Racial and Regional Referral Patterns to a CoC Accredited Facility for Cancer Management 2004 to 2012

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Purpose

- To compare the proportion of patients seen at a Commission on Cancer (CoC) facility by race and region in the National Cancer Database (NCDB) and United States Cancer Statistics (USCS) databases focusing on American Indian and Alaskan Natives.

3

BACKGROUND

4

Commission on Cancer (CoC) Facilities

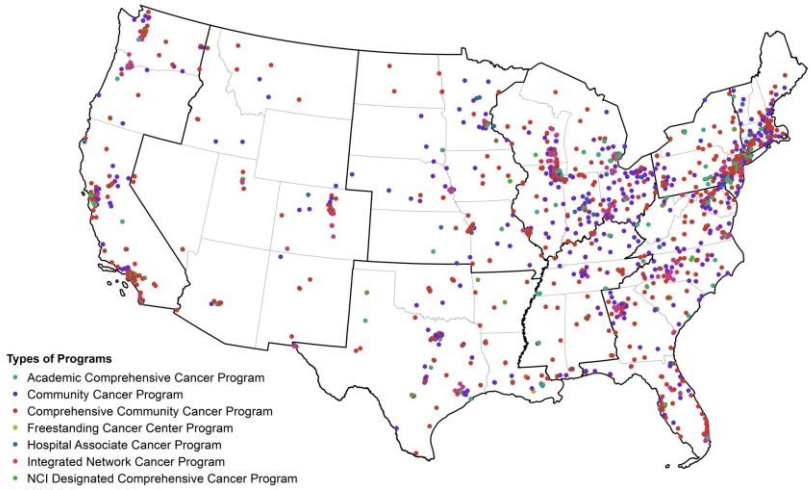
The Commission on Cancer (CoC) is a program of the American College of Surgeons (ACoS) that recognizes cancer care programs for their commitment to providing comprehensive, high-quality, and multidisciplinary patient centered care.

5

Types of American College of Surgeons Accredited Cancer Programs March 2016

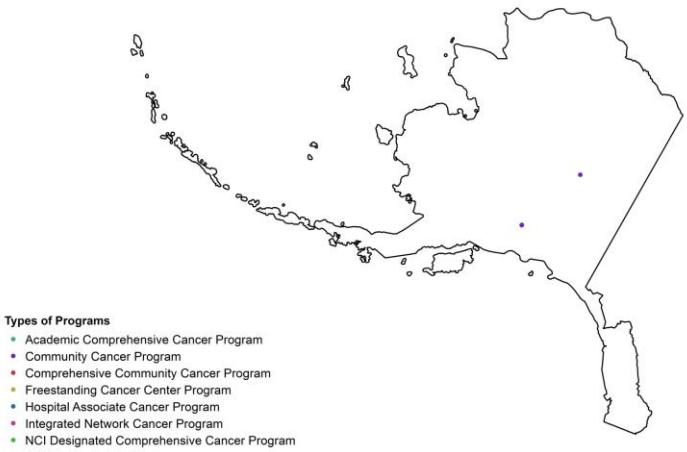
Type	Number
Academic Comprehensive Cancer Program	192
Community Cancer Program	404
Comprehensive Community Cancer Program	578
Freestanding Cancer Center Program	6
Hospital Associate Cancer Program	14
Integrated Network Cancer Program	220
NCI Designated Comprehensive Cancer Program	40
NCI Designated Network	7
Pediatric Cancer Program	11
Veterans Affairs Cancer Program	50

Map 1: American College of Surgeon Commission on Cancer Accredited Programs by Type by Region: United States March 2016 (excluding Alaska and Hawaii)



Author: Janis E. Campbell, PhD, GISP, Department of Biostatistics and Epidemiology, College of Public Health, University of Oklahoma Health Sciences Center. American College of Surgeons Commission on Cancer Facilities Downloaded March 22, 2016; Geocoded with ArcGIS Online. Oklahoma City, OK: March 2015. Scale: 1:20,000,000. 2014 TIGER/Line Shapefiles / prepared by the U.S. Census Bureau (https://www.census.gov/geo/maps-data/data/tiger-geodatabases.html), 2014. Using: *ArcGIS*®. Version 10.3. Redlands, CA: Environmental Systems Research Institute, Inc., 2010.

Map 2: American College of Surgeon Commission on Cancer Accredited Programs by Type by Region: Alaska March 2016 Alaska



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Map 3: American College of Surgeon Commission on Cancer Accredited Programs by Type by Region: Alaska March 2016 Hawaii

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9

Data

- National Cancer Data Base (NCDB)
- United States Cancer Statistics (USCS)

10

National Cancer Data Base (NCDB)

- Jointly sponsored by the American College of Surgeons and the American Cancer Society.
- A clinical oncology database from hospital registry data that are collected in CoC accredited facilities

11

United State Cancer Statistics (USCS)

- The official federal statistics on cancer incidence from registries that have high-quality data and cancer mortality statistics
- It is produced by the Centers for Disease Control and Prevention (CDC) and the National Cancer Institute (NCI)

- wonder.cdc.gov

12

Purpose

- To compare the **proportion** of patients seen at a Commission on Cancer (CoC) facility by race and region in the NCDB and United States Cancer Statistics (USCS) databases focusing on **American Indian and Alaskan Natives**.

13

Methods

- Number diagnosed at CoC facilities/Number diagnosed (USCS)
  - By Race (AI/AN, Asian or Pacific Islander, African American, White)
  - By Race and Region
- Chi-squared test α-level of 0.05
- Sas® 9.4

14

RESULTS

15

Table 1. Number seen at CoC Facilities, number diagnosed with cancer, percent and 95% confidence intervals by race: US 2004-2012

Race	Dx at CoC Facility	Dx in USCS	Percent	95% CI
AI/AN	26,823	59,909	44.8%	44.4%-45.2%
Asian or Pacific Islander	250,250	322,594	77.6%	77.4%-77.7%
Black or African American	1,112,003	1,340,194	83.0%	82.9%-83.0%
White	8,982,894	10,785,909	83.3%	83.3%-83.3%

Source: CoC Facility National Cancer Data Base.
USCS – United States Cancer Statistics. CDC Wonder. http://wonder.cdc.gov/ . Pulled March 5, 2016.

p value=<.0001

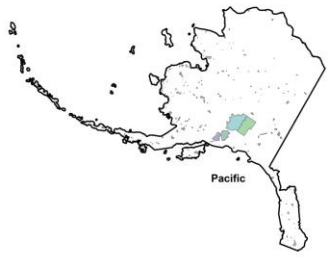
16

Table 2. Number seen at CoC Facilities, number diagnosed with cancer, percent and 95% confidence intervals by region: US 2004-2012

Region	Dx at CoC Facility	Dx in USCS	Percent	95% CI
New England	617,123	706,475	87.4%	87.3%-87.4%
Middle Atlantic	1,609,640	1,970,706	81.7%	81.6%-81.7%
South Atlantic	2,229,047	2,573,039	86.6%	86.6%-86.7%
East North Central	1,866,795	2,052,847	90.9%	90.9%-91.0%
East South Central	716,878	817,614	87.7%	87.6%-87.8%
West North Central	807,715	900,256	89.7%	89.7%-89.8%
West South Central	840,799	1,296,349	64.9%	64.8%-64.9%
Mountain	481,409	745,652	64.6%	64.5%-64.7%
Pacific	1,202,564	1,835,159	65.5%	65.5%-65.6%

All p value=<.0001

17



Map 4: American Indians Reservation and Tribal Jurisdictional Areas by NCDB regions: United States March 2016 (excluding Hawaii)

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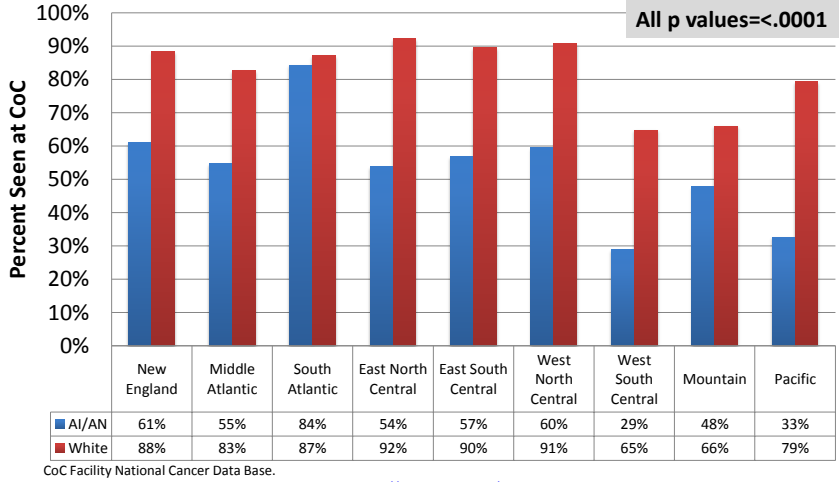
18

Percent of cases diagnosed or treated at Commission on Cancer accredited facility by race by region: US 2004-2012



	New England	Middle Atlantic	South Atlantic	East North Central	East South Central	West North Central	West South Central	Mountain	Pacific
AI/AN	61%	55%	84%	54%	57%	60%	29%	48%	33%
White	88%	83%	87%	92%	90%	91%	65%	66%	79%

CoC Facility National Cancer Data Base.
USCS – United States Cancer Statistics. CDC Wonder. http://wonder.cdc.gov/ . Pulled March 5, 2016.

19

Results

- The percentage of AI/AN patients at a CoC accredited facility was significantly lower compared to the other races (p value <0.00001 for each region).
- By region, fewer patients were at CoC facilities in the West South Central, Mountain and Pacific Regions compared to the other regions.
- For the AI/AN population the South Atlantic Region had the highest percentage of patients at a CoC facility (83.3%) while the West South Central Region had the lowest (28.0%).

20

Conclusions

- AI/AN patients were less likely to be seen at a CoC accredited program compared to other races.
- This difference exists in all regions but some regions have a larger difference.

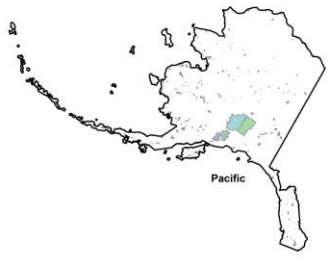
Eheman et al., 2012; Wingo et al., 2005

21

Potential Explanations

- CoC facilities no located near AI/AN lands
- IHS or Tribal Health Services (THS) does not use CoC facilities as contract health options
- Institutions will not accept IHS as a form a payment

22



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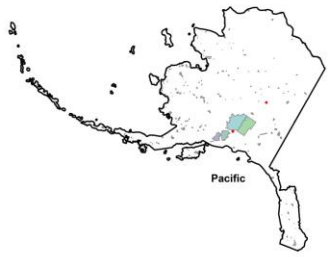
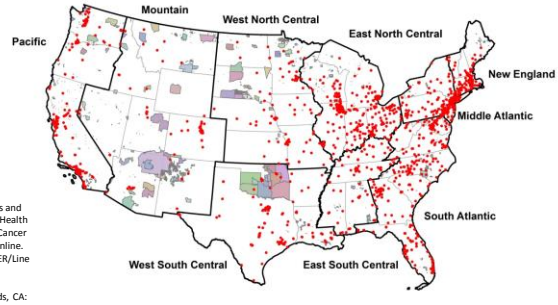


Map : American Indians Reservation and Tribal Jurisdictional Areas by NCDB region and CoC facilities: United States March 2016 (excluding Hawaii)



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24

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25

Potential Explanations

- CoC facilities not located near AI/AN lands
- IHS or Tribal Health Services (THS) does not use CoC facilities as contract health options
- Institutions or facilities will not accept IHS as a form a payment
- Misclassification in NCDB
- Other…

26

Strengths and Limitations

Strengths

- High quality data from 2004-2012
- This is the first study to comprehensively review patients seen at CoC facilities in the US by race

Limitations

- Unable to evaluate potentially confounding factors in this analysis
- Misclassification
  - NCDB database
  - undercounting in the particular regions due to non-reporting of AI/AN population in specific states in the USCS data
- Data not available at more local levels
- Large number of years

27

Future Steps

- Distance to treatment by race
- Control for the number and types of ACOS CoC Facility
- Control for population density
- Yearly analysis

28

THANK YOU