CRF Disparities Research - University of Maryland State Cancer Control Conference 12/3/09

UNIVERSITY OF MARYLAND MARLENE AND STEWART GREENEBAUM CANCER CENTER

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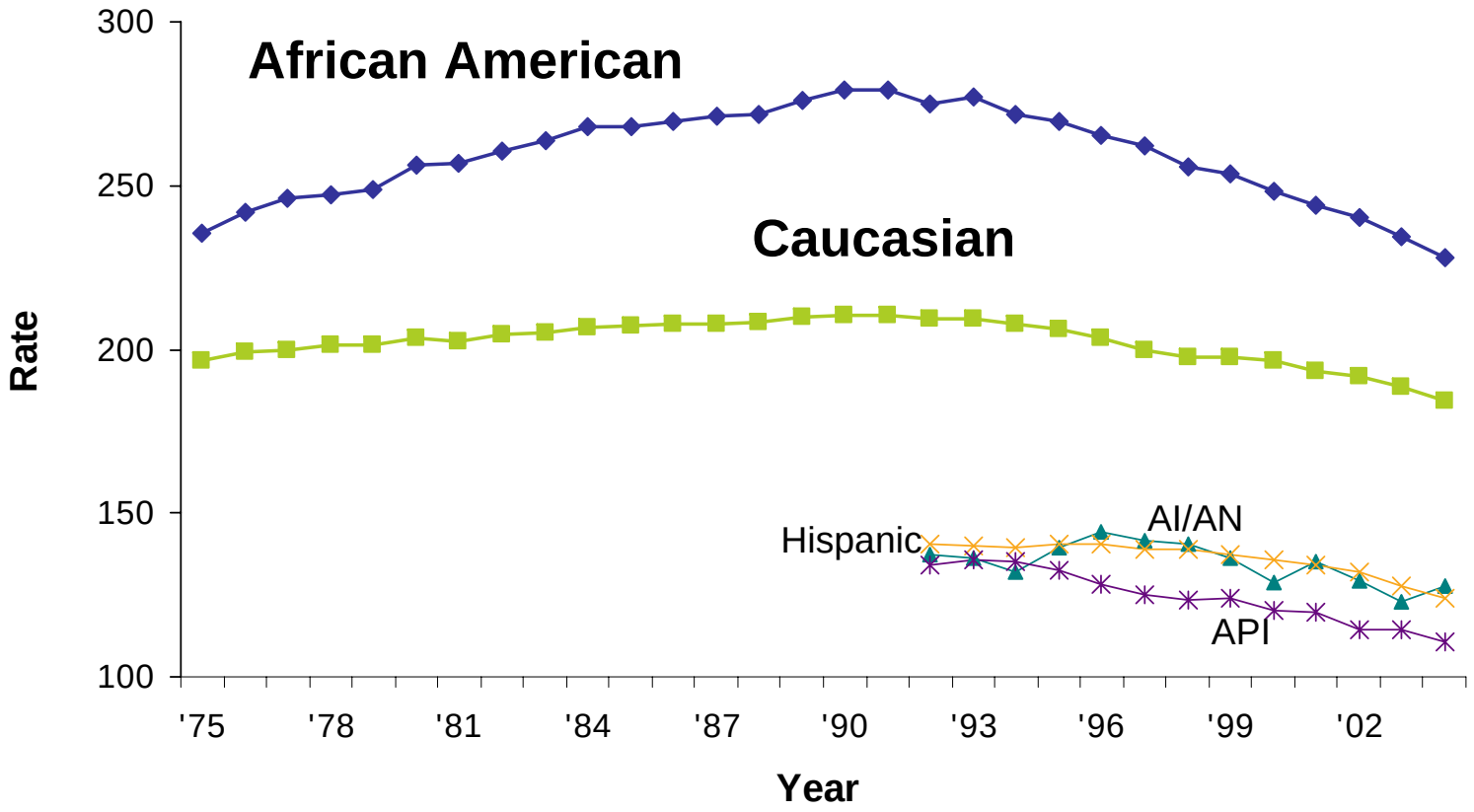
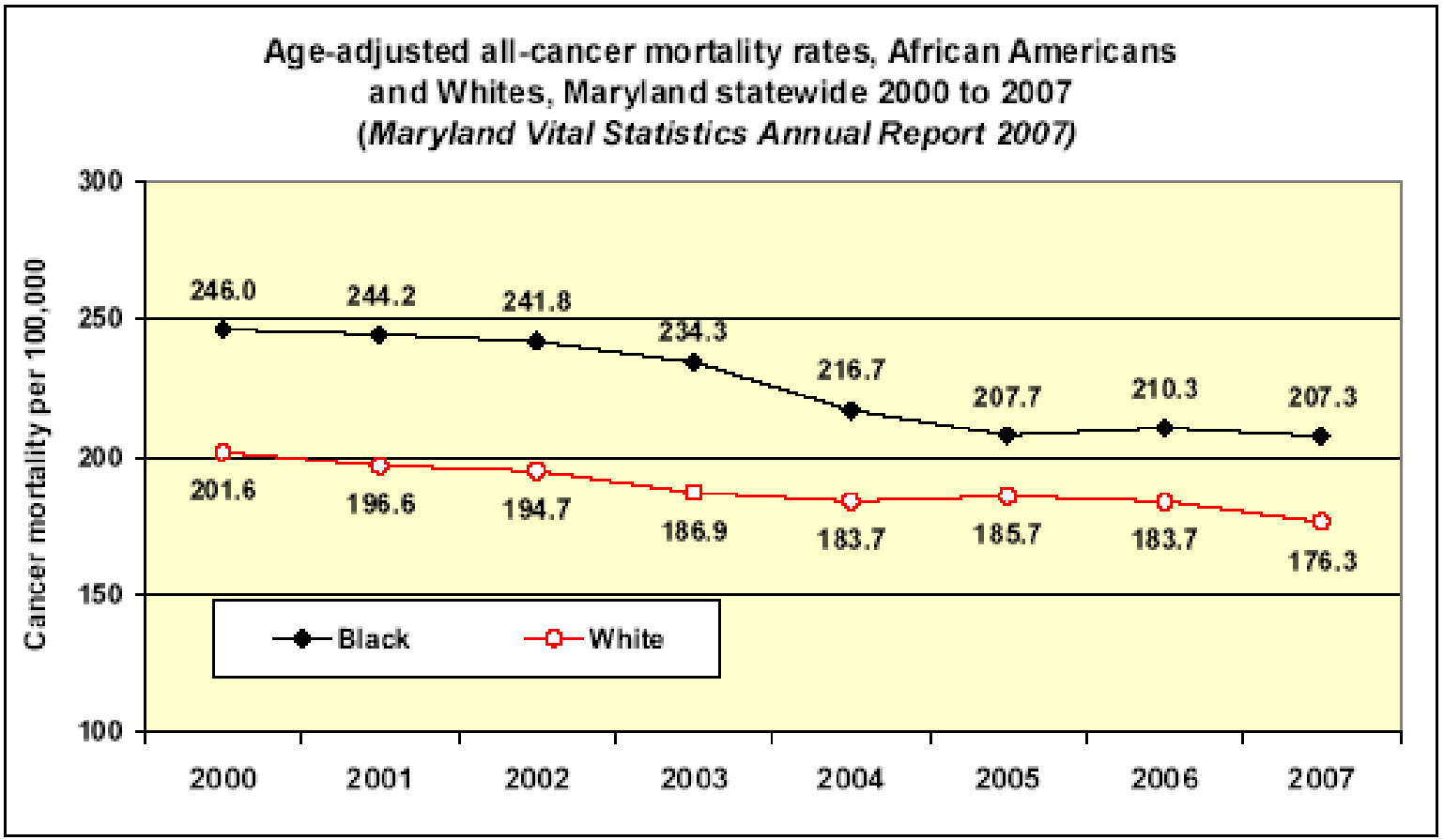
UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE

RACIAL DISPARITIES IN HEAD AND NECK CANCER

All Sites – Cancer Mortality Rates 1973-2004 By Race, Males and Females



Incidence and mortality rates per 100,000 and age-adjusted to 2000 US standard population
SEER Cancer Statistics Review 1975-2004.



Office of Minority Health and Health Disparities
Maryland Department of Health and Mental Hygiene

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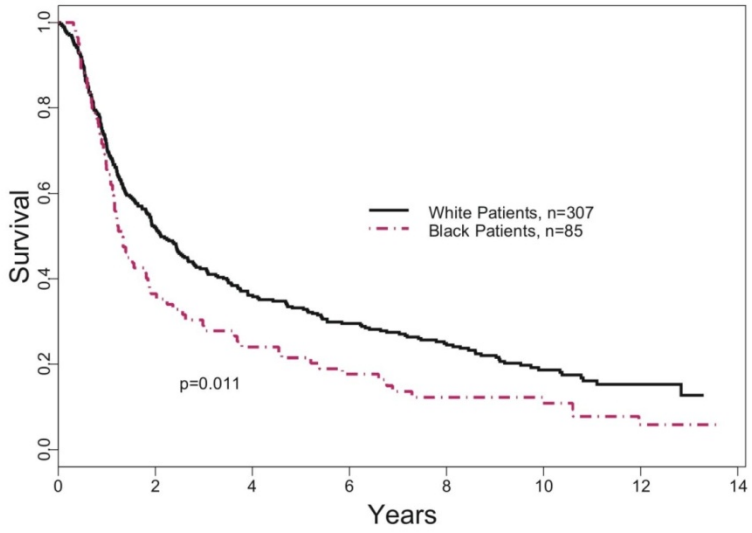
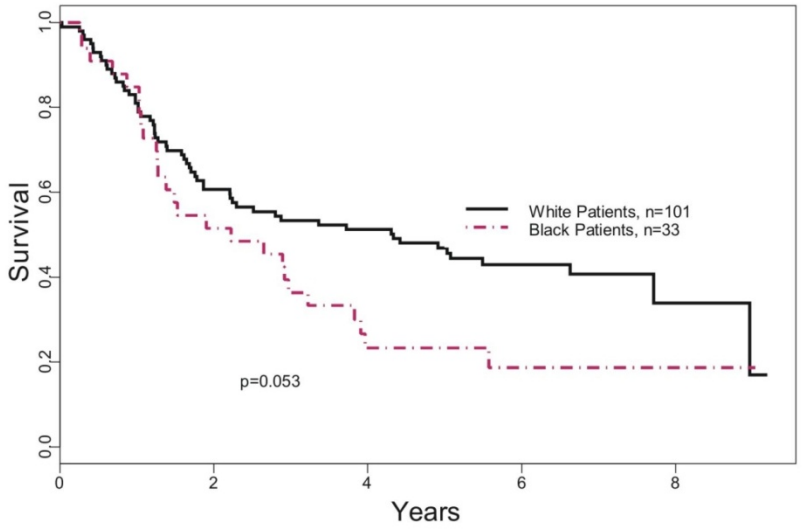
Black patients with locally advanced HNSCC show poor survival compared to whites – RTOG 9003, 9501

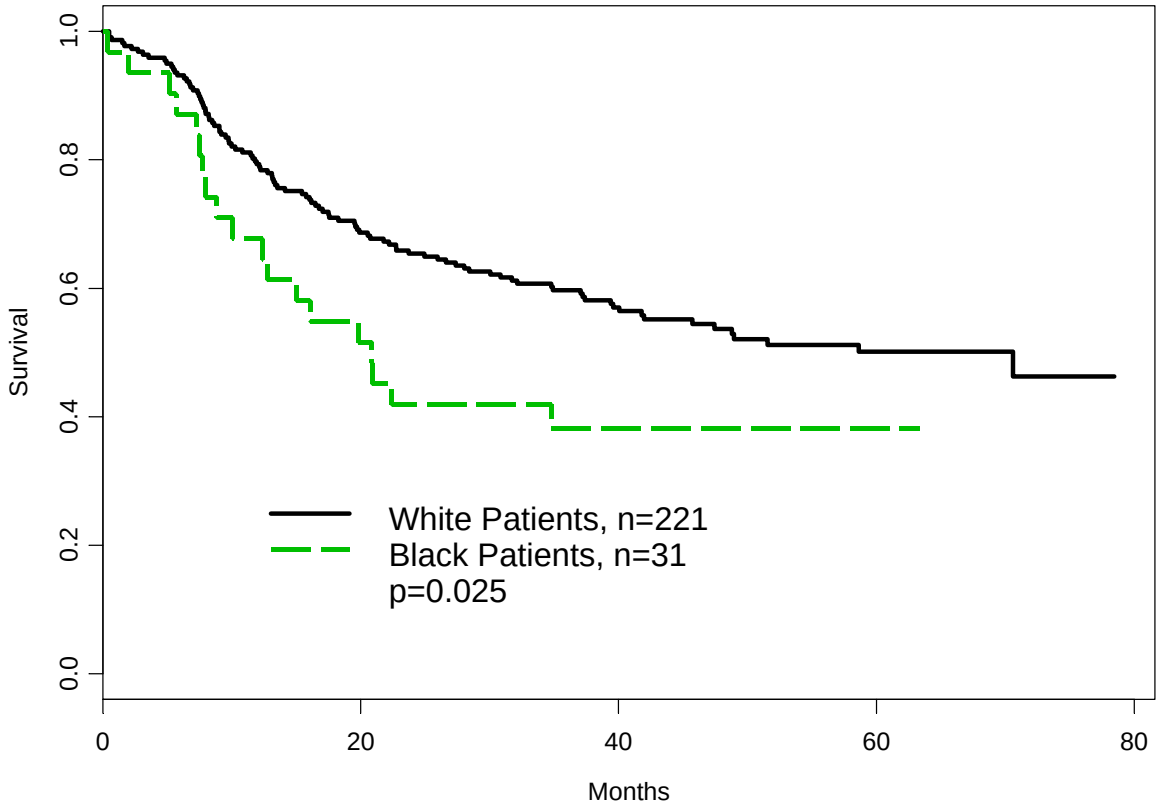
RTOG 9003



RTOG 9501



Black patients with locally advanced HNSCC show poor survival compared to whites – TAX 324



Original Article

Race Impacts Outcome in Stage III/IV Squamous Cell Carcinomas of the Head and Neck After Concurrent Chemoradiation Therapy

Kathleen Settle, MD[1], Rodney Taylor, MD[2], Jeffery Wolf, MD[2], Young Kwok, MD[1], Kevin Cullen, MD[3], Kevin Carter, MS[1], Robert Ord, MD[4], Ann Zimrin, MD[3], Scott Strome, MD[2], and Mohan Suntharalingam, MD[1]

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Cancer April 15, 2009

Black patients with locally advanced HNSCC show poor survival compared to whites – University of Maryland Chemo/RT experience 1995-2006

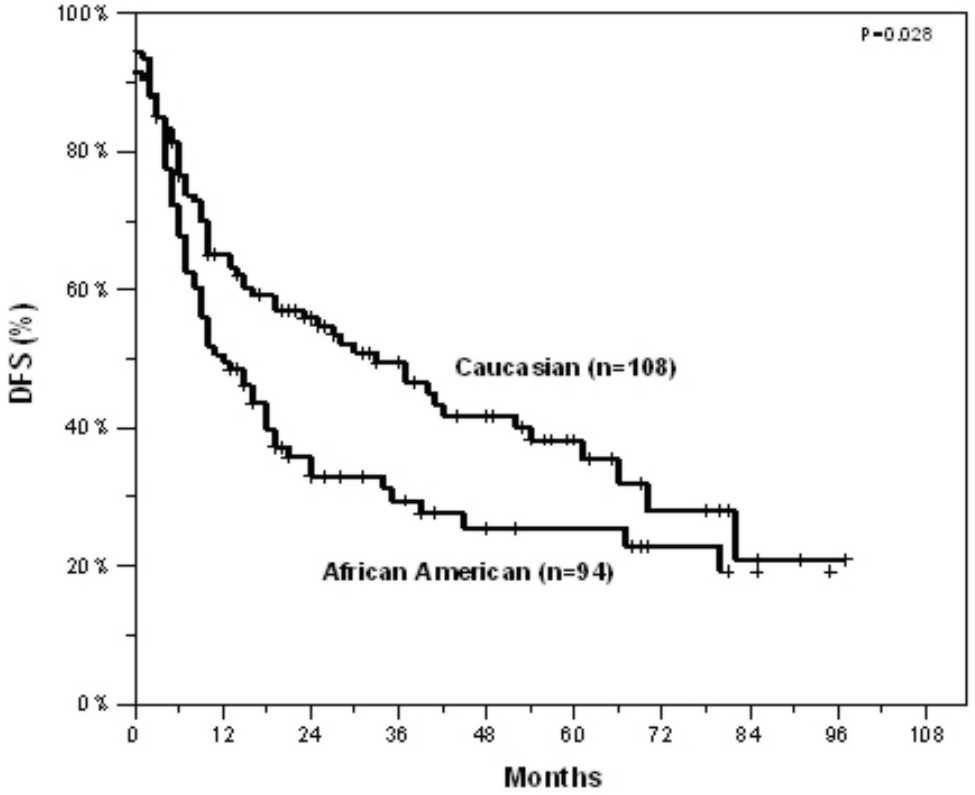


Figure 1. Disease Free Survival (DFS) by Race

Cancer **Prevention** Research

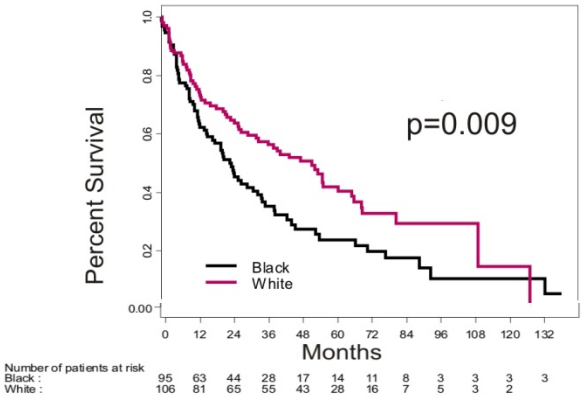
Cancer Prev Res 2009;2(9) September 2009

Racial Survival Disparity in Head and Neck Cancer Results from Low Prevalence of Human Papillomavirus Infection in Black Oropharyngeal Cancer Patients

Kathleen Settle,[1] Marshall R. Posner,[2] Lisa M. Schumaker,[1] Ming Tan,[1] Mohan Suntharalingam,[1] Olga Goloubeva,[1] Scott E. Strome,[1] Robert I. Haddad,[2] Shital S. Patel,[1] Earl V. Cambell III,[1] Nicholas Sarlis,[3] Jochen Lorch[2] and Kevin J. Cullen[1]

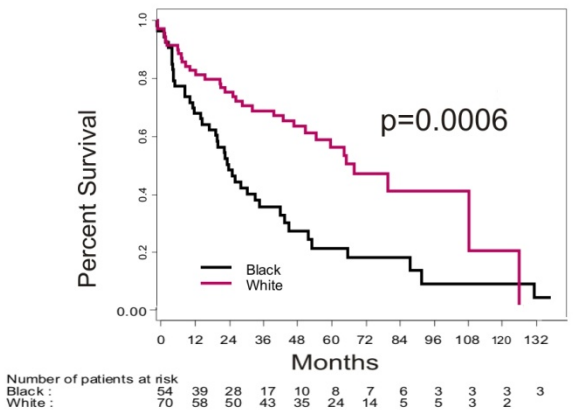
Impact of Race on Survival University of Maryland

A.



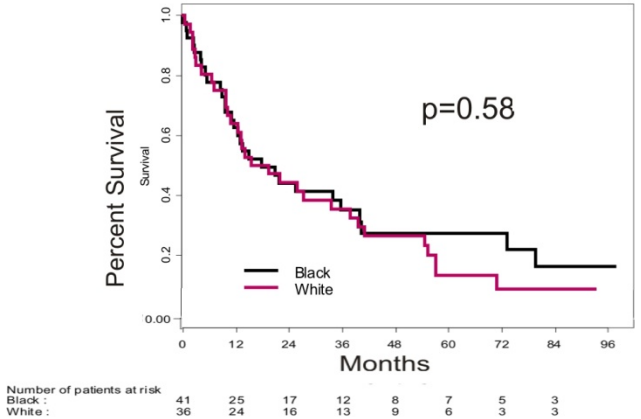
All Patients

B.



Oropharynx

C.

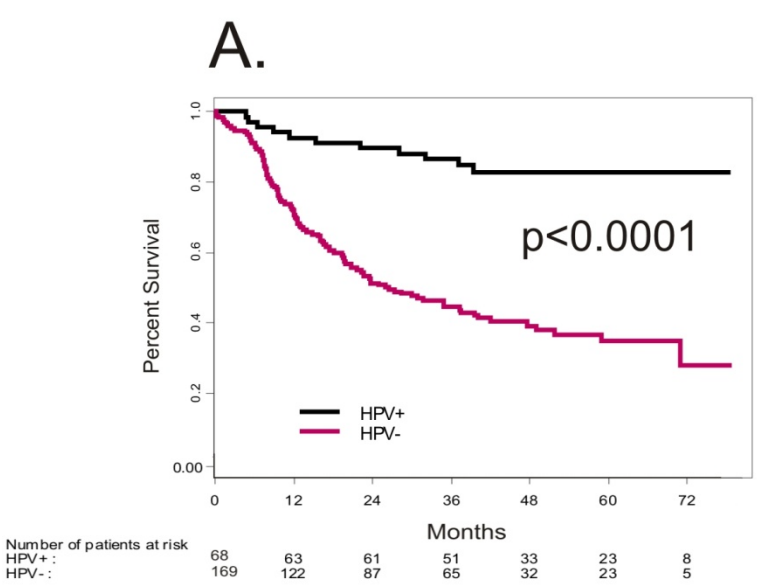


Non-Oropharynx

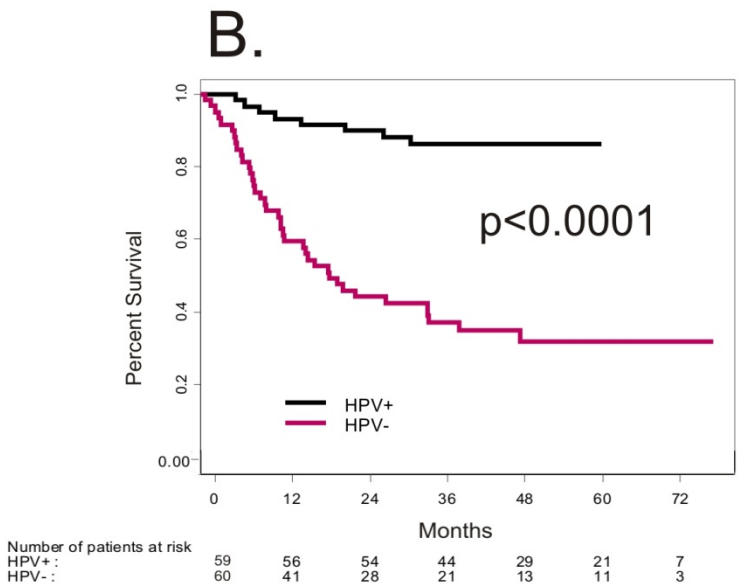
Human Papilloma Virus

- Causes all cervical cancer
- Causes about 25% of head and neck cancers – primarily base of tongue and tonsil
- Recent data suggest, paradoxically, HPV associated cancers have very good prognosis

HPV Positive Tumors Have Excellent Prognosis – TAX 324



All Patients



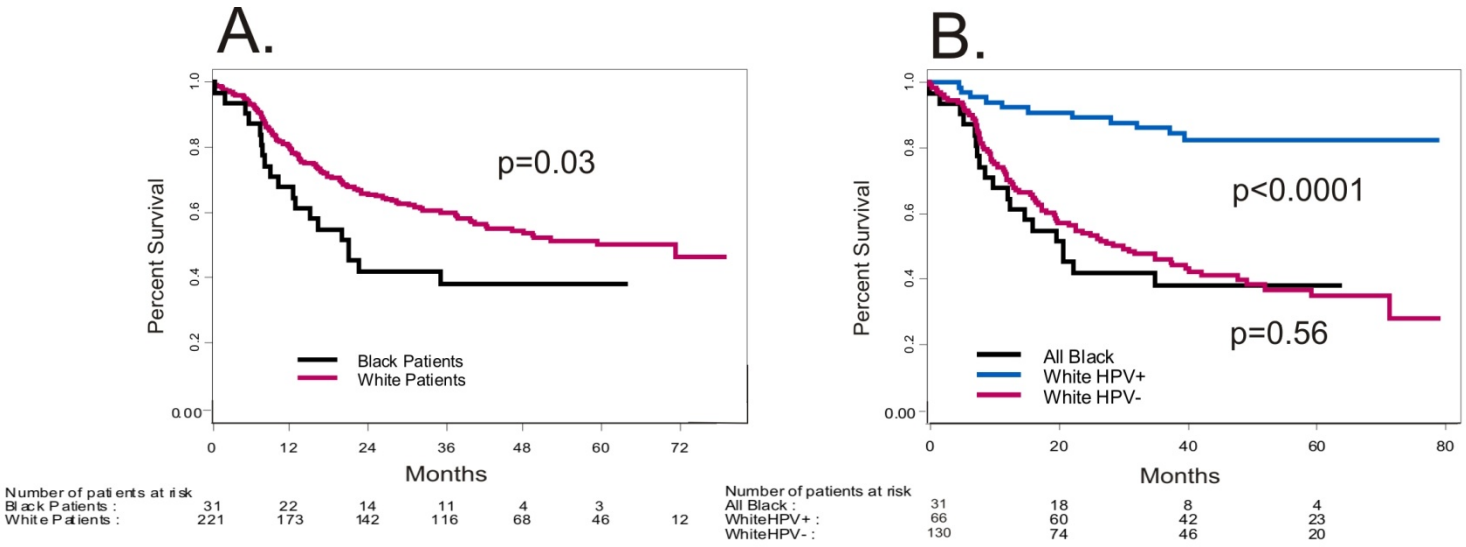
Oropharynx

HPV Positive Cases by Race – TAX 324

Race	HPV negative	HPV positive	Total
White	130, 66%	66, 34%	196
Black	28, 97%	1, 3%	29
Total	158	67	225

Whites 10 times more likely than blacks to be HPV positive p=0.0003

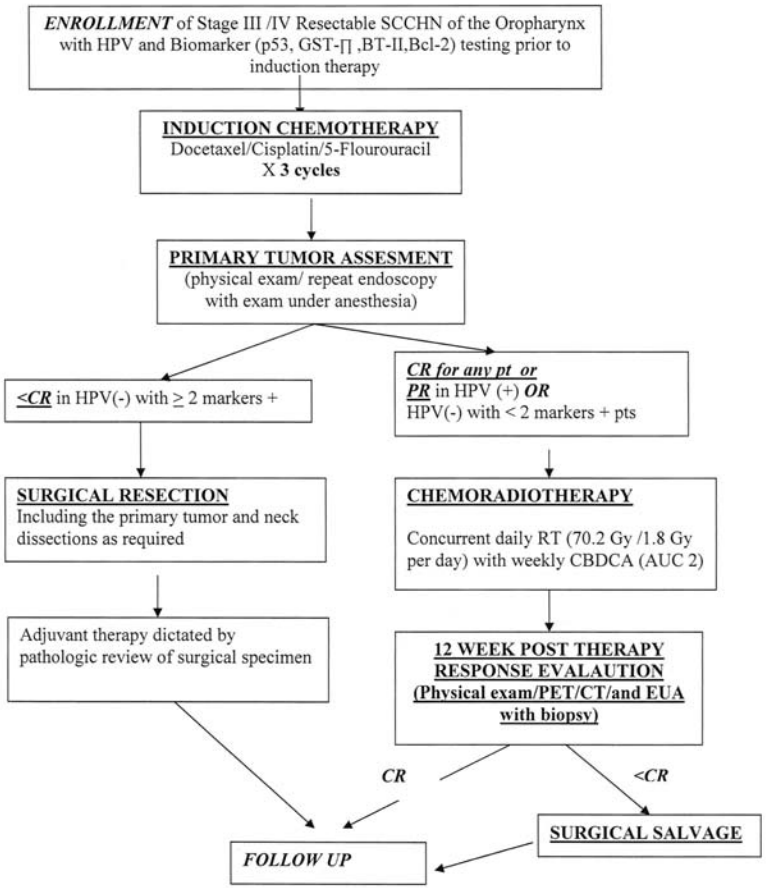
Impact of Race on Survival
TAX 324 Study



All Patients **Racial Disparities**

Racial disparity is due to large number of white patients with good prognosis HPV positive tumors – rate of HPV positive tumors very low in blacks.

UMGCC Spore Proposal – HPV and biomarker status to guide treatment of oropharyngeal cancer



NATIONAL CANCER INSTITUTE

NCI Cancer Bulletin
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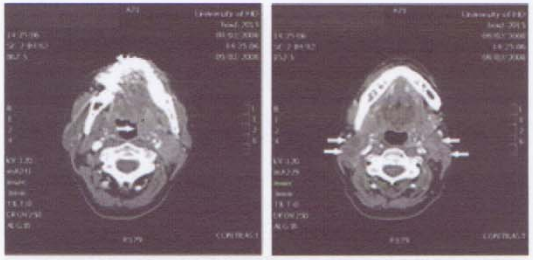
Featured Article

HPV Infection Drives Disparity in Head and Neck Cancer Survival



These CT scans show an HPV-positive tonsil cancer in a patient with no history of tobacco or alcohol use. The arrow in the left panel points to the swollen tonsil with the primary tumor. Arrows in the right panel point to cancerous lymph nodes on both sides of the neck. The patient went into complete remission following concomitant chemotherapy and radiation. Click to enlarge

A new study provides what researchers are calling a "missing link" that helps to explain why black patients with head and neck cancer live significantly shorter after treatment than white patients. Unlike several other cancers, where racial disparities in outcomes have been attributed in large part to socioeconomic factors, this new study points directly at a biological difference: infection rates of human papillomavirus type 16 (HPV 16).

The study, published July 29 in *Cancer Prevention Research*, is the latest to show that head and neck cancer patients, particularly those with cancer of the oropharynx, who are HPV 16-positive have superior outcomes with standard treatment (concurrent chemotherapy and radiation) compared with those who are HPV 16-negative. But this study is the first to show that black patients with head and neck cancer have dramatically lower rates of HPV infection than white patients and that HPV status directly correlates with the significant survival disparities between the two patient groups.

The finding that so few black patients are HPV positive "in a completely statistical sense explains why historically we have seen that black patients [with head and neck cancer] do poorly," said Dr. Kevin J. Cullen, the study's senior author and director of the University of Maryland (UMD) Marlene and Stewart Greenebaum Cancer Center.

TUESDAY, AUGUST 4, 2009

Science Times

The New York Times

Findings May Explain Gap in Cancer Survival

By RONI CARYN RABIN

Scientists say they have made a discovery that may help explain the racial gap in cancer survival, providing clues to why white patients often outlive blacks even when they have what appear to be the same cancers.

The insights come from research at the University of Maryland into throat cancer and squamous-cell cancers of the head and neck, which have been increasing sharply in recent years, apparently because of the human papillomavirus — the same sexually transmitted virus that causes cervical cancer and is the target of a vaccine for girls.

The virus can also be spread through oral sex, causing cancer of the throat and tonsils, or oropharyngeal cancer.

A racial disparity may have roots in a tumor's cause.

The new research builds on earlier work suggesting that throat cancer tumors caused by the virus behave very differently from other throat cancers, and actually respond better to treatment. And the new research suggests that whites are more likely than blacks to have tumors linked to the virus, which may explain the poor outcomes of African-Americans with HPV-negative tumors.

University of Maryland researchers did the study after finding that their white patients with throat cancer were surviving 70 months on average, compared with 25 months for their black patients, even though all were treated at the same hospital.

The racial disparity in survival for oropharyngeal cancers explained most of the gap between blacks and whites for all head and neck cancers, the researchers said.

"We were shocked to see this in our own institution, where more than half of the patients we treat are African-American," said Dr. Kevin J. Cullen, director of the Greenebaum Cancer Center at University of Maryland and senior author of the new study, in the September issue of Cancer Prevention Research.

Around the same time, the Maryland researchers were analyzing specimens of head and neck tumors gathered from participants in a treatment trial called the TAX 324 study, to determine how many tumors were linked to HPV.

The results were striking: the TAX 324 patients whose tumors were caused by the virus responded much better to treatment with chemotherapy and radiation. And they were also overwhelmingly white.

While about one-half of the white patients' throat tumors were HPV-positive, only one of the black patients had a tumor caused by the virus, Dr. Cullen said.

"There was no difference in the survival between black and white patients in the TAX 324 trials if you subtracted out the HPV-positive patients," he said.

The racial gap has often been explained as a result of late diagnosis among African-Americans, lack of access to care and less aggressive treatment, but experts said that in the case of oropharyngeal cancer, there appeared to be distinct biological differences between the tumors.

This suggests that the racial gap in survival for this particular cancer may trace back to social and cultural differences between blacks and whites, including different sexual practices, experts said.

At a briefing for reporters, leading cancer experts called the new report a landmark paper that would transform the treatment of oropharyngeal cancers and challenge doctors to develop new treatment options for patients with HPV-negative tumors.

Dr. Otis Brawley, medical director of the American Cancer Society, who wrote an editorial accompanying the report, said that changing sexual practices were increasing rates of head and neck cancers, and perhaps others as well.

"There is a huge public health message here," he said.

"Perhaps advances in our understanding of biology will lead us away from concerns about race and we will better define high-risk populations using pathological markers of disease." – Otis Brawley, Chief Medical Officer, American Cancer Society