

## NO RACIAL DISPARITIES IN STAGE AT DIAGNOSIS – IS NEVADA DOING BETTER FOR CERVICAL CANCER?

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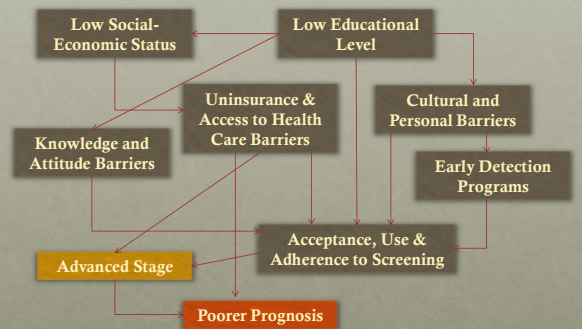
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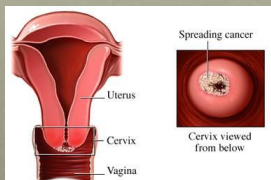
## BACKGROUND

## RACIAL DISPARITIES IN CERVICAL CANCER STAGE AND SURVIVAL



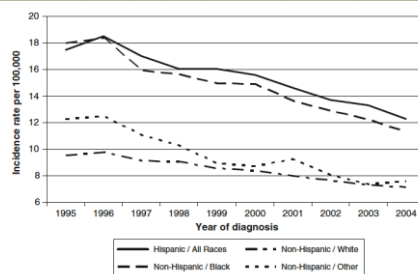
## AFRICAN AMERICANS & CERVICAL CANCER

- Compared to White women African American women:
  - Have higher incidence of cervical cancer
  - They are more likely to be diagnosed at a late stage
  - Have poorer prognosis
  - Have higher prevalence of HPV infection
  - Comparable rates of Pap test



## WHITE-BLACK INCIDENCE RATE GAP AND TRENDS

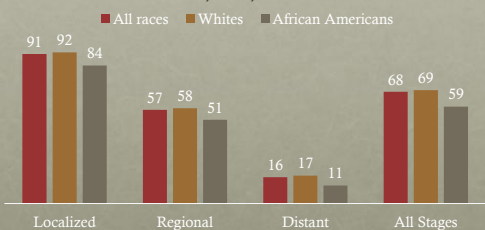
Fig. 1 Age-adjusted incidence rates of invasive cervical cancer by race/ethnicity combined, 1995-2004 (rates are per 100,000 and age-adjusted to the 2000 US Standard Population (19 age groups—Census P25-1130)) [44]



Source: Barnholtz *et al.*

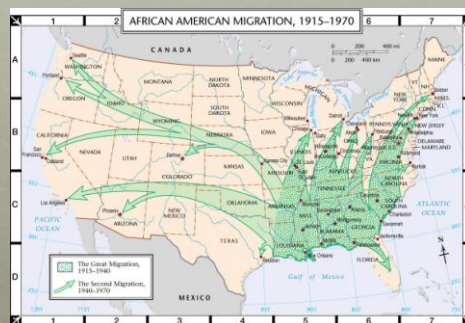
## CERVICAL CANCER STAGE AND SURVIVAL

Five-Year Relative Survival Rate (%) for Cervical Cancer, U.S., 2002-2008



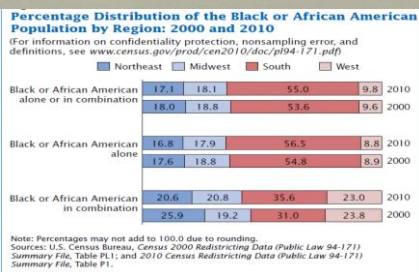
Source: Siegel *et al.*, Cancer Statistics, 2013

## OUT OF THE SOUTH



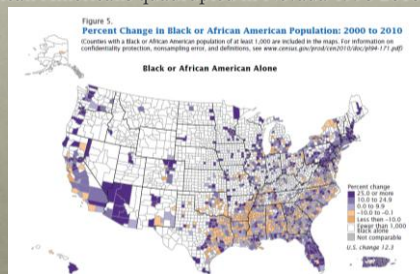
## REGIONAL DISTRIBUTION OF AFRICAN AMERICANS

- African Americans concentrate in the Southern regions
- The West has the lowest concentration of Black race alone



## CHANGE IN AFRICAN AMERICANS REGIONAL DISTRIBUTION

- 2% of African Americans live in the Mountain West Region
- Significant increase in the MWR 2000 -2010
- African Americans quadrupled in Nevada 1990-2010



## STUDY PURPOSE AND METHODS

## STUDY PURPOSE

- This study aims to assess whether African Americans have a **higher likelihood of advanced cervical cancer stage of diagnosis** compared to their White counterparts in a region where African Americans have been recently established.
- Data from the Nevada Central Cancer Registry
- Cervical cancer cases diagnosed between 1995 & 2008 (N=1,334)
- Model stage (Localized vs. Advanced) on race (Blacks vs. Whites) while adjusting for age, marital status, insurance status, diagnosis period, and histology

## STATISTICAL ANALYSES

- Bivariate analysis– to compare frequency distribution of patient socio-demographic and clinical characteristics at diagnosis between African Americans and Whites
- Multivariate Logistic Regression modeling – to calculate odds ratios of advanced stage between African Americans and Whites

## SEER ANALYSIS

### Comparison analysis

- Racial disparities in cervical cancer stage at diagnosis between African Americans & Whites from the Surveillance, Epidemiology and End Results 18 geographic areas
- Cervical cancer cases diagnosed between 2007 & 2010 (N=13,825)

- Same variables & statistical analyses in addition to SEER area

SEER registries: Atlanta, Connecticut, Detroit, Hawaii, Iowa, New Mexico, San Francisco-Oakland, Seattle-Puget Sound, Utah, Los Angeles, San Jose, Monterey, Rural Georgia, the Alaska Native Tumor Registry, Greater California, Kentucky, Louisiana, New Jersey and Greater Georgia



## RESULTS

## PATIENTS DEMOGRAPHICS

Characteristics	Total n (%)	Whites n (%)	African Americans n (%)	P**
<b>Total</b>	<b>1068 (100)</b>	<b>978 (91.6)</b>	<b>90 (8.4)</b>	
<b>Age at Diagnosis</b>				0.285
15-44	422 (39.5)	385 (39.4)	37 (41.1)	
45-54	235 (22.0)	210 (21.5)	25 (27.8)	
55-64	198 (18.5)	181 (18.5)	17 (18.9)	
65-74	122 (11.4)	115 (11.7)	7 (7.8)	
75+	91 (8.5)	87 (8.9)	4 (4.4)	
<b>Marital status at Diagnosis</b>				<0.001
Married	465 (43.5)	439 (44.9)	26 (28.9)	
Single	235 (22.0)	198 (20.3)	37 (41.1)	
Separated/ Divorced	170 (15.9)	159 (16.3)	11 (12.2)	
Widowed	119 (11.1)	110 (11.3)	9 (10.0)	
Unknown	79 (7.4)	72 (7.4)	7 (7.8)	
<b>Insurance Status at Diagnosis</b>				0.062
Private	473 (44.3)	436 (44.6)	37 (41.1)	
Uninsured	99 (9.3)	90 (9.2)	9 (10.0)	
Medicaid	80 (7.5)	67 (6.8)	13 (14.4)	
Medicare*	19 (1.8)	19 (1.9)	0	
Unknown	397 (37.2)	366 (37.4)	31 (34.4)	

## PATIENTS CLINICAL CHARACTERISTICS

Characteristics	Total n (%)	Whites n (%)	African Americans n (%)	p**
<b>Period of Diagnosis</b>				
1995-1999	358 (33.5)	339 (34.7)	19 (21.1)	<0.01
2000-2004	389 (36.4)	356 (36.4)	33 (36.7)	
2005-2008	321 (30.1)	283 (28.9)	38 (42.2)	
<b>Histology</b>				
SCC	717 (67.1)	659 (66.4)	68 (75.6)	<0.001
ADK	189 (17.7)	182 (18.6)	7 (4.8)	
Adenosquamous	30 (2.8)	30 (3.1)	0	
Carcinomas	104 (9.7)	93 (9.5)	11 (12.2)	
Others	20 (1.8)	16 (1.6)	4 (4.4)	
Sarcoma	8 (0.8)	8 (0.8)	0	
<b>Stage at Diagnosis</b>				
Localized	499 (46.7)	458 (46.8)	41 (45.6)	0.824
Regional	340 (31.8)	312 (31.9)	28 (31.1)	
Distant	122 (11.4)	109 (11.1)	13 (14.4)	

## BIVARIATE ANALYSIS

- ◉ Sample included 964 White cases (91.46%) and 90 African Americans cases (8.5%)
- ◉ African American cervical cancer cases had higher proportion of:
  - ◉ early age diagnosis - 41.1% compared to 39.9% Whites
  - ◉ single at diagnosis - 42% compared to 22.3% Whites\*
  - ◉ insured through Medicaid - 14.4% compared to 7% Whites\*
  - ◉ advanced stage at diagnosis - 14.4% compared to 11.1% for Whites
  - ◉ diagnosis between 2005 & 2008 – 42.2% compared to 28.9% of Whites\*

\* Indicates statistically significant difference between groups using the Likelihood Chi-square test ( $p < 0.05$ )

## THE ODDS RATIOS OF ADVANCED STAGE IN NEVADAN FEMALES

Patient Characteristics	aOR*	95% CI**	
		Lower	Upper
<b>Race/Ethnicity</b>			
Whites	Reference		
African Americans	0.93	0.58	1.51
<b>Age at Diagnosis</b>			
15-44	Reference		
45-54	1.85	1.29	2.64
55-64	2.82	1.94	4.12
65-74	3.44	2.16	5.47
75+	3.81	2.08	6.98
<b>Histology</b>			
SCC	Reference		
ADK	0.39	0.27	0.57
Adenosquamous	1.36	0.61	3.06
Carcinomas	1.22	0.68	2.18
Others	3.39	1.17	9.82
<b>Insurance</b>			
Private	Reference		
Uninsured	1.88	1.15	3.06
Medicaid	2.89	1.68	4.96
Medicare	0.54	0.17	1.67

## REGRESSION ANALYSIS

- ◉ No significant racial disparities in terms of cervical cancer stage at diagnosis in Nevadan female residents (aOR = 0.93; 95% CI = 0.58-1.51) for African Americans vs. Whites
- ◉ Late stage diagnosis of cervical cancer in Nevada was explained by age, insurance status, and histology.
- ◉ SEER showed different patterns than Nevada
  - ◉ African Americans from SEER registries were almost 17% more likely to be diagnosed at an advanced stage than Whites (aOR = 1.17; 95% CI = 1.07-1.29)

## IS NEVADA DOING BETTER?

Demographics	NV		US	
	Non- Hispanic Whites	African-Americans	Non- Hispanic Whites	African-Americans
% Population (2010)	53%	8%	63%	12%
Poverty rate	13%	34%	13%	35%
Women's Median Household Income	\$55,035	\$29,075	\$57,400	\$28,020
Uninsured Rates for the Nonelderly	19%	29%	13%	21%
Medicaid Coverage Rates for the Nonelderly	6%	21%	12%	28%
Distribution of Medicare Beneficiaries	74%	6%	77%	10%
% of Women Age 18+ Reporting Having Had a Pap test w/ Last 3 Years	78.70%	78.5	82.50%	85.40%

Sources: Urban Institute and Kaiser Commission on Medicaid and the Uninsured estimates based on the Census Bureau's March 2011 and 2012 Current Population Survey (CPS: Annual Social and Economic Supplements)

## DISCUSSION

Two possible explanations.

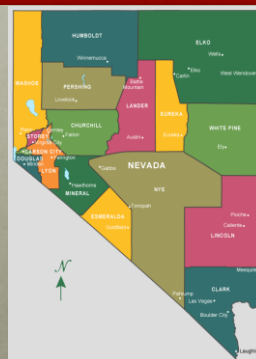
- Whites in Nevada might have poorer early detection compared to Whites in other parts of the US.
  - Lower Pap screening in Nevadan Whites 78.4% vs. U.S. Whites 81.3%
  - Early detection programs are scarce and target minorities
- African Americans who moved to Nevada tend to achieve better living indicators than African Americans in some other parts of the U.S.
  - African Americans in Nevada may be experiencing a migratory health effect analogue to foreign-born immigrants
  - African Americans who decide to migrate may be selectively healthier

## WHAT HAS BEEN DONE?

- Women's Health Connection
  - Free cervical cancer screening to low income uninsured women 40 to 65 of age
- HPV vaccination of teens 11 to 26 years old
  - Vaccination uptake in NV is low (60.7%) & disproportionate between White (74.8%) and Black teen girls (60.8%)
- Affordable Care Act
  - Preventive services free of cost sharing
  - Medicaid expansion

## WHAT CAN BE DONE NEXT?

- Improve knowledge and awareness of cervical cancer risk factors and screening services and frequency
- Assess specific barriers to cervical cancer screening in NV
- Increase local funding to existing early detection programs
- Clinicians need to more involved in explaining the screening recommendations





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THANK YOU!

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