

# **Data for Addressing Cancer Disparities in Arizona's American-Indian Community**

## **Matrix for Prioritizing Interventions and Research**

April 22, 2009

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### **Inter Tribal Council of Arizona, Inc.**



#### **Southwest American Indian Cancer Network (SAICN) Data Committee**

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### **Arizona Department of Health Services**

#### **Arizona Cancer Coalition** - Disparities Committee - Arizona Cancer Registry

**Arizona Cancer Control Program**  
*Working Together to Reduce Cancer*

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the Centers for Disease Control and Prevention (CDC)

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## Addressing the cancer disparities of the American Indian community

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### Introduction

The Southwest American Indian Collaborative Network (SAICN) aim is to reduce cancer health disparities among American Indians in the southwestern U.S. by closing the gap between the health-needs of the community and the promise of cancer prevention and cure made possible by a responsive health delivery and research system.

The matrix project is one of a number of projects developed by the Southwest American Indian Collaborative Network (SAICN) in collaboration with the Arizona Department of Health Services to address cancer disparities among American Indians through participatory education, training and research programs. In an effort to provide evidence-based general recommendations and promote the use of relevant data in tribal communities in Arizona, two comparison matrices were developed. These matrices present scientifically sound practices to use by the tribal community health decision makers in prioritizing activities that likely to reduce their respective community's burden of cancer. To facilitate the use of these tools in a tribal community, the project included the development of a five-part implementation plan. The purpose of this project is to develop a process and the necessary tools to enable members of tribal communities to become involved in addressing their cancer concerns. By making relevant data and cancer control information available in an understandable format, the project will help tribal communities in certain ways to establish evidence-based priorities. The project envisions training tribal health decision makers to use the process and matrices in a series of community meetings that will help members reach consensus on setting cancer control priorities and developing a long range plan that will help address the cancer concerns in the community.

This Cancer Planning Matrix was designed specifically for tribal communities by a coalition consisting of the Southwest American Indian Collaborative Network, SAICN, (a project supported by Grant Number U01 CA114696 from the National Institutes of Health /National Cancer Institute) which is a cancer partnership of the Inter Tribal Council of Arizona, Inc (ITCA), the Phoenix Indian Medical Center, and the University of Arizona. Also playing key roles in the development of the Matrix were the Cancer Registry of the Arizona Department of Health Services and the Arizona Cancer Coalition.

Simultaneous with the SAICN's efforts, a statewide program of the Arizona Cancer Coalition brings together many agencies and individuals to reduce the burden of cancer among our state residents. Through discussions among its members, the Coalition also is concerned that there may be disparities in cancer occurrence, diagnosis, treatment, and survival. To address these concerns, the Coalition established a Disparities Committee tasked with identifying opportunities to reduce disparities across race and ethnic groups. Through the work of this committee the Coalition is reaching out to various communities to promote cancer-related interventions, especially those that will eliminate avoidable cancers and detect cancer at a curable stage.

### **Aim:**

The SAICN and the Arizona Cancer Coalition aim to reduce cancer disparities by closing the gap between the community's needs and the benefits of cancer prevention and cure. We will achieve this aim through participatory education, training, and research programs. This project will support that aim by producing community-specific information about cancer rates and the real opportunities for cancer control.

## **Role of the SAICN Data Committee and Data Analysts:**

The SAICN Data and Evaluation Core developed and proposed this approach as a means of assisting tribes make use of available data and information to address cancer concerns among their members. The proposal was presented to the SAICN partners and was approved for development.

The greatest help in the development of the project resulted from the collaboration with staff members of the Arizona Department of Health Services' Arizona Cancer Registry. Their access to American Indian cancer data in Arizona and the concept of presenting one of the cancer control options in a matrix format were instrumental in initiating the project. While no attempt was made to incorporate tribal culture into the project, the concept behind the project was to provide a process and the necessary tools to allow tribal members to address their cancer concerns within the culture of their communities.

Three key roles of the Committee are to:

- Encourage community leaders to use relevant data so that they can confidently select topics on which to focus the community's concerns and resources
- Encourage movement toward interventions for controllable cancers
- Where knowledge of successful intervention is lacking, promote community-based participatory research that will advance the health of the community.

## **Community perspectives and concerns about cancer**

The SAICN Data Committee suggests that a community leader ask these crucial questions:

- 1) Primary Prevention ("avoiding cancer in the first place")  
What can I do to reduce my community's risk for developing cancer?
- 2) Secondary Prevention ("early detection and screening")  
How do I improve my community's likelihood of being diagnosed in the earliest, curable stage of cancer?
- 3) Tertiary Prevention ("care once diagnosed")  
Once diagnosed with cancer, what can be done to maintain a high quality of life for persons in my community?

## **Background**

A cancer disparity can also be called an unequal burden of disease. In cancer control the term refers especially to differences in cancer rates due to both biological and non biological factors. These factors include exposure to carcinogens, e.g., cigarette smoke, and also may include socio-economic status, educational level, culture, race-based discrimination, access to care, and utilization of health care services. A disparity is important, and even vital, to consider when there is an intervention that can correct the disparity and result in a benefit to the community. If we are to correct cancer disparities, we must ask the following practical questions:

- A) Which measures of cancer disparity are important?
- B) For which cancer sites are they important?
- C) What are the possible interventions to address these important disparities?
- D) How wide might be the impact of the intervention?
- E) What is the relative cost of the intervention?

### **Comparing the list of choices**

To generate a narrowed list of recommended actions that effectively control cancer, the participants on the Data Committee propose that communities use a comparison matrix (see page 12). The list presents scientifically sound actions, their costs, and benefits *to a population at average cancer risk*, but it is not necessarily specific to the American Indian population.

### **How to use this document**

Training in how to use this matrix for community planning has been developed by ITCA. To request training in your community, please contact Kenton Laffoon, MSW, SAICN Program Director, Inter Tribal Council of Arizona, Inc., 2214 N Central Ave, Ste 100, Phoenix AZ, 85004, (602) 258-4822. Potential uses of this matrix include planning for services, planning for cancer education programs, and developing a proposal for the CDC Cancer Planning Grants. Decision makers are expected to review, interpret, and customize these matrices for their particular community. We recommend that community leaders enlist the help of health professionals from their community as they review the document. The health professionals can help interpret the applicability of the data. Together, the community can prioritize the actions that are likely to reduce their community's burden of cancer.

### **The kinds of conclusions you might make**

Based on the information presented here, you might make one of the following conclusions about the status of your community's cancer control program.

1. **Affirmation:** We're comfortable with the emphasis of our current cancer control efforts. Later on we can revisit the issue to see if we can add other activities.
2. **Initiation:** We don't have a cancer control program, but it would make sense to start one by addressing (*topic*).
3. **Prioritization:** We will focus on a particular cancer (*site*) for the next year.
4. **Research:** We can't make an informed decision because we don't have enough information to a crucial question. We need to know more about (*specific issue*) and cancer.

### **YOUR CALL**

**After reviewing this document, the measure of disparity that our Indian community is most interested in addressing now is the (choose one: elevated incidence rate, elevated mortality rate, late stage at diagnosis; poor survival rate) for (specify) \_\_\_\_\_ cancer.**

## DATA SECTION

### Data Sources

Data concerning cancer incidence and mortality are obtained mostly from the state cancer registry and reports from Arizona's vital statistics (death certificates). Counts of cancer cases in Arizona are obtained from the Arizona Cancer Registry (which records cases seen at non-IHS facilities) and the New Mexico Tumor Registry (which records cases seen at IHS facilities in Arizona and New Mexico). Cases seen at Arizona's V.A. hospitals also are included in the data.

The following pages provide graphs and tables for race and ethnic groups. Counts and rates may vary widely when analyzing rare events or small populations. We combined data across years when possible to stabilize the rates. Data for specific cancer types are presented:

### Overview

1) Demographic and overall cancer data (Tables A, B, C & Figures 1-5)

### Matrices

- 2) Cancer interventions (Matrix A)
- 3) Lesser opportunity cancers (Matrix B)

### Appendices of supportive cancer data

- 4) Leading cancers (Figures 6, 7)
- 5) Cervical Cancer (Figures 8, 9)
- 6) Colorectal Cancer (Figures 10-15; Table D)
- 7) Breast Cancer (Figures 16, 17)
- 8) Lung and Bronchus (Figures 18, 19)
- 9) Kidney (Figures 20, 21)
- 10) Bladder (Figure 22)
- 11) 5-Year Survivorship: colorectal, breast (Figures 23-28)
- 12) Comparative rankings of other clinical services
- 13) Comments from committee participants as the document was being developed

### Arizona Demographics Relative to Cancer

The race/ethnic distribution of Arizona's 6 million residents is shown in the following pie chart. Among the 6 million Arizona residents there are approximately 24,000 new cancer cases reported each year. As shown in Figure 1, American Indians comprise 5% of Arizona's population, but are diagnosed with 1.6% of the cancers (Figure 2). Adjusting the incidence rate for the age of cases, we see that Arizona's Indian community has an overall cancer incidence rate that is the lowest of all the race groups (Figure 3). As in almost all the groups, males have higher cancer rates than females.

## Demographic & Cancer Distribution in Arizona, 2001-2004:

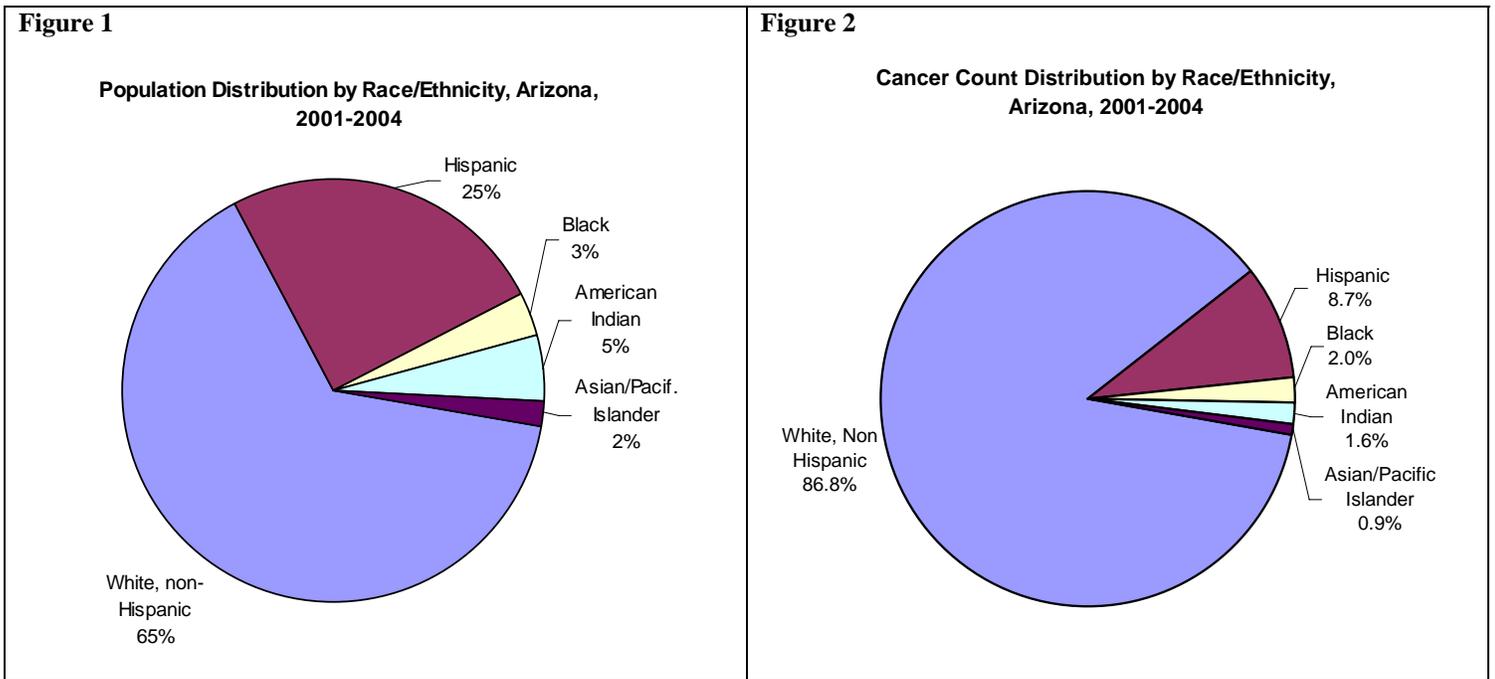
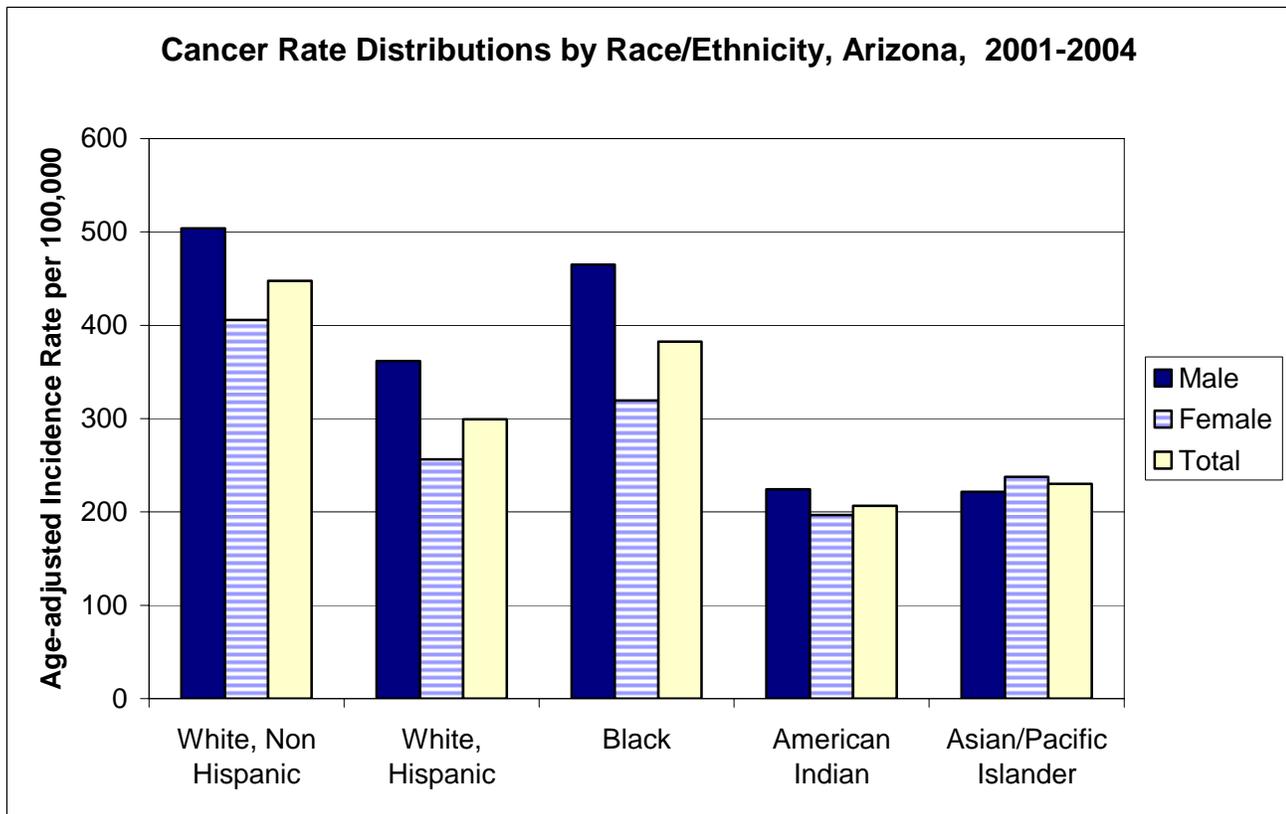


Figure 3. Cancer rates of race and ethnic groups on Arizona. Data source: Arizona Cancer Registry.



### Overall Cancer Burden in Indians

First, we present general information about the burden of cancer in Arizona's Indians in *Table A*, showing the count of newly diagnosed cases by year. The distribution by age-group and gender for these cases is shown in Figure 4.

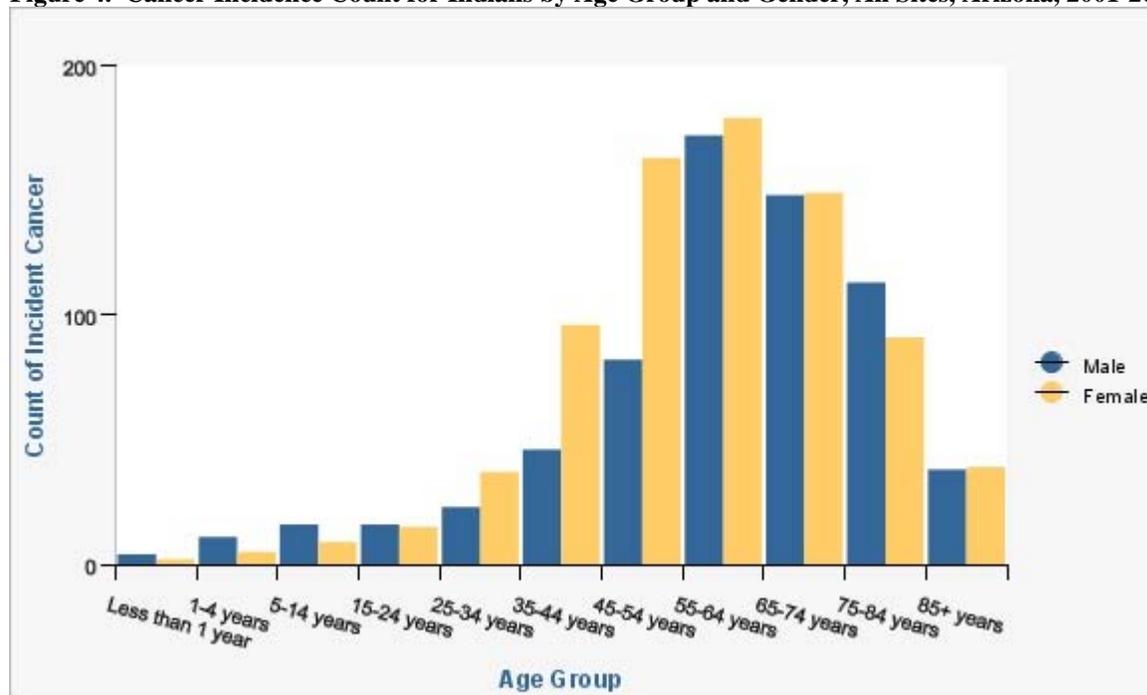
Because cancer is not a single disease, it is more instructive to consider its distribution across the various body sites, as shown in the pie chart (Figure 5). The four leading cancer sites in the Indian population are breast, prostate, kidney, and colorectal. Together, cancers of those four sites account for 39% of all cases. Unlike the findings in other race groups kidney cancer, rather than lung cancer, appears among the top four sites in Indians.

Then, in *Tables B & C* we show the counts of the number of cases diagnosed (incidence) and deaths (mortality) for specific cancer sites.<sup>1</sup>

**Table A.**

Count of Incident Cancer by Sex and Year; Arizona, Sum of the reported cases diagnosed during 2001-2004; American Indians; All cancer sites [Source: AZ Cancer Registry, IBIS, run date 12/13/2006.]			
Year	Male	Female	Total
2001	161	183	344
2002	157	176	333
2003	177	213	390
2004	155	206	361
<b>Total</b>	650	778	1,428

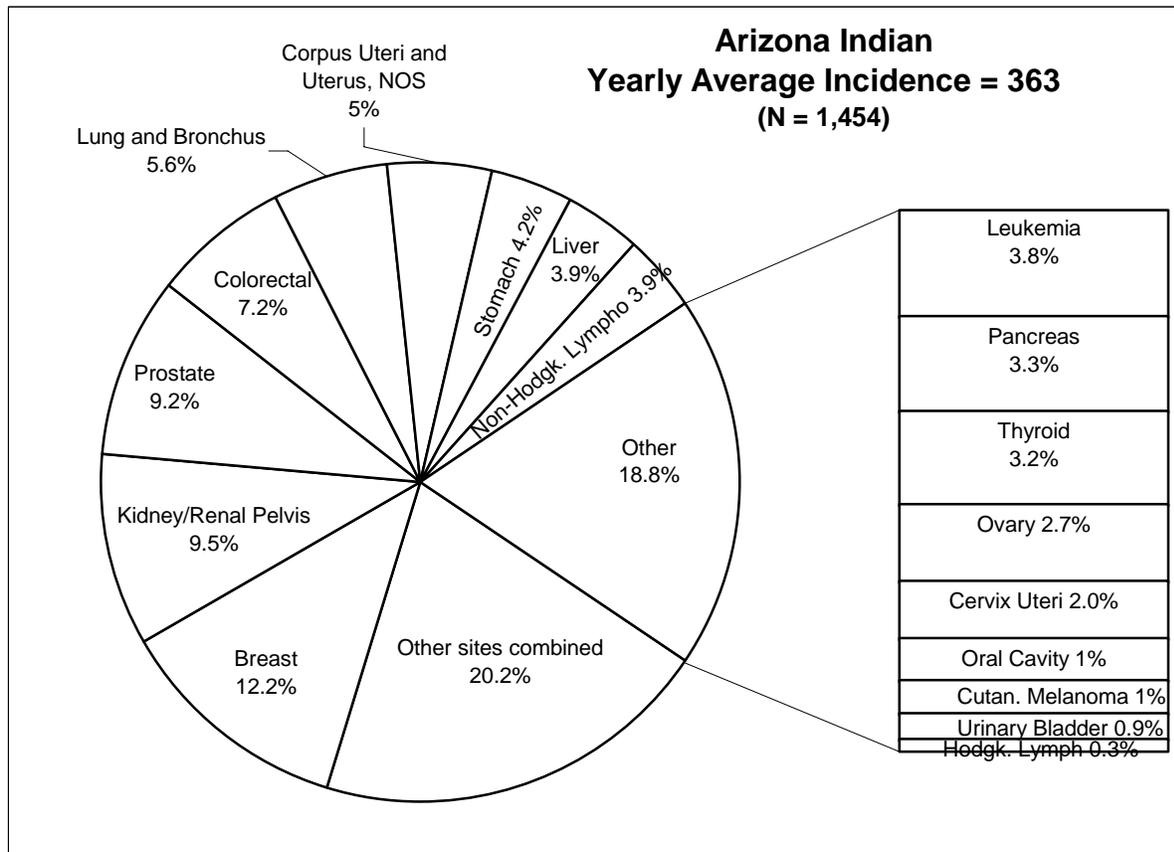
**Figure 4. Cancer Incidence Count for Indians by Age Group and Gender, All Sites, Arizona, 2001-2004.**



Source: Arizona Cancer Registry, IBIS. Nov 28, 2007

<sup>1</sup> To generate your own queries see the ACRC website <http://www.azdhs.gov/phs/phstats/acr/index.htm>

**Figure 5. Distribution of Incident Cancer Case for American Indians, Arizona, 2001-2004**



Source: Arizona Cancer Registry, IBIS. April 28, 2008

**Table B.**

Count of Incident Cancer by Gender; Arizona, Sum of the reported cases diagnosed during 2001-2004 (4-year totals and average); American Indians [Source: AZ Cancer Registry, IBIS, run date 4/24/2008]				
Cancer Sites	4-yr Male	4-yr Female	4-yr Total	Yearly Average
Breast	1	176	177	44
Kidney/Renal Pelvis	88	50	138	35
Prostate	134		134	34
Colorectal	53	51	104	26
Lung and Bronchus	43	39	82	21
Corpus Uteri and Uterus, NOS	.	79	79	20
Stomach	36	25	61	15
Liver	33	23	56	14
Non-Hodgkin's Lymphoma	33	23	56	14
Leukemia	33	22	55	14
Pancreas	19	29	48	12
Thyroid	8	39	47	12
Ovary	.	39	39	10
Cervix Uteri	.	29	29	7
Oral Cavity	12	9	21	5
Cutaneous Melanoma	6	11	17	4
Urinary Bladder	10	3	13	3
Hodgkin's Lymphoma	4	1	5	1
Other sites combined	156	137	293	73
<b>Total, All Sites</b>	<b>669</b>	<b>785</b>	<b>1454</b>	<b>364</b>

**Table C.**

Count of Cancer Mortality by Gender; Arizona, Sum of the reported cases diagnosed during 2001-2006 (6-year totals and average); American Indians [Source: AZ Health Status and Vital Statistics]			
Cancer Sites	6-yr Male	6-yr Female	Yearly Average
Trachea, Bronchus And Lung	45	42	15
Liver	37	39	13
Stomach	42	33	13
Kidney	47	24	12
Breast	-	70	12
Colon, Rectum And Anus	34	30	11
Pancreas	30	32	10
Prostate	57	-	10
Non-Hodgkin's Lymphoma	22	22	7
Leukemia	19	23	7
Ovary	-	42	7
Cervix	-	25	4
Corpus Uteri	-	17	3
Esophagus	16	34	3
Uterus	-	17	3
Meninges, Brain And Cns	10	6	3
Bladder	6	8	2
Lip, Oral Cavity And Pharynx	10	2	2
Skin	6	2	1
Larynx	2	1	1
Hodgkin's Disease	-	-	-
Other	87	133	37
<b>Total, All Sites</b>	<b>470</b>	<b>602</b>	<b>173</b>

## Cancer Interventions

Information about the effectiveness of cancer interventions, especially cancer prevention and early detection, is obtained from the recommendations of the **US Preventative Services Task Force**.<sup>2</sup> Please visit this website <http://www.ahrq.gov/clinic/uspstfix.htm> for further general information, and the links below for information about specific cancer topics.

### Links to USPSTF

#### Cancer

Bladder Cancer: [Screening](#) (2004)

BRCA Mutation Testing for Breast and Ovarian Cancer: [Screening](#) (2005)

Breast Cancer: [Screening](#) / [Preventive Medication](#) (2002)

Cervical Cancer: [Screening](#) (2003)

Colorectal Cancer: [Screening](#) (2002)

Lung Cancer: [Screening](#) (2004)

Oral Cancer: [Screening](#) (2004)

Ovarian Cancer: [Screening](#) (2004)

Pancreatic Cancer: [Screening](#) (2004)

Prostate Cancer: [Screening](#) (2002)

Skin Cancer: [Screening](#) (2001) / [Counseling](#) (2003)

Testicular Cancer: [Screening](#) (2004)

Thyroid Cancer: [Screening](#) (1996)

Tobacco Use: [Counseling](#) (2003)

Vitamin Supplementation to Prevent Cancer and Coronary Heart Disease: [Counseling](#) (2003)

Obesity in Adults: [Screening and Counseling](#) (2003)

Physical Activity: [Counseling](#) (2002)

## Matrix to compare interventions

The matrices on the following pages can be useful in answering the key questions.

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<sup>2</sup> **Guide to Clinical Preventive Services.** [Click here to [link to Guide on web](#)]

**Matrix A: List of possible interventions to address American Indian cancer disparities. (The list is in no particular order.)**

Cancer Site and Disparity Measure	Scale of Problem in AZ American Indians (4-year avg.) <sup>^</sup>	Risk Factors & Potential Interventions	Intervention Metric for American Indians [%; baseline*; Target if known]	How well does intervention work? <sup>1</sup> [USPSTF A, B, C, D, I] Addt'l benefit?	Important cultural aspects to consider (pos or neg)	For an Average-risk Population ...		Research Question to Ask# Ease of implementation in this pop'n	Priority# for Intervention
						Cost and Health Benefit of Intervention	Number to Screen to Save One Life		Priority# for Research
<b>Mortality rate slightly elevated; incidence rate now not elevated in AI for:</b> 1) Cervical Cancer	Invasive cervical cancer cases, 2001-2004: 7	<ul style="list-style-type: none"> <li>• Increase utilization of Pap smear;</li> <li>• Provide HPV Vaccination;</li> <li>• Encourage abstinence</li> </ul>	% women aged 21-64 w/ Pap recorded w/in the past 3 years = 87.9% (2004-6); <i>HP2010 goal</i> =3% who never have a pap test for those 18 and older within the past 3 years	"A" for women who have been sexually active and have a cervix. Incidence rates in AI dropped in recent years; now are lower than in White pop'n.		\$14,000 per year of life saved from cervical screening at age 20-74 once every 3 years <sup>2</sup>	1,254 (range 1,140 - 1,367) All ages	What interventions work?	
<b>Low AI Incidence and mortality rate of:</b> 2) Tobacco-linked cancers	Tobacco-related cancer cases, 2001-2004: Oral: 5 Lung: 18 Bladder: 3	<ul style="list-style-type: none"> <li>• Adult smoking cessation programs</li> <li>• Youth smoking prevention programs</li> </ul>	% of people 18 and older who are current smokers = 22.1% (2004-6); <i>HP2010 goal</i> =at most 12% of adults aged 18 and older who smoke	"A" for adult programs; "A" for pregnant women; "I" for youth interventions. Reduces heart and lung diseases too.	Some tribes use tobacco in sacred ceremonies.	\$1,100/QALY saved for adult counseling by clinician <sup>3</sup>		Has the attitude about smoking changed among Indian youth?	
<b>Late stage in AIs of:</b> 3) Breast Cancer	Invasive breast cancer cases, 2001-2004: 42	<ul style="list-style-type: none"> <li>• Promote mammography</li> </ul>	% women aged 40 and over who had a mammogram in the past 2 yrs = 61.7% (2004-6); <i>HP2010 goal</i> =70% of women 40 and over having a mammogram w/in the past 2 years	"B" for mammo-graphy every 1-2 years starting at age 40		\$22,000/QALY saved for biennial MMG of women age 50-69 <sup>4</sup>	691 (range 543 - 838) Age 50+		
<b>Late stage in AIs of:</b> 4) Colorectal Cancer	Invasive colorectal cancer cases, 2001-2004: 25	<ul style="list-style-type: none"> <li>• Promote colonoscopy</li> </ul>	% of people aged 50 and over who had a CRC screening=51.3% (2004-6) <i>HP2010 goal</i> =50% screening for those 50 years and older (FOBT w/in the preceding 2 years & ever rec'd a sigmoidoscopy)	"A" for colorectal screening of adults age 50+. Removal of benign polyps reduces cancer risk. Low incidence in AIs leads to false positive screenings.	As in other groups, the topic is rarely discussed.	\$11,900 (range \$7300 to \$22,000) per life-year saved using colonoscopy <sup>5</sup>	See note. <sup>6</sup> 237 (range 42-431) Age 70+; Unknown for Age 45-74	How is colorectal screening perceived?	
<b>Utilization of:</b> 5) end-of-life service [this is difficult to measure or document]	Deaths from all malignant neoplasms: 2004 = 169 2005 = 192 2006 = 177	<ul style="list-style-type: none"> <li>• At-home or institutional hospice services</li> <li>• Perhaps use of "patient navigators"</li> </ul>	How to measure? Data are needed.	Hard to document a benefit; however, services are well received by families and patients	In past, few AIs lived long enough to get cancer. "Death" is difficult topic.	Data are not available.	Not applicable	-Hospice survey for cultural services. -What works?	
<b>High rate of : (other risk factors)</b> 6) [BRFS; special surveys]	Despite high overall BMI, the cancer rates are quite low in AIs.	<ul style="list-style-type: none"> <li>• Obesity is linked to cancer of gall bladder, breast, urinary bladder, uterus, kidney, ovary, colon, prostate</li> </ul>	% of adults 18 and over who are overweight or obese=62.3% (2004-6); <i>HP2010 goal</i> =<15 percent of obese adults 20 years and older	"B" for adults. Obesity has proven difficult to control. Modest weight loss lowers risk for diabetes and other diseases.		\$10,000/QALY saved for physician counseling about physical activity <sup>7</sup>	unknown		

\* Data Source: Behavioral Risk Factor Surveillance System (BRFSS), 2002-2004

<sup>^</sup> ACR = Arizona Cancer Registry

<sup>#</sup> Community leaders will complete these columns.

**Matrix B: Lesser opportunity cancers (The list is in no particular order.)**

Disparity Measure	Scale of Problem in American Indians (4-year avg.) <sup>^</sup>	Risk Factors; Potential Interventions	Intervention Metric for American Indians [%; baseline; target]	Relative Effectiveness of Intervention [high-med-low]	Relative Cost and Benefit of the Intervention	Research Question to Ask <sup>#</sup>	Priority <sup>#</sup> for Intervention
							Priority <sup>#</sup> for Research
<b>Relatively elevated incidence rate of:</b> 7) Liver Cancer	Invasive liver cancer cases, 2001-2004: 13	<ul style="list-style-type: none"> <li>Alcohol avoidance; CAGE questionnaire</li> <li>Hepatitis B immunization</li> <li>Screen for Hepatitis C</li> </ul>	Not applicable	Unknown;  This is under study in the U.S. Asian Population.	unknown		
<b>incidence rate of:</b> 8) Melanoma of skin	Invasive cutaneous melanoma cancer cases, 2001-2004: 4	<ul style="list-style-type: none"> <li>Reduce sun exposure, especially in childhood</li> </ul>	Not applicable	unknown	Not applicable		
<b>High incidence rate of:</b> 9) Kidney and renal pelvis Cancer	Invasive kidney & renal pelvis cancer cases, 2001-2004: 33	<ul style="list-style-type: none"> <li>No proven intervention; needs research</li> </ul>	Not applicable	Not applicable	Not applicable		
<b>incidence rate of:</b> 10) Pancreas Cancer	Invasive pancreas cancer cases, 2001-2004: 12	<ul style="list-style-type: none"> <li>No proven intervention; needs research</li> </ul>	Not applicable	Not applicable	Not applicable		
<b>incidence rate of:</b> 11) Prostate Cancer	Invasive prostate cancer cases, 2001-2004: 30	<ul style="list-style-type: none"> <li>Early detection has not been shown to prolong life</li> <li>Many local cancers do not progress</li> </ul>	unknown	Unknown  See the separate write-up on this topic.	Not applicable		
<b>incidence rate of:</b> 12) Stomach Cancer	Invasive stomach cancer cases, 2001-2004: 14	<ul style="list-style-type: none"> <li>Avoid alcohol, tobacco, and pickled or salty foods</li> <li>Screen for Helicobacter pylori</li> </ul>	Not applicable	Not applicable	Not applicable		
<b>incidence rate of:</b> 13) Gallbladder Cancer		<ul style="list-style-type: none"> <li>Risk factor = gallstones and obesity</li> </ul>	Not applicable	unknown	Not applicable		

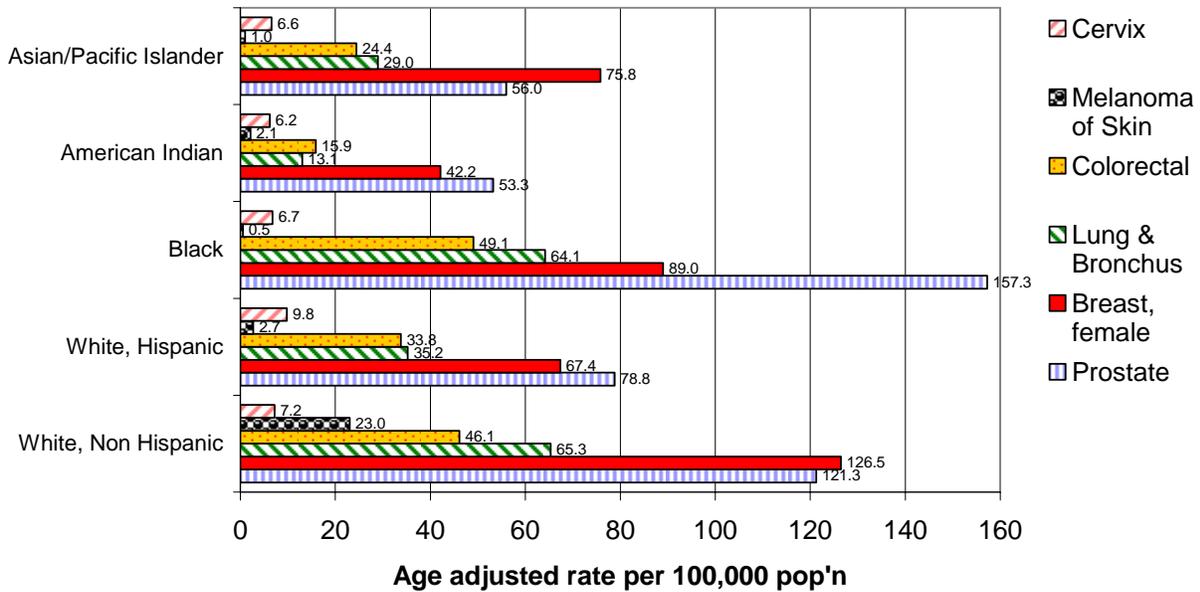
<sup>^</sup> ACR = Arizona Cancer Registry<sup>#</sup> Community leaders may complete these cells.

**APPENDICES**  
**SUPPORTIVE CANCER DATA**

**APPENDIX A:  
LEADING CANCERS BY RACE/ETHNIC GROUPS FOR SELECTED SITES**

Figure 6.

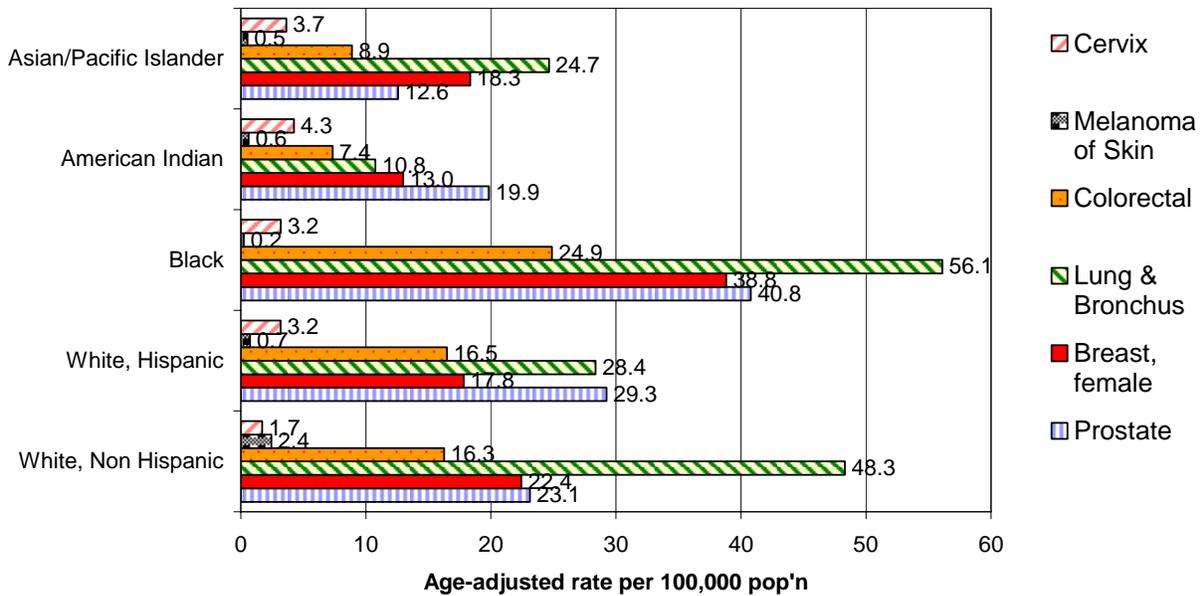
**Cancer Incidence by Race for Selected Sites, Arizona,  
2001-2004**



Source: Arizona Cancer Registry, IBIS. Nov 28, 2007

Figure 7.

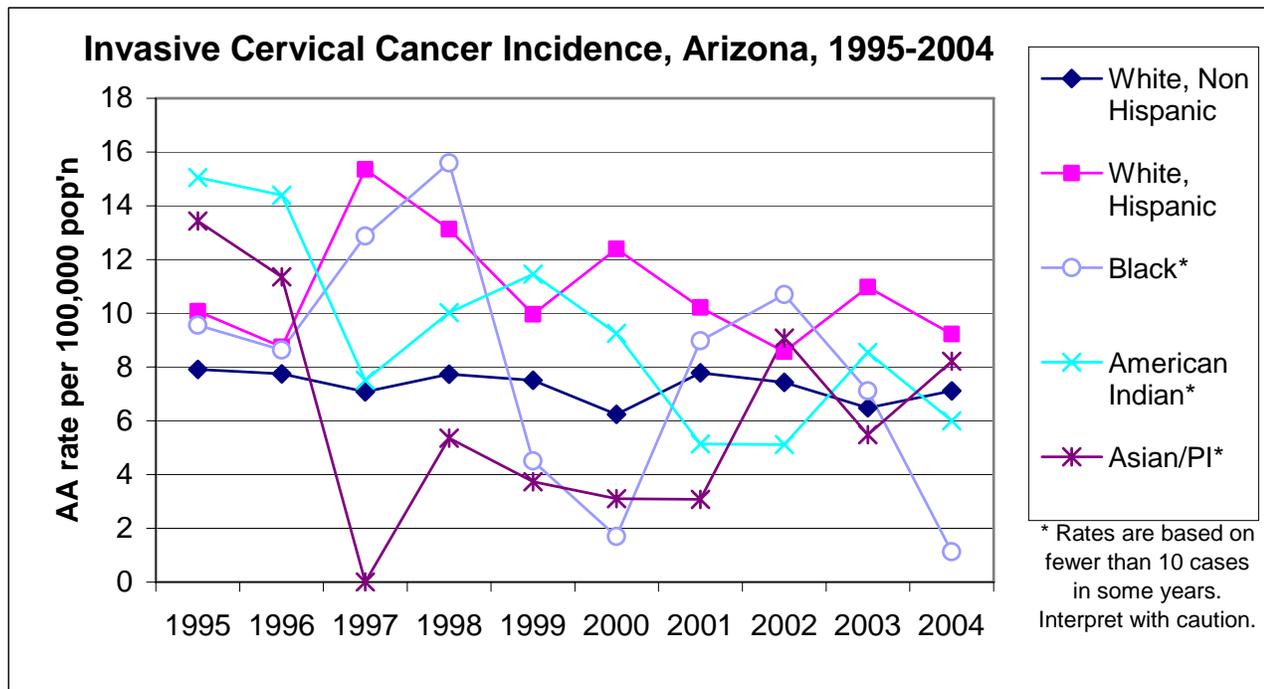
**Cancer Mortality by Race for Selected sites, Arizona,  
2001-2006**



Source: Arizona Vital Statistics, Feb. 5, 2008

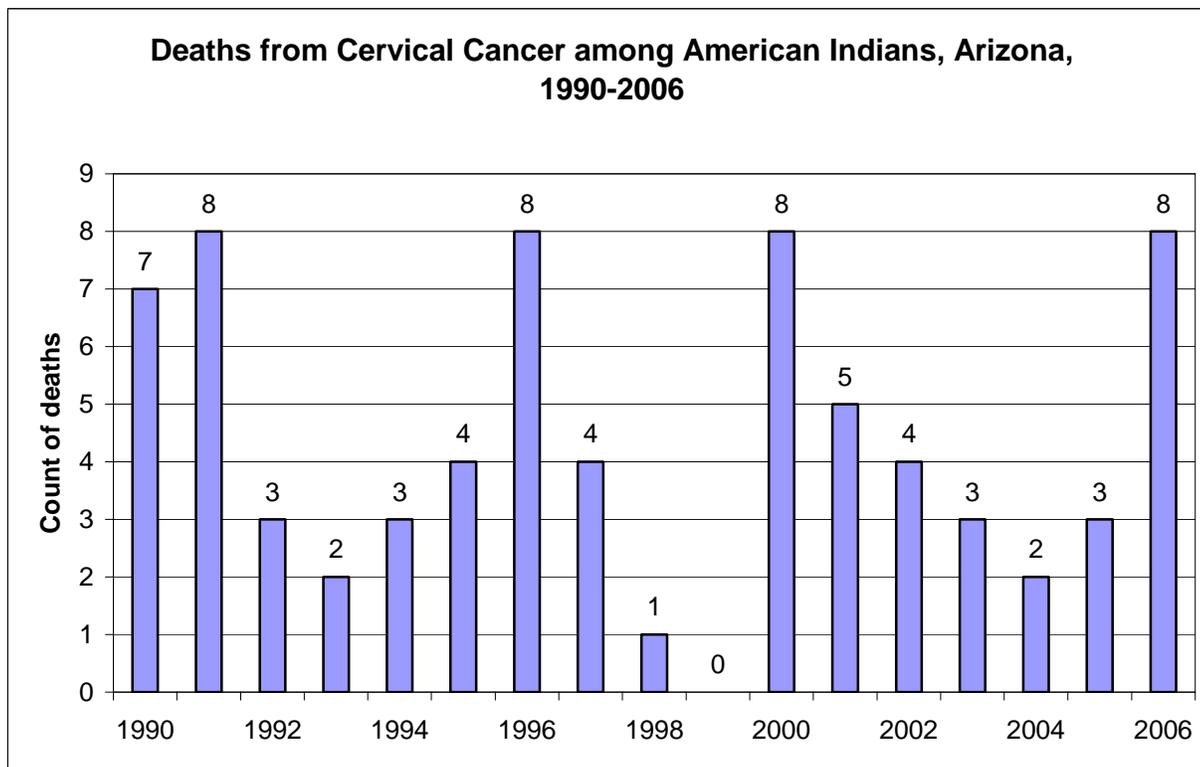
## APPENDIX B: CERVICAL CANCER

Figure 8. Cervical Cancer Incidence Rate per 100,000 Population, Arizona residents, 1995-2004



Source: Arizona Cancer Registry, IBIS. Nov 28, 2007

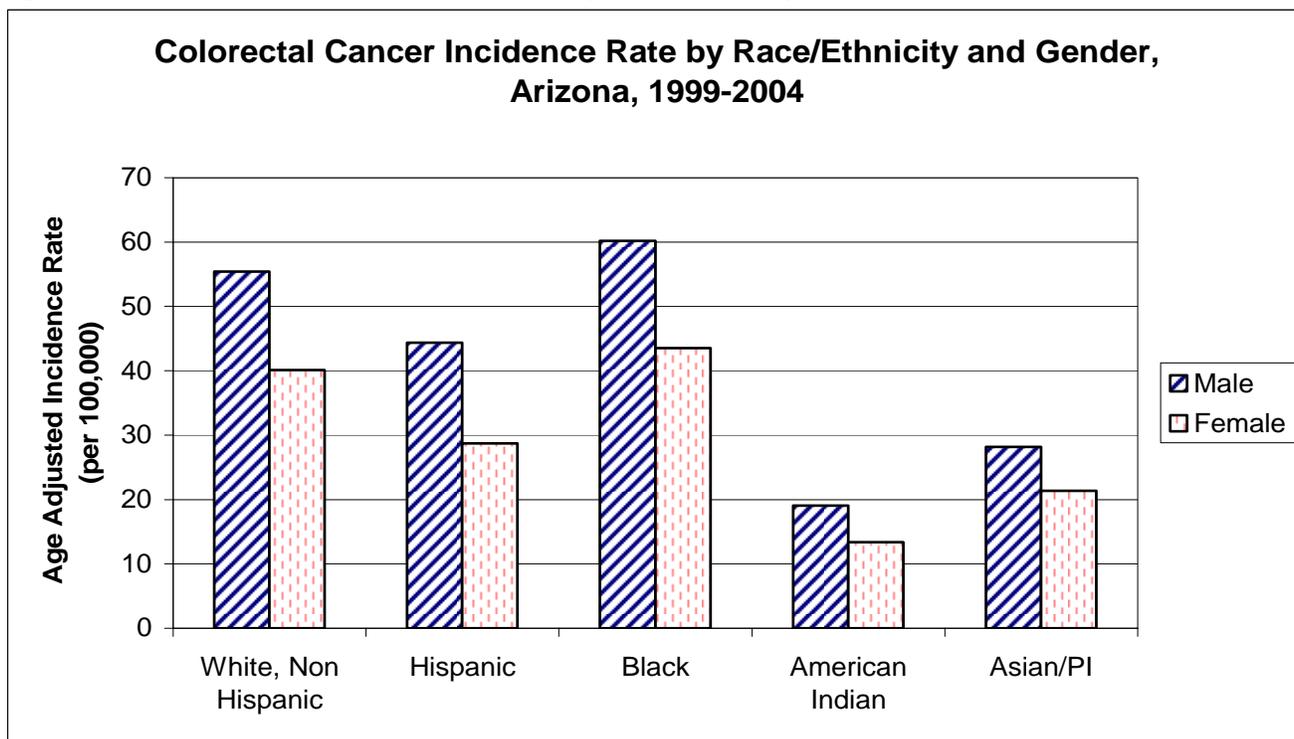
Figure 9. Deaths from Cervical Cancer among American Indians, Arizona, 1990-2006



Source: Underlying cause of death as listed on Death Certificates, Arizona Vital Statistics

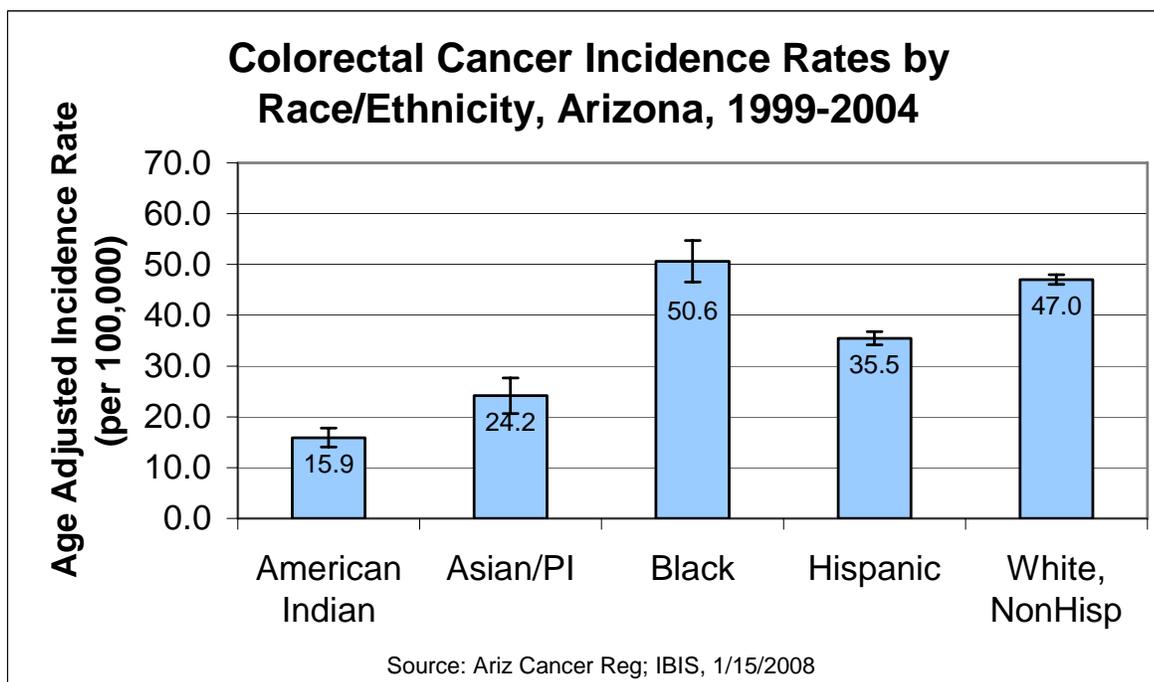
## APPENDIX C: COLORECTAL CANCER

Figure 10. Colorectal Cancer Incidence Rate by Race/Ethnicity and Gender, Arizona, 1999-2004



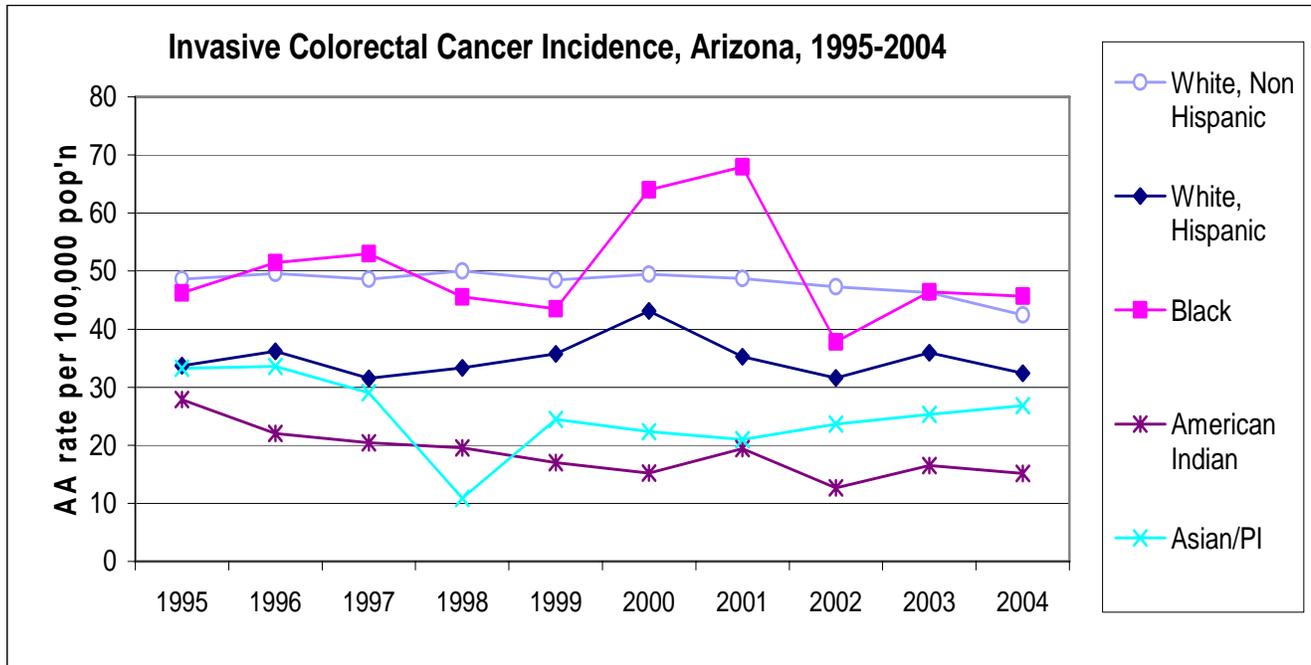
Source: Arizona Cancer Registry, IBIS. Nov 29, 2007

Figure 11. Colorectal Cancer Incidence Rates by Race/Ethnicity, Arizona, 1999-2004



## APPENDIX C: COLORECTAL CANCER

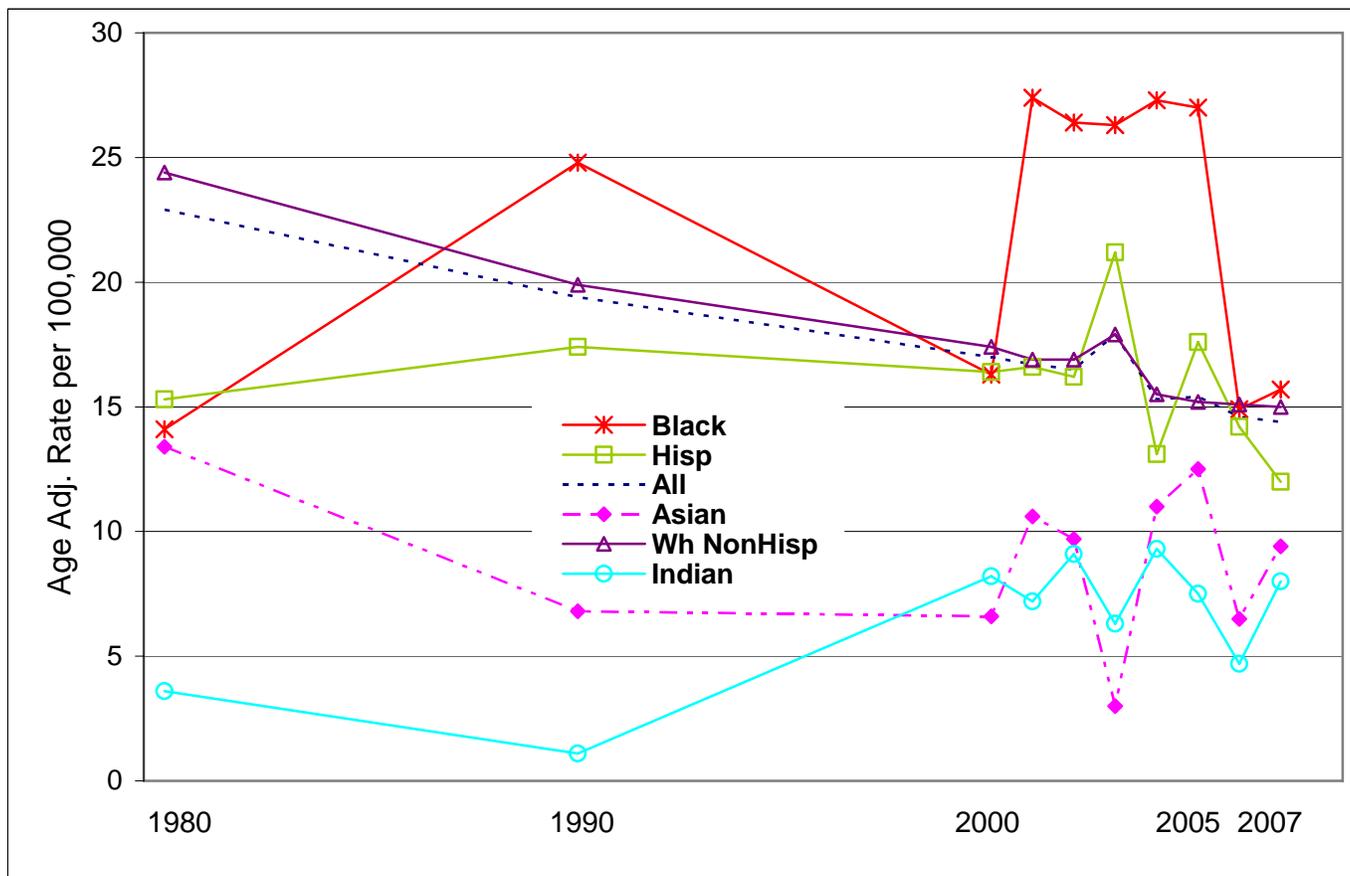
Figure 12. Invasive Colorectal Cancer Incidence, Arizona, 1995-2004



Source: Arizona Cancer Registry, IBIS. Nov 29, 2007

## APPENDIX C: COLORECTAL CANCER

Figure 13. Mortality Rate from Colo-Rectal-Anal Cancer, Arizona, 1980, 1990, 2000-2007



Source: Arizona Vital Statistics

Table D. Colorectal Screening rate, BRFS, 2004-2006. For this table, the term “Meeting Guidelines” is measured as an adult respondent age 50+ who had a FOBT within the past year, or sigmoid/colonoscopy with past 5 years, or both.

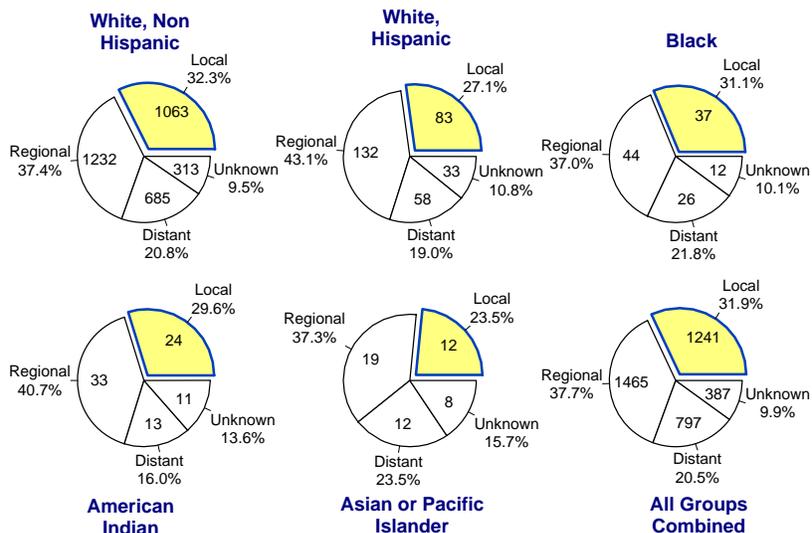
Race group	CR Screening rate, meeting guidelines, in 2004-2006
White non Hispanic	53.6%
Black	51.3%
Asian Pacific Islander	45.1%
White Hispanic	34.4%
American Indian	34.1%

# APPENDIX C: COLORECTAL CANCER

Following figures are information about the stage at diagnosis of colorectal cancer (“CR”), Arizona.

Figure 14.

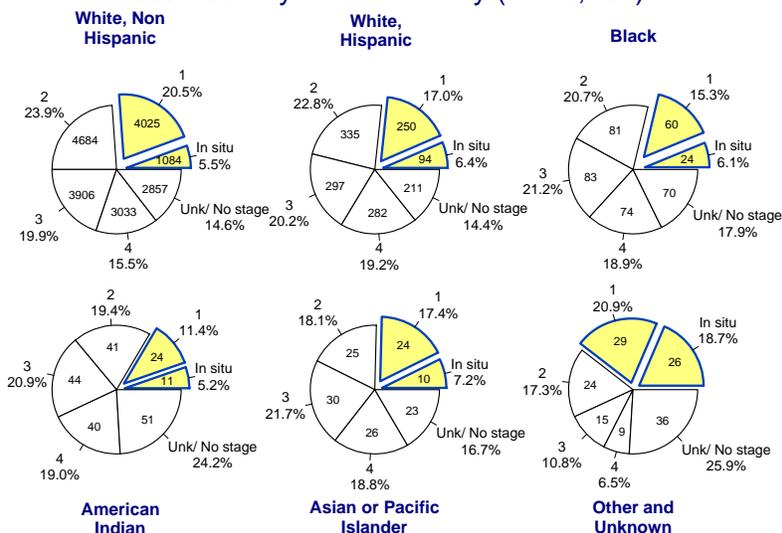
## Summary Stage of CR Cancers, Age 50-64, Arizona Residents, 1995-2002 by Race/ethnicity (N=3,890)



Source: Arizona Cancer Registry, 9/27/2006

Figure 15.

## AJCC Stage of CR Neoplasm, All ages, Arizona, 1995-2002 by Race/ethnicity (N=19,401)

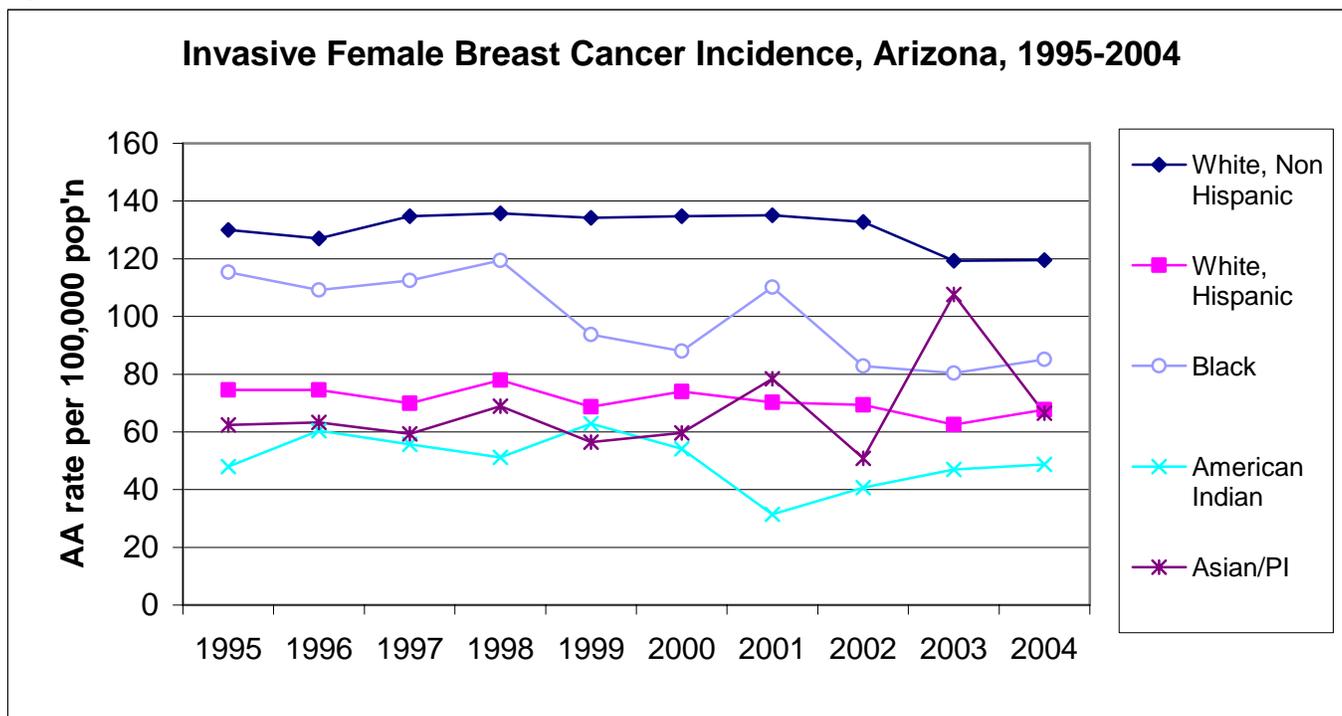


Arizona Cancer Registry, best AJCC Stage, 2005

Source: ACR, TJF unpublished report

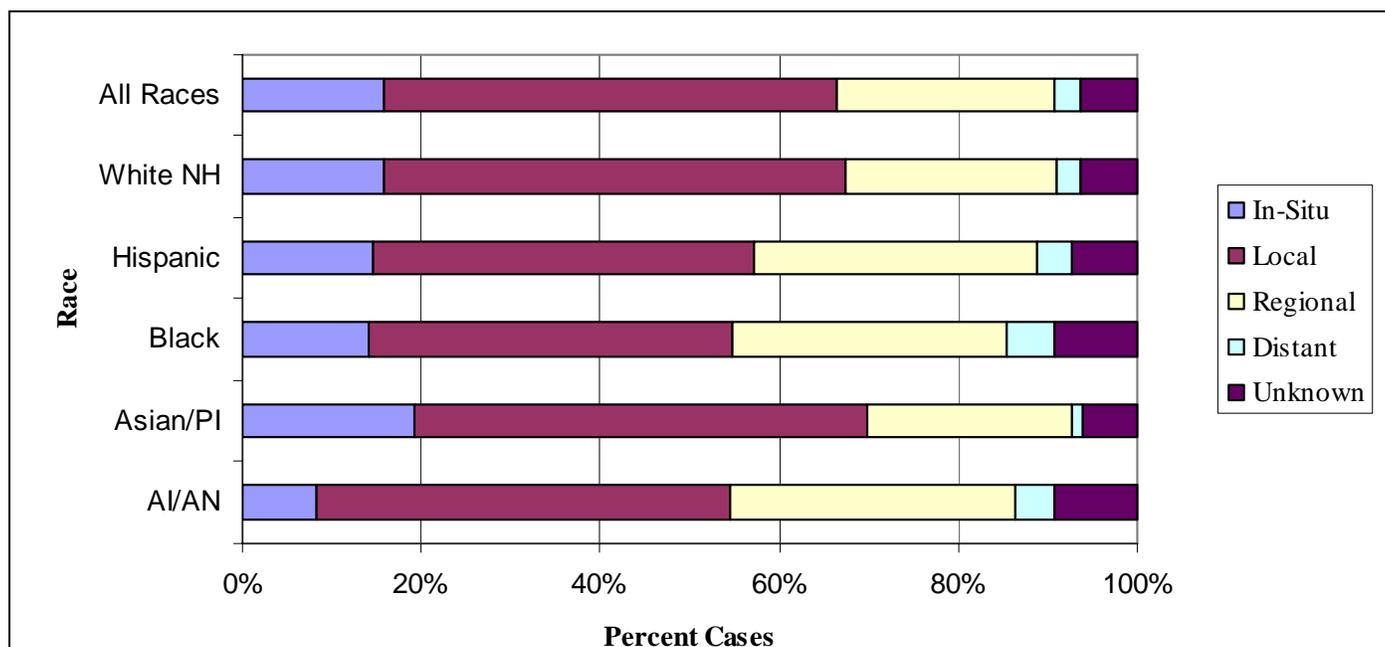
# APPENDIX D: BREAST CANCER

Figure 16. Incidence Rate of Breast Cancer, Arizona, 1995-2004



Source: Arizona Cancer Registry, IBIS. Nov 29 2007

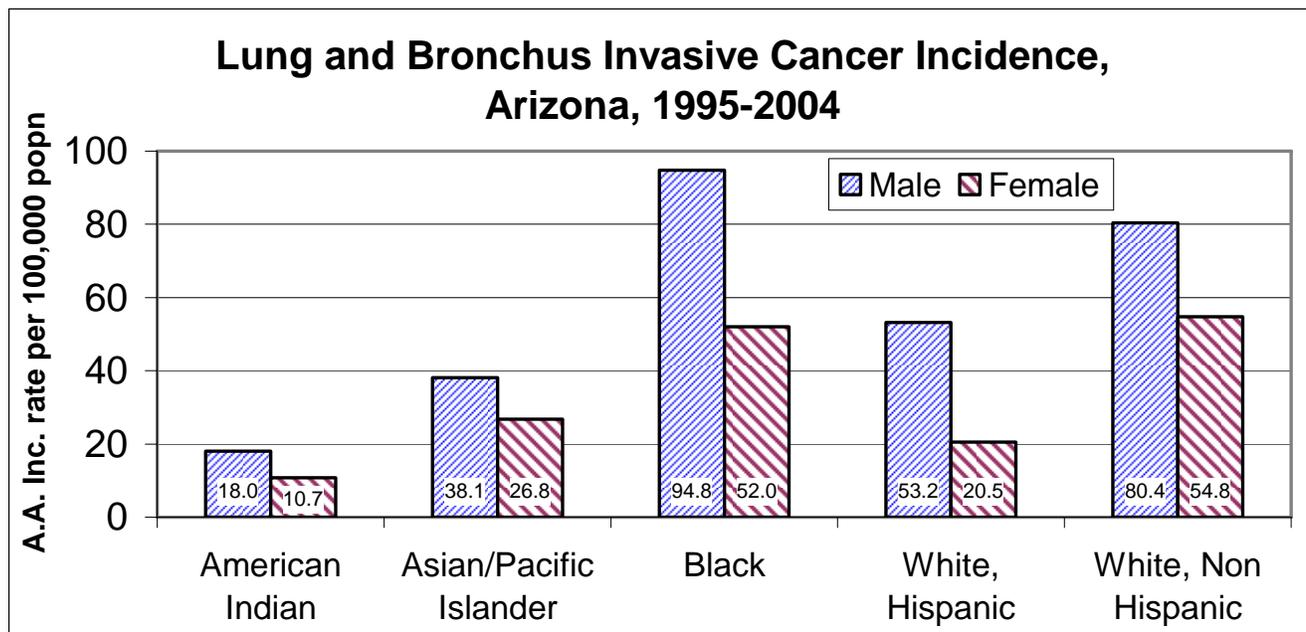
Figure 17. Breast Cancer, Stage at Diagnosis by Race, 1995-2002



Source: Archana Minnal, MPH, 2005, unpublished analysis of ACR data.

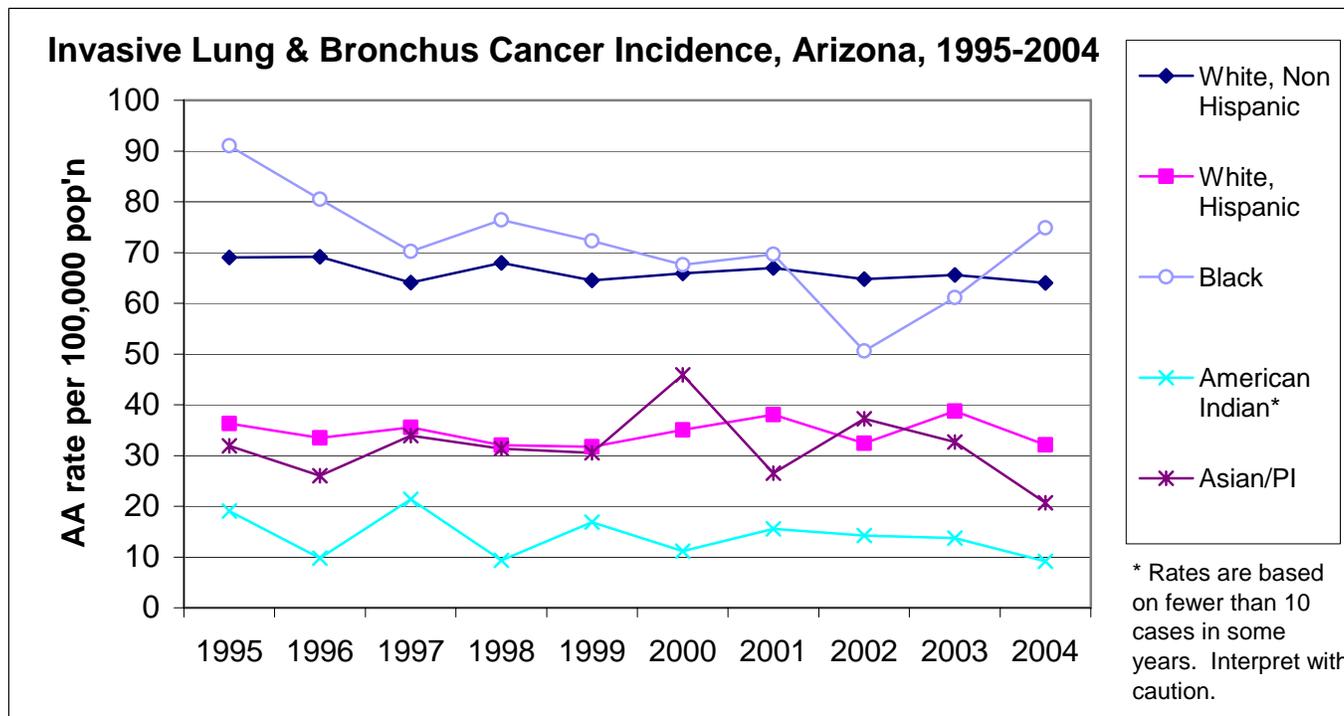
## APPENDIX E: LUNG AND BRONCHUS CANCER

Figure 18. Comparison of Rate of Lung & Bronchus Invasive Neoplasm by Racial/Ethnic Group, Arizona, 1995-2004



Source: ACR IBIS, 1/15/2008

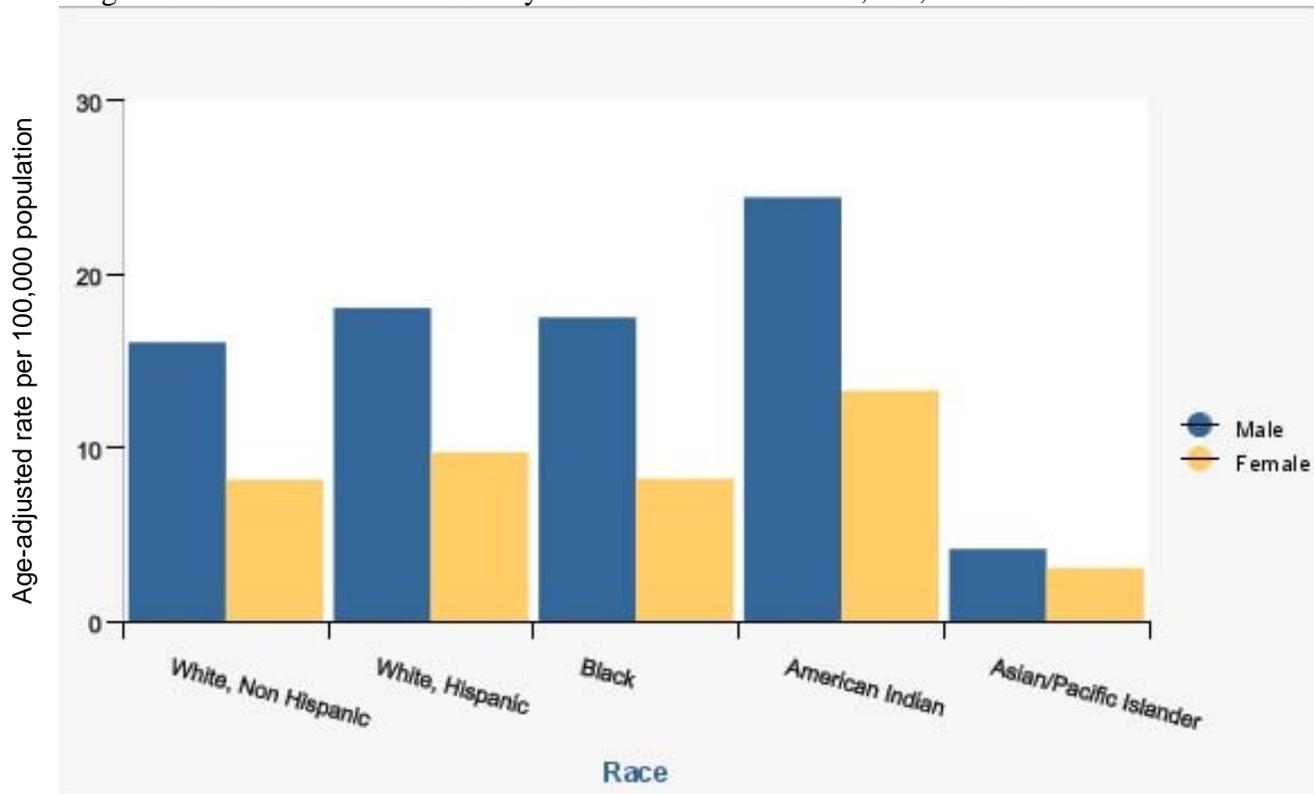
Figure 19. Invasive Lung & Bronchus Cancer Incidence, Arizona, 1995-2004



Source: Arizona Cancer Registry, IBIS. Nov 30, 2007

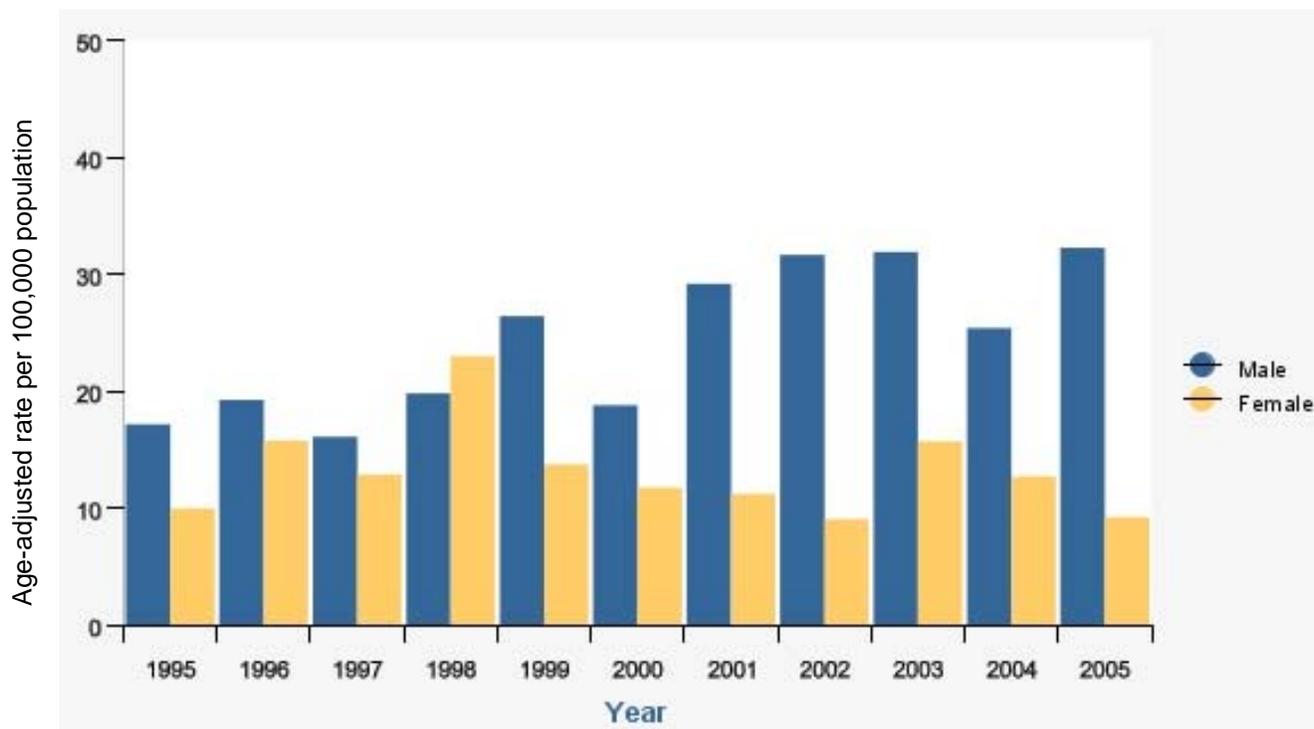
## APPENDIX F: KIDNEY CANCER

Figure 20. Incidence Rate of Kidney and Renal Pelvis Cancer, AZ, 1995-2004.



Source: Arizona Cancer Registry, IBIS. Nov 30, 2007

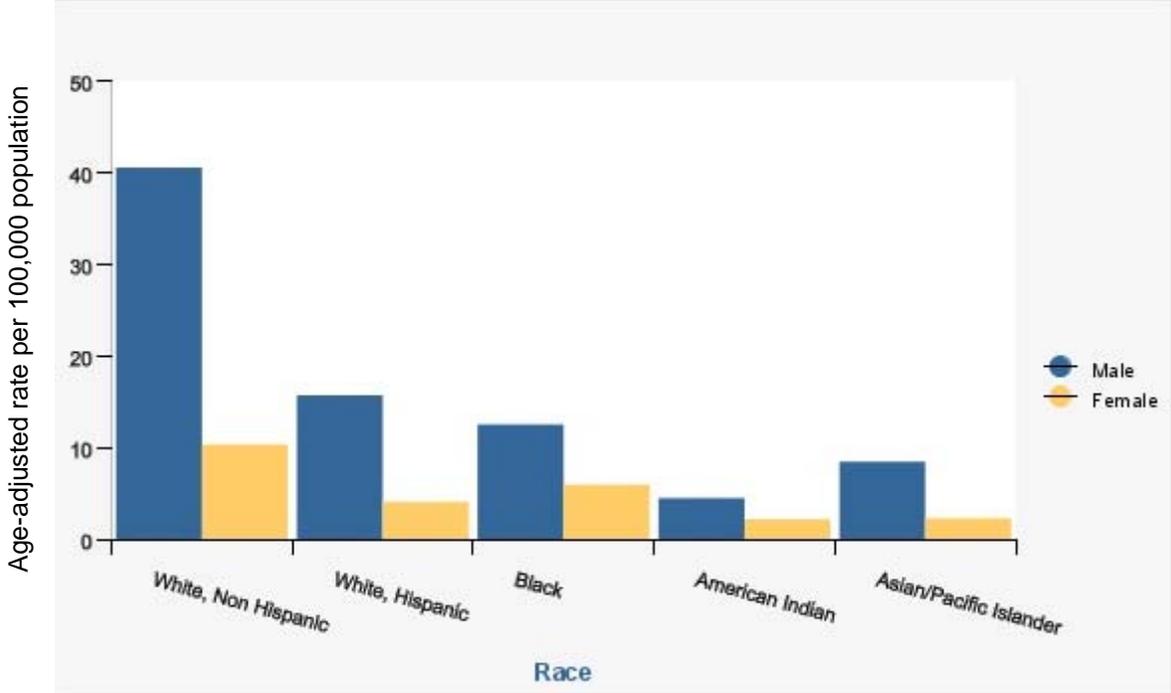
Figure 21. Incidence Rate of Kidney and Renal Pelvis Cancer, American Indians, AZ, 1995-2005.



Source: Arizona Cancer Registry, IBIS. May 24, 2008 (special run)

# APPENDIX G: BLADDER CANCER

Figure 22. Incidence Rate of Bladder Cancer, AZ, 1995-2004.



Source: Arizona Cancer Registry, IBIS. Nov 30, 2007

## APPENDIX H: SURVIVORSHIP

Figure 23. Colorectal and Breast Cancer 5-year Survivorship

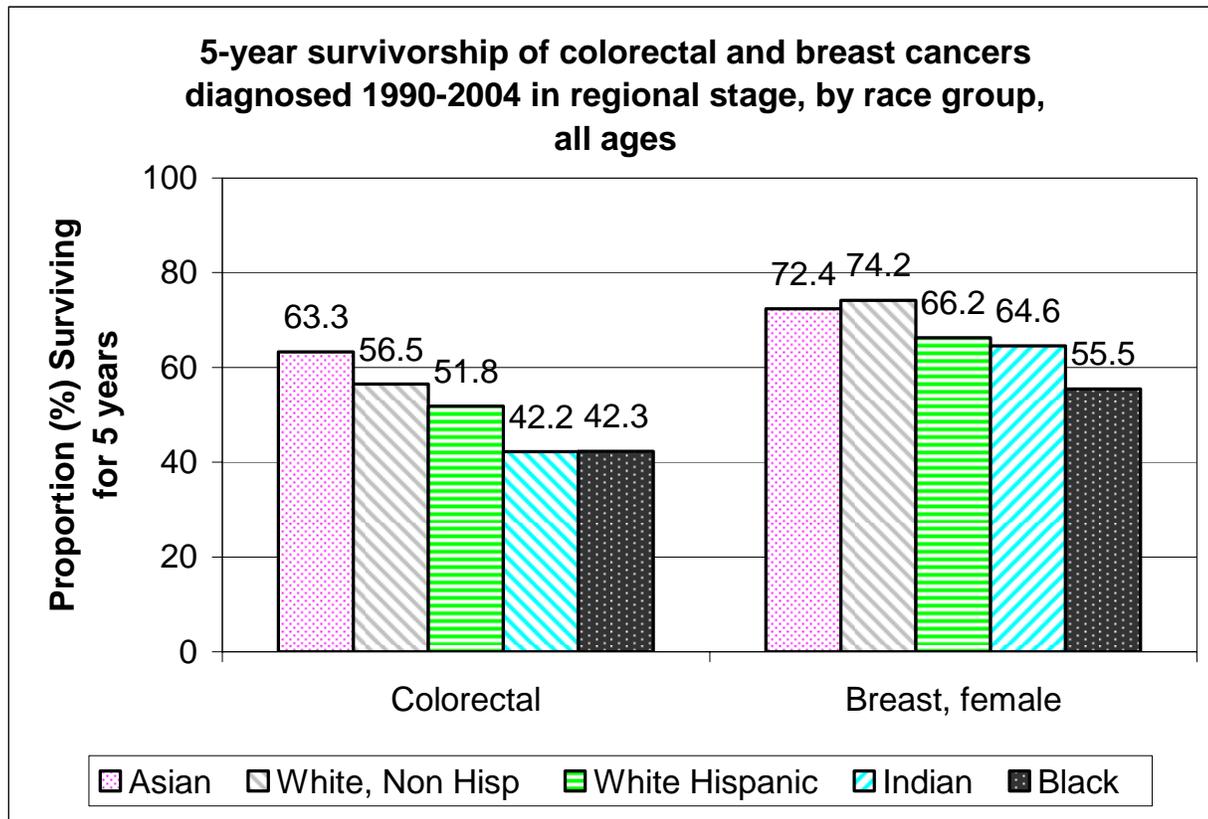
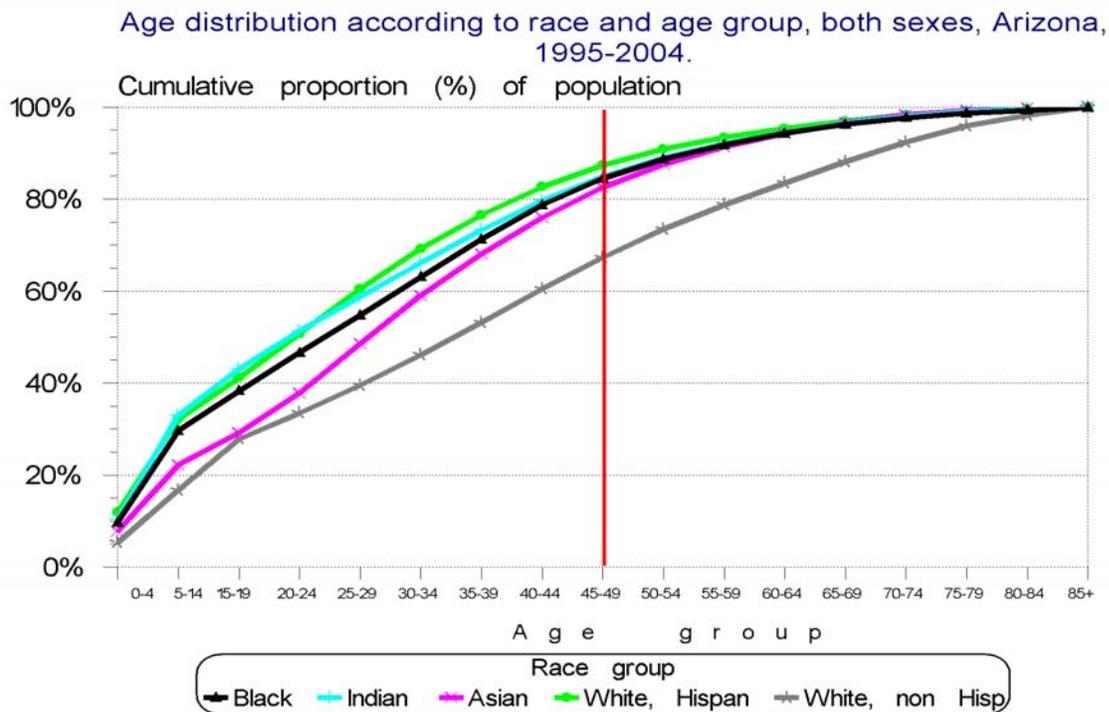


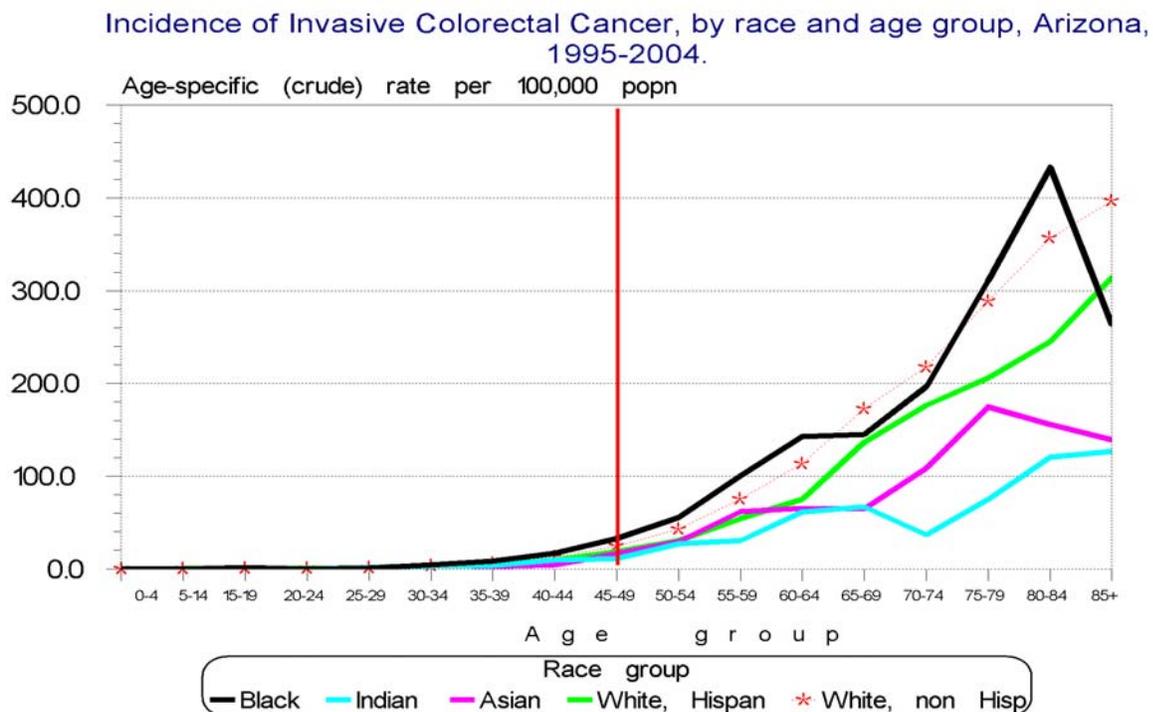
Figure 24. Age Distribution According to Race and Age Group, Both Sexes, Arizona, 1995-2004



Source: Arizona Cancer Registry, 2007Aug31

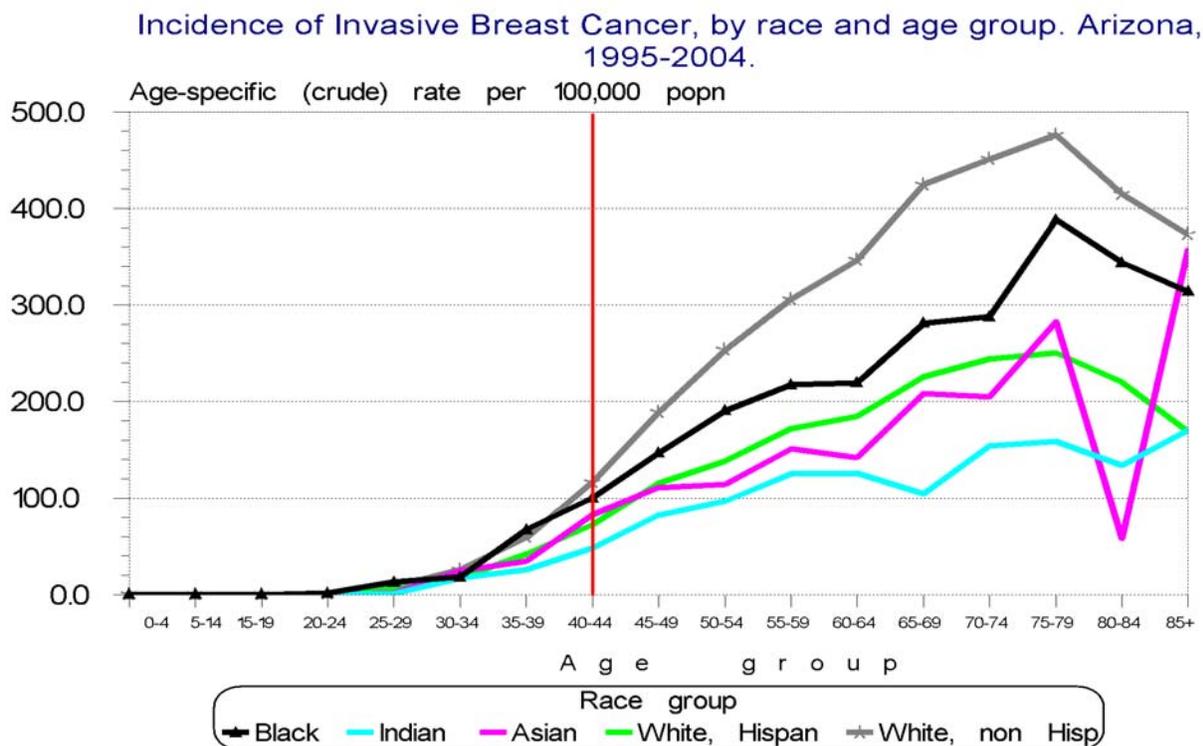
## APPENDIX H: SURVIVORSHIP

Figure 25. Incidence of Invasive Colorectal Cancer, by Race and Age Group, Arizona, 1995-2004



Source: Arizona Cancer Registry, 2007Aug31

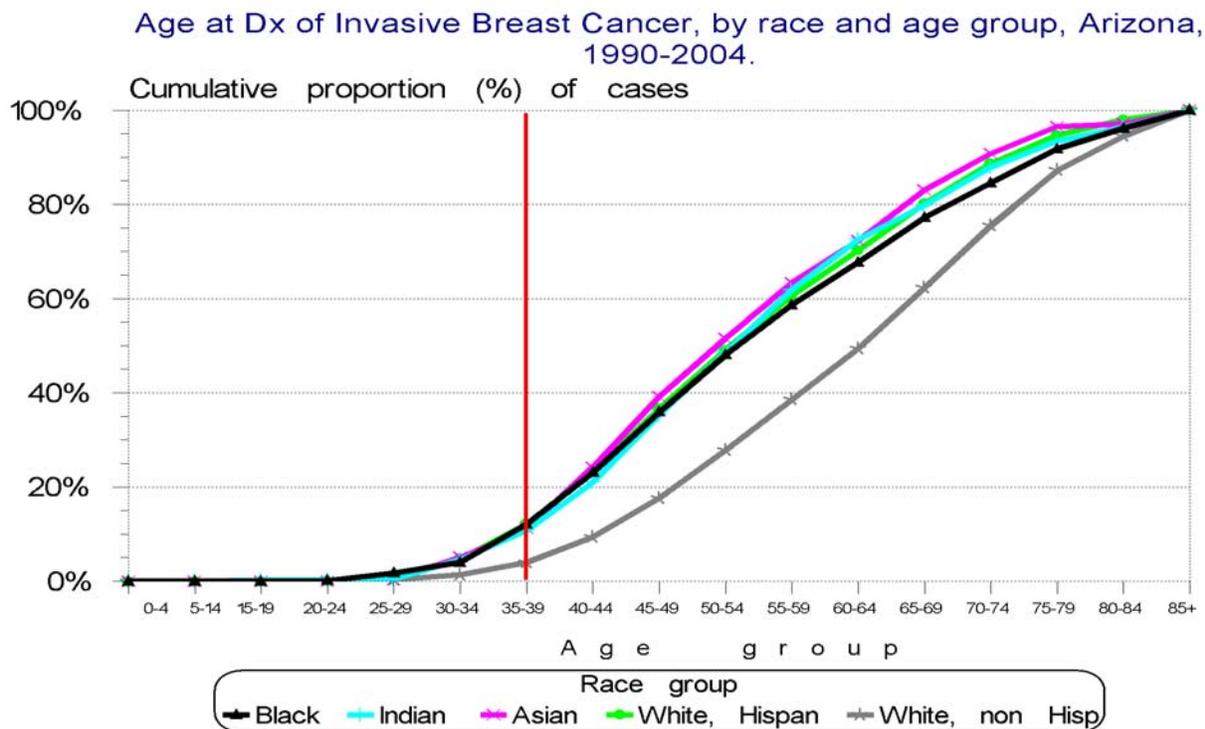
Figure 26. Incidence of Invasive Breast Cancer, by Race and Age Group, Arizona, 1995-2004



Source: Arizona Cancer Registry, 2007Aug31

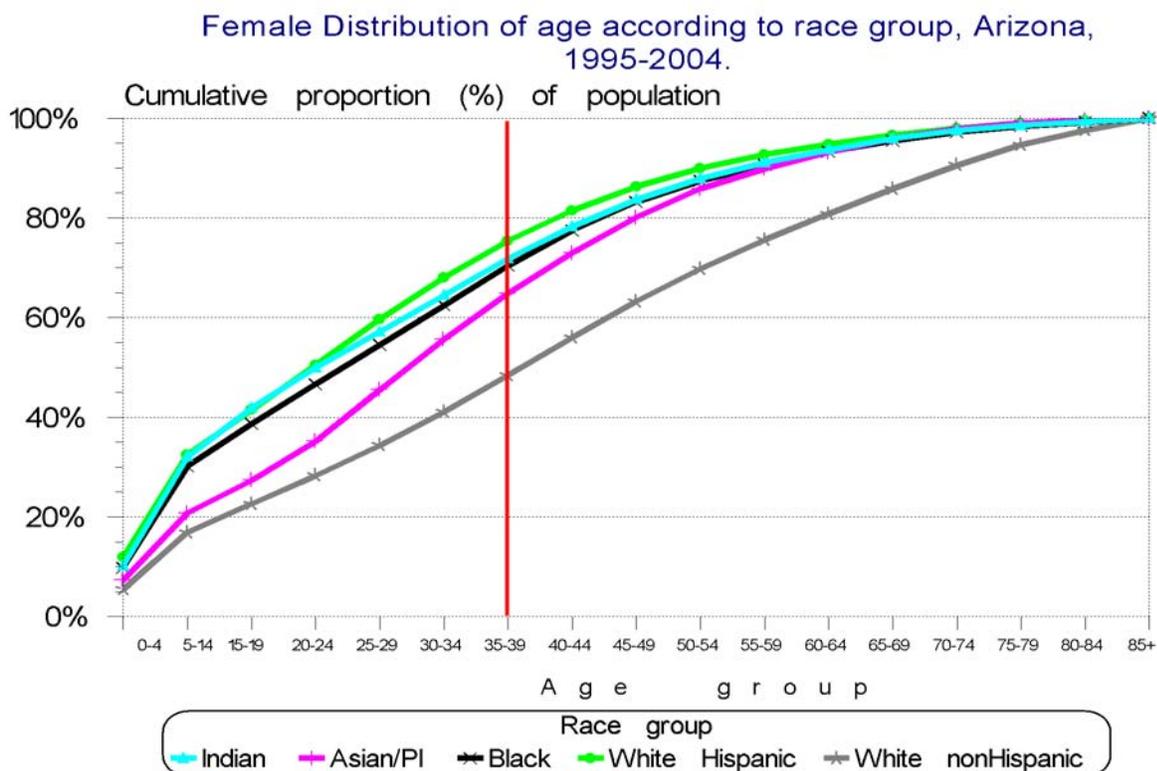
## APPENDIX H: SURVIVORSHIP

Figure 27. Age at Diagnosis of Invasive Breast Cancer, by Race and Age Group, Arizona, 1995-2004



Source: Arizona Cancer Registry, 2007Sep25

Figure 28. Female Distribution of Age According to Race Group, Arizona, 1995-2004



Source: Arizona Cancer Registry, 2007-Sep-25

## APPENDIX I: COMMENTS AS THE MATRIX WAS DEVELOPED

Comment or Issue	Response																																																																												
<b>Herman Honnanie</b>																																																																													
<p>Is there a family history assessment of cancer that can be used to address the individual's risk of cancer?</p>	<p>This question is relevant because a positive family history may help target screening programs and raise the predictive value of the screening test. For most cancer sites it is not possible to quantify the risk that a positive family history adds to an individual's risk. An exception is breast cancer. The website <a href="http://www.cancer.gov/bcrisktool/">http://www.cancer.gov/bcrisktool/</a> allows a woman to determine risk for breast cancer. It includes family history as one of the factors. Also, genetics counseling, including review of family history, now is becoming an accepted practice to assess individual cancer risk.</p>																																																																												
<b>Maria Tirado</b>																																																																													
<p>1. To increase confidence and understanding of the counts, can we describe the completeness of case ascertainment?</p> <p>2. What was the proportion of cases in the Arizona registry that were not classified as to race/ethnicity?</p>	<p>1. Since 1995 the ACR has achieved the registration of approximately 90-95% completeness of cases as determined by the quality assessment by the North American Association of Central Cancer Registries. In order to accurately count cases among the American Indian population, the ACR exchanges data with the New Mexico Tumor Registry and the Indian Health Service. This exchange allows the ACR to include cases seen only at the IHS facilities.</p> <p>2. The table below displays information about unclassified race. In general, the unclassified proportion is very low.</p>																																																																												
	<table border="1" data-bbox="586 1031 1442 1881"> <thead> <tr> <th data-bbox="586 1087 1000 1276">Cancer Sites</th> <th data-bbox="1000 1087 1143 1276">"Other" race including Unknown Race</th> <th data-bbox="1143 1087 1286 1276">All races combined</th> <th data-bbox="1286 1087 1442 1276">Proportion coded as "Other and Unknown Race"</th> </tr> </thead> <tbody> <tr><td data-bbox="586 1276 1000 1308">Oral Cavity</td><td data-bbox="1000 1276 1143 1308">57</td><td data-bbox="1143 1276 1286 1308">4,000</td><td data-bbox="1286 1276 1442 1308">1.4%</td></tr> <tr><td data-bbox="586 1308 1000 1339">Stomach</td><td data-bbox="1000 1308 1143 1339">47</td><td data-bbox="1143 1308 1286 1339">2,992</td><td data-bbox="1286 1308 1442 1339">1.6%</td></tr> <tr><td data-bbox="586 1339 1000 1371">Colorectal</td><td data-bbox="1000 1339 1143 1371">137</td><td data-bbox="1143 1339 1286 1371">20,812</td><td data-bbox="1286 1339 1442 1371">0.7%</td></tr> <tr><td data-bbox="586 1371 1000 1402">Pancreas</td><td data-bbox="1000 1371 1143 1402">22</td><td data-bbox="1143 1371 1286 1402">4,352</td><td data-bbox="1286 1371 1442 1402">0.5%</td></tr> <tr><td data-bbox="586 1402 1000 1434">Lung and Bronchus</td><td data-bbox="1000 1402 1143 1434">171</td><td data-bbox="1143 1402 1286 1434">28,006</td><td data-bbox="1286 1402 1442 1434">0.6%</td></tr> <tr><td data-bbox="586 1434 1000 1465">Cutaneous Melanoma</td><td data-bbox="1000 1434 1143 1465">122</td><td data-bbox="1143 1434 1286 1465">7,852</td><td data-bbox="1286 1434 1442 1465">1.6%</td></tr> <tr><td data-bbox="586 1465 1000 1497">Breast</td><td data-bbox="1000 1465 1143 1497">378</td><td data-bbox="1143 1465 1286 1497">28,725</td><td data-bbox="1286 1465 1442 1497">1.3%</td></tr> <tr><td data-bbox="586 1497 1000 1528">Corpus Uteri and Uterus, NOS</td><td data-bbox="1000 1497 1143 1528">65</td><td data-bbox="1143 1497 1286 1528">4,459</td><td data-bbox="1286 1497 1442 1528">1.5%</td></tr> <tr><td data-bbox="586 1528 1000 1560">Cervix Uteri</td><td data-bbox="1000 1528 1143 1560">38</td><td data-bbox="1143 1528 1286 1560">1,745</td><td data-bbox="1286 1528 1442 1560">2.2%</td></tr> <tr><td data-bbox="586 1560 1000 1591">Ovary</td><td data-bbox="1000 1560 1143 1591">35</td><td data-bbox="1143 1560 1286 1591">3,377</td><td data-bbox="1286 1560 1442 1591">1.0%</td></tr> <tr><td data-bbox="586 1591 1000 1623">Prostate</td><td data-bbox="1000 1591 1143 1623">1,493</td><td data-bbox="1143 1591 1286 1623">27,500</td><td data-bbox="1286 1591 1442 1623">5.4%</td></tr> <tr><td data-bbox="586 1623 1000 1654">Urinary Bladder</td><td data-bbox="1000 1623 1143 1654">124</td><td data-bbox="1143 1623 1286 1654">9,693</td><td data-bbox="1286 1623 1442 1654">1.3%</td></tr> <tr><td data-bbox="586 1654 1000 1686">Kidney/Renal Pelvis</td><td data-bbox="1000 1654 1143 1686">43</td><td data-bbox="1143 1654 1286 1686">5,320</td><td data-bbox="1286 1654 1442 1686">0.8%</td></tr> <tr><td data-bbox="586 1686 1000 1717">Thyroid</td><td data-bbox="1000 1686 1143 1717">65</td><td data-bbox="1143 1686 1286 1717">3,184</td><td data-bbox="1286 1686 1442 1717">2.0%</td></tr> <tr><td data-bbox="586 1717 1000 1749">Hodgkins Lymphoma</td><td data-bbox="1000 1717 1143 1749">12</td><td data-bbox="1143 1717 1286 1749">953</td><td data-bbox="1286 1717 1442 1749">1.3%</td></tr> <tr><td data-bbox="586 1749 1000 1780">Non-Hodgkins Lymphoma</td><td data-bbox="1000 1749 1143 1780">107</td><td data-bbox="1143 1749 1286 1780">7,324</td><td data-bbox="1286 1749 1442 1780">1.5%</td></tr> <tr><td data-bbox="586 1780 1000 1812">Leukemia</td><td data-bbox="1000 1780 1143 1812">55</td><td data-bbox="1143 1780 1286 1812">4,430</td><td data-bbox="1286 1780 1442 1812">1.2%</td></tr> <tr><td data-bbox="586 1812 1000 1843">Other cancers</td><td data-bbox="1000 1812 1143 1843">259</td><td data-bbox="1143 1812 1286 1843">26,335</td><td data-bbox="1286 1812 1442 1843">1.0%</td></tr> </tbody> </table> <p data-bbox="586 1031 1442 1087">2. Proportion of cases diagnosed 1995-2003 for which the race/ethnicity is coded as "Other or unknown" [Source: AZ Cancer Registry; IBIS]</p>	Cancer Sites	"Other" race including Unknown Race	All races combined	Proportion coded as "Other and Unknown Race"	Oral Cavity	57	4,000	1.4%	Stomach	47	2,992	1.6%	Colorectal	137	20,812	0.7%	Pancreas	22	4,352	0.5%	Lung and Bronchus	171	28,006	0.6%	Cutaneous Melanoma	122	7,852	1.6%	Breast	378	28,725	1.3%	Corpus Uteri and Uterus, NOS	65	4,459	1.5%	Cervix Uteri	38	1,745	2.2%	Ovary	35	3,377	1.0%	Prostate	1,493	27,500	5.4%	Urinary Bladder	124	9,693	1.3%	Kidney/Renal Pelvis	43	5,320	0.8%	Thyroid	65	3,184	2.0%	Hodgkins Lymphoma	12	953	1.3%	Non-Hodgkins Lymphoma	107	7,324	1.5%	Leukemia	55	4,430	1.2%	Other cancers	259	26,335	1.0%
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## APPENDIX I: COMMENTS AS THE MATRIX WAS DEVELOPED

Comment or Issue	Response
We should note that BRFSS does not reach into the rural Indian community very well because of the poor telephone coverage on most reservations.	This is a good point. At a conference in Nov 2006 Cheryl Mason of the Navajo Epidemiology Center noted that 60% of the homes on the Navajo Reservation lack a land-line telephone and thus Navajo's would be underrepresented in statewide telephone surveys, such as the BRFSS. Look for the few tribe-sponsored and tribe-specific surveys.
<b>Dr. ----</b> : Does increased calcium intake reduce the incidence of colorectal cancer?	This is a potential research question.
<b>Jesse Nodora</b>	
Engage healers. Health literacy.	Tribes are aware of the value and importance of traditional healers to their members. Health literacy remains a challenge.
<b>Cynthia Claus</b>	
Spirituality. Access to care. Transportation.	These aspects can affect efforts and the effectiveness of interventions. These vary between tribes. Issues relating to spirituality probably cannot be measured. In Alaska they offer a referral to a spiritual healer when patients are discharged.
<b>Jeanette Dalrymple</b>	
Understanding how the cancer "system" works.	Navigators appear to be effective. The "system" is tribe-specific and will be known best by individual tribes.
<b>Anon.</b>	
Disparities in funding, resources, providers, presence of community based organizations, leadership.	
We should add "opportunity for research" as a measure of cancer disparity.	
<b>Theresa Manygoats</b>	
"Healing" needs to consider both external and internal aspects.	Traditional healing ceremonies are "external." On the other hand, western medicine treatments are often aimed internally; this may be perceived negatively.
For some patients, speaking of death might be perceived negatively.	End of life treatment should focus positively on easing of suffering and pain. This is a topic that can be researched with families.
<b>Anon.</b>	
Are liver cancer rates elevated?	During 1995-2005 the Indian rate was 8.46 cases per 100,000 population (age adjusted). The comparable statewide rate for all races was 4.64.

## APPENDIX I: COMMENTS AS THE MATRIX WAS DEVELOPED

Comment or Issue	Response
<b>Anon.</b>	
Are we diagnosing cancer early enough? (i.e. age at diagnosis, stage)	We created Figures 24-28, which show that cancers are diagnosed in a high proportion of the younger age groups of non Whites. However, this finding is attributable to the relatively high proportion of younger persons in the non White populations. In general, the age-specific rates are highest in the White population, at least for colorectal and breast cancer.
Is the proportion of “unknown” survivorship or follow-up status the same across all the racial/ethnic groups?	These items also would be good measures of how well cancer patients remain “in the cancer care system.” The ACR will generate these data in a future analysis.
Address controversy around Prostate Cancer Screening	Please see the separate document we prepared that describes some of the issues.

## APPENDIX J: COMPARATIVE RANKING OF CLINICAL SERVICES

### Partnership for Prevention: Rankings of Clinical Preventive Services in the General Population (2006)



Services (short name)	Clinical Preventive Benefit (CPB)	Cost Effectiveness (CE)	Total Score
Aspirin Chemoprophylaxis	5	5	10
Childhood Immunization Series	5	5	10
Tobacco Use Screening and Brief Intervention	5	5	10
Colorectal Cancer Screening	4	4	8
Hypertension Screening	5	3	8
Influenza Immunization	4	4	8
Pneumococcal Immunization	3	5	8
Problem Drinking Screening and Brief Counseling	4	4	8
Vision Screening-Adults	3	5	8
Cervical Cancer Screening	4	3	7
Cholesterol Screening	5	2	7
Breast Cancer Screening	4	2	6
Chlamydia Screening	2	4	6
Calcium Chemoprophylaxis	3	3	6
Vision Screening-Children	2	4	6
Folic Acid Chemoprophylaxis	2	3	5
Obesity Screening	3	2	5
Depression Screening	3	1	4
Hearing Screening	2	2	4
Injury Prevention Counseling	1	3	4
Osteoporosis Screening	2	2	4
Cholesterol Screening-High Risk	1	1	2
Diabetes Screening	1	1	2
Diet Counseling	1	1	2
Tetanus-diphtheria Booster	1	1	2

Maciosek MV et al. [Priorities among effective clinical preventive services: results of a systematic review and analysis.](#) Am J Prev Med 2006; 31(1):52-61. [www.prevent.org](http://www.prevent.org)

## APPENDIX K: ENDNOTES

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### Endnotes

<sup>1</sup> <http://www.prevent.org/content/view/51/104/>

<sup>2</sup> Partnership for Prevention, 2001, citing Eddy, *Ann Int Med* 1990;133(3):214-226.

<sup>3</sup> Solberg, *Am J Prev Med* 2006;31(1):62-71

<sup>4</sup> op cit 2, citing Salzman, *Ann Intern Med* 1997;127(11):955-65.

<sup>5</sup> Maciosek, *Am J Prev Med* 2006;31(1):80-89

<sup>6</sup> See Taylor WC. A 71-year-old woman contemplating a screening colonoscopy. *JAMA* March 8, 2006. V.295(10):1161-1167.

<sup>7</sup> op cit 2, citing Coffield, *Am J Prev Med* 2001;21(1):1-9