lung (1) 1.22*	Lung (1) 0.34*	Lung (1) 0.98	Lung (1) 0.82*	Lung (1) 1.01
2	Colorectal (3) 1.84*	Colorectal (2) 2.12*	Colorectal (2) 1.48*	Prostate (2) 0.92*	Colorectal (3) 1.41*	Colorectal (3) 0.87	Colorectal (3) 1.26*
3	Prostate (2) 1.55*	Stomach (11) 4.43*	Prostate (3) 1.30*	Colorectal (3) 0.66*	Prostate (2) 0.98	Prostate (2) 0.98	Prostate (2) 1.09*
4	Liver (10) 2.75*	Pancreas (4) 1.72*	Kidney (8) 2.11*	Stomach (14) 4.31*	Liver (9) 2.11*	Liver (8) 1.38	Liver (8) 2.12*
5	Kidney (8) 2.08*	Prostate (3) 0.93	Liver (9) 2.18*	Liver (8) 2.19*	Pancreas (4) 1.02	Stomach (11) 1.50	Kidney (10) 1.92*
6	Pancreas (4) 0.94	Liver (7) 2.12*	Pancreas (4) 0.95	Kidney (10) 2.33*	Esophagus (6) 1.15	Pancreas (4) 0.50*	Pancreas (4) 0.96
7	Esophagus (6) 1.23	Esophagus (6) 1.66*	Esophagus (6) 1.44*	Pancreas (4) 1.01	Kidney (10) 1.23	Kidney (9) 1.13	Stomach (14) 2.49*
8	Stomach (13) 2.44*	Kidney (10) 1.98*	NHL (5) 1.20	NHL (5) 0.66*	NHL (5) 0.79	Urinary Bladder (7) 0.86	Esophagus (6) 1.06
9	NHL (5) 0.96	AML (13) 1.03	Stomach (14) 1.92*	Esophagus (6) 0.76*	Stomach (14) 1.57*	Esophagus (6) 0.58*	NHL (5) 0.82*
10	AML (11) 1.03	NHL (5) 0.46*	Brain (10) 0.93	Myeloma (12) 1.38*	Brain (8) 0.69*	NHL (5) 0.45*	Brain (9) 0.63*

* Statistically significant

White MC, Espey DK, Swan J, Wiggins CL, Ehemam C, Kaur JS. Disparities in Cancer Mortality and Incidence Among American Indians and Alaska Natives in the United States. *Am J Public Health*. 2014;104:S377-S387.

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Annual age-adjusted all cause death rates for AI/AN and NHW, Males, CHSDA counties, Joinpoint trend lines, 1990-2009



*Annual Percent Change in rates during 1990-2009 is significant at alpha=0.05

†Difference in Average Annual Percent Change between AI/AN and NHW during last 10 years (2000-2009) is significant at alpha=0.05

White MC, Espey DK, Swan J, Wiggins CL, Ehemann C, Kaur JS. Disparities in Cancer Mortality and Incidence Among American Indians and Alaska Natives in the United States. *Am J Public Health.* 2014;104:S377-S387.

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Top 10 cancer causes of cancer death for AI/AN Females by IHS Region: CHSDA, 1999-2009

#	Northern Plains	Alaska	Southern Plains	Southwest	Pacific Coast	East	US
.	All cancers 1.60*	All cancers 1.50*	All cancers 1.36*	All cancers 0.84*	All cancers 1.18*	All cancers 0.88*	All cancers 1.17*
1	Lung (1) 2.11*	Lung (1) 1.38*	Lung (1) 1.34*	Breast (2) 0.64*	Lung (1) 1.18*	Lung (1) 0.83*	Lung (1) 1.06*
2	Breast (2) 1.13	Breast (2) 1.26*	Breast (2) 1.18*	Lung (1) 0.28*	Breast (2) 0.88	Breast (2) 0.71*	Breast (2) 0.92*
3	Colorectal (3) 1.53*	Colorectal (3) 2.43*	Colorectal (3) 1.64*	Colorectal (3) 0.72*	Colorectal (3) 1.38*	Colorectal (3) 1.30*	Colorectal (3) 1.31*
4	Pancreas (4) 1.14	Stomach (17) 7.11*	Pancreas (4) 1.27*	Ovary (5) 1.10	Pancreas (5) 1.23*	Pancreas (4) 0.93	Pancreas (4) 1.08
5	Cervix (20) 4.15*	Pancreas (4) 1.06	Ovary (5) 1.15	Pancreas (4) 1.02	Ovary (4) 1.01	Ovary (5) 0.61*	Ovary (5) 0.98
6	Ovary (5) 0.92	Liver (10) 3.14*	NHL (6) 1.40*	Liver (9) 3.14*	Liver (10) 2.84*	Liver (10) 1.67	Liver (10) 2.84*
7	Liver (12) 3.25*	Ovary (5) 1.08	Liver (11) 2.54*	Stomach (15) 3.61*	NHL (6) 1.21	Kidney (13) 1.56	NHL (6) 1.07
8	Stomach (16) 3.28*		Kidney (9) 1.81*	Kidney (11) 2.36*	Uterus (8) 1.19	Cervix (19) 1.69	Stomach (14) 2.77*
9	Kidney (9) 2.04*	Kidney (12) 1.91	Cervix (13) 1.58*	NHL (6) 0.91	Stomach (16) 2.47*	Uterus (7) 1.00	Kidney (12) 2.02*
10	NHL (6) 1.11	NHL (6) 0.70	Uterus (8) 1.22	Cervix (17) 2.05*	Kidney (12) 1.78*	Myeloma (9) 1.42	Cervix (19) 2.11*

* Statistically significant

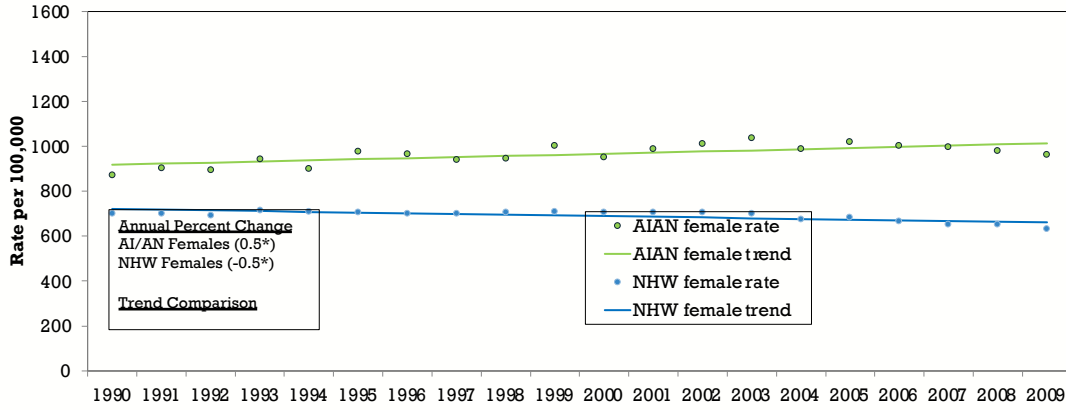
White MC, Espey DK, Swan J, Wiggins CL, Ehemann C, Kaur JS. Disparities in Cancer Mortality and Incidence Among American Indians and Alaska Natives in the United States. *Am J Public Health.* 2014;104:S377-S387.

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Annual age-adjusted all cause death rates for AI/AN and NHW, Females, CHSDA counties, Joinpoint trend lines, 1990-2009



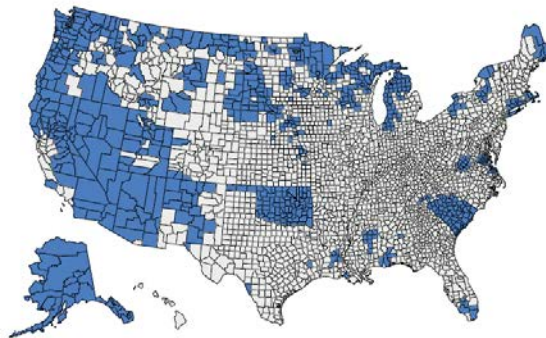
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Conclusion

- Racial misclassification can be addressed through data linkages to provide better data
- Limitation
 - IHS only covers 53.5% of the AI/AN population



- Tribal linkages

Thank you!

Go to the official federal source of cancer prevention information:
www.cdc.gov/cancer



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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.




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UNC Lineberger Cancer Network

The Telehealth Team

Veneranda Obure – Technology Support Specialist	Tim Poe – Director	Andrew Dodgson , DPT – Continuing Education Specialist
Jon Powell , PhD – Continuing Education Specialist		Patrick Muscarella – Technology Support Technician
Oliver Marth – Technology Support Technician		Lindsey Reich , MA – Public Communication Specialist
Barbara Walsh , DNP, MPH, MSN, RN – Nurse Planner		

The song *Back Rhodes* written and performed by **Don Poe**



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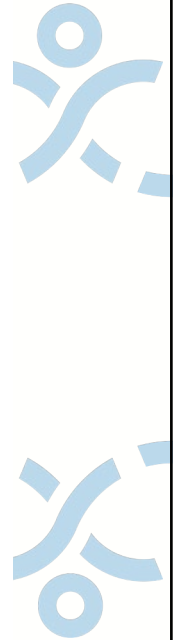


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Francine C. Gachupin, PhD, MPH



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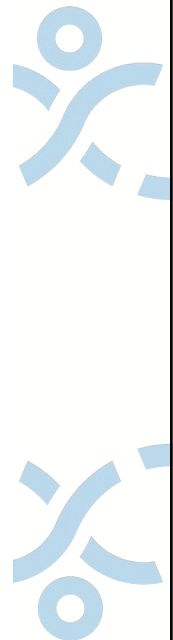
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