

WORKING SESSION 4B: CANCER

“BEST SCIENCE” FOR THE REDUCTION OF DISPARITIES IN CANCER

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INTRODUCTION

For the last dozen years or so, we appear to have been winning the war on cancer. From 1960 to 1990, the overall age-adjusted cancer mortality rate climbed steadily from 194 deaths per 100,000 to 216/100,000, an increase of about 11%. In 1990, however, the rate began to fall, reaching 202/100,000 by 1998.

With respect to disparities, the situation is more complex. The incidence rate in African Americans exceeds that for Whites for all major cancers except for breast cancer among females; the mortality rate is higher in African Americans for all major cancers (Table 1), including cancer of the breast.

However, this disparity pattern became evident only since the 1960s. Prior to 1960, cancer mortality rates were nearly identical in Black and White women and favored Black men over their White counterparts (Figure 1). Between 1960 and 1990, mortality rates rose for both races, with Black rates rising more rapidly, resulting in a growing Black-White disparity. Since 1990, rates in both races have been dropping, and the disparity has narrowed slightly.

This pattern was largely driven by lung cancer, which is the leading cause of cancer death among both Blacks and Whites. The shape of the curves for men is nearly identical to that of the all-sites mortality rates (Figure 2); for women, the curves are also very similar but without the relatively narrow disparity that is apparent in the all-sites figure. Declining mortality from lung cancer after 1990 is generally thought to be due to the reduction in smoking rates that began in the mid-1960s.

The pattern of breast cancer prevalence is particularly interesting. Prior to 1980, mortality rates favored Black women, reflecting their lower incidence rates (Figure 3). However, from 1950 to 1990, the breast cancer mortality rate rose in Black women, while the rate for White women stayed flat, so that after 1980 a disparity developed that favored White women, even though Black women still had a lower incidence rate. After 1990, the mortality rate in both races declined, perhaps because of an increase in mammography screening, but the disparity widened.

OPPORTUNITIES FOR PREVENTION

This glimpse at trends in mortality rates helps us recognize that most of the progress in the “war on cancer” has been achieved through prevention rather than through advances in treatment. In fact, the treatment of the major cancers has changed relatively little over the past several decades. For some cancers, however, we have reduced their incidence (primary prevention) and for others, we have improved our methods of early detection (secondary prevention). Table 2 summarizes what is known about opportunities for cancer prevention.

The reduction in lung cancer mortality since 1990 is almost entirely due to the fact that smoking prevalence declined from approximately 50% to approximately 25% of the adult population between the mid-1960s and the early 1980s. While no screening test for lung cancer has been shown to improve survival, research is currently underway on helical CT scanning for screening high-risk individuals.

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Table 1. Cancer incidence and mortality, US 1992–1998*

	Incidence Age-adjusted, per 100,000		Mortality Age-adjusted, per 100,000	
	White	Black	White	Black
All sites	401.4	445.3	164.5	218.2
Female breast	115.5	101.5	24.3	31.0
Lung	54.7	71.6	48.8	59.1
Colon	42.9	50.1	16.8	22.8
Prostate	144.6	234.2	22.4	53.1

* Sources: Incidence: SEER, NCI; Mortality: National Center for Health Statistics.

Increased fruit and vegetable consumption appears to reduce the incidence of colorectal cancer, but it is not clear whether this is the result of increased fiber intake, reduced fat consumption, or some other factor. Screening is effective using either a combination of annual fecal occult blood testing and flexible sigmoidoscopy every 5 years, or colonoscopy every 10 years.¹

Breast cancer screening by mammography significantly reduces mortality from breast cancer.² For women at high risk of breast cancer—for instance, older women with a family history of the disease—chemoprevention with tamoxifen may be indicated.³ Some women who carry the BRCA1 or BRCA2 gene have opted for prophylactic mastectomy, a measure which is quite controversial. There is insufficient evidence to encourage dietary change for the purpose of preventing breast cancer.⁴

Similarly, the evidence linking prostate cancer and diet is inconsistent. While there are good reasons to recommend a low-fat diet, it is not clear that lowering the risk of prostate cancer is among them. Screening for prostate cancer with prostate-specific antigen testing (PSA) is controversial.^{5,6} The American Cancer Society recommends that PSA screening be “offered” to men older than 50 years, but that those at high risk, including African Americans, “should” begin testing at age 45 (40 for those with multiple affected first-degree relatives).⁷ The National Cancer Institute states that “the net benefit of screening cannot be determined”⁸; the

US Preventive Services Task Force “concludes that the evidence is insufficient to recommend for or against routine screening for prostate cancer.”⁹

BEST SOURCES OF INFORMATION

As cited previously, the United States Preventive Services Task Force (USPSTF) has made recommendations for clinical prevention. This committee was convened by the US Public Health Service in the mid-1980s to “rigorously evaluate clinical research in order to assess the merits of preventive services for individuals, including screening tests, counseling, immunizations, and chemoprevention.”¹⁰ Its *Guide to Clinical Preventive Services* is now in its third edition; the recommendations of the Task Force can also be accessed on the

Internet. These recommendations have become the “gold standard” for clinical prevention.

Because of the success of the USPSTF in developing widely accepted clinical prevention guidelines, the Public Health Service established a body to develop similar guidelines for those who provide preventive services at the community level. This body, the Task Force on Community Preventive Services (TFPCS), “was convened by the USPHS to rigorously evaluate research to assess the merits of population-based interventions designed to promote health, prevent disease, injury, disability, and premature death, as well as exposure to environmental hazards.”¹¹ To date, it has published about 60 articles, mostly in the form of supplements to *The American Journal of Preventive Medicine*. These articles will appear in book form at a later date.

EVIDENCE-BASED PREVENTION INTERVENTIONS

Smoking Cessation

The USPSTF guidelines recommend that clinicians counsel their patients who smoke on smoking cessation, and the US Public Health Service has developed guidelines for this counsel-

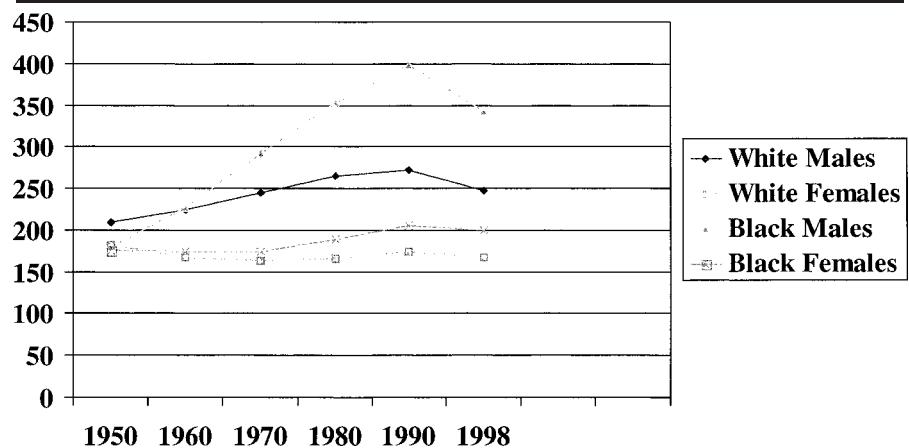


Fig 1. Cancer mortality rates, Blacks vs Whites; 1950–1998

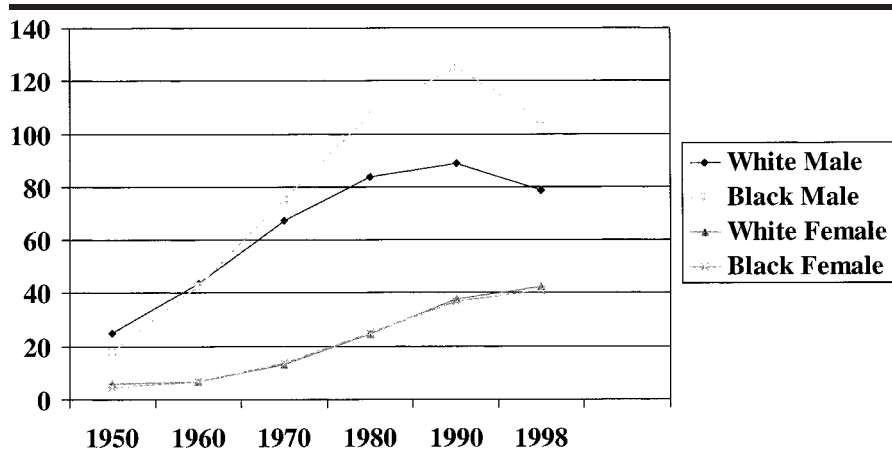


Fig 2. Lung cancer mortality rates, Blacks vs Whites, 1950–1998

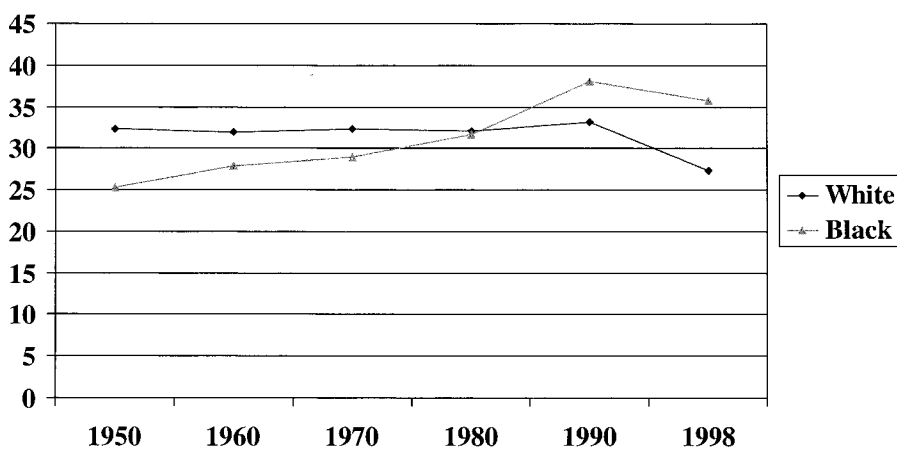


Fig 3. Cancer mortality rates, Blacks vs Whites, 1950–1998

ing.¹² The PHS Guideline recommends 3 types of counseling and behavioral therapies:

- Counseling on an individual basis to provide practical problem-solving skills;
- Provision of social support as part of treatment (intra-treatment social support)—for instance, getting the patient associated with a stop-smoking group;
- Help in securing social support outside of treatment (extra-treatment social support)—for instance, through the family or a telephone “quit line.”

Pharmacotherapy has also been shown to be effective in assisting smok-

ers to quit. First-line drugs include bupropion sustained release (SR) or nicotine delivered via gum, inhaler, patch, or nasal spray. Second-line drugs include nortriptyline and clonidine.

The TFCPS has identified 2 community-level approaches that have demonstrated effectiveness in preventing young people from initiating smoking. These include: raising the unit price for tobacco products—for instance, by increasing tobacco taxes; and mass media campaigns when combined with other interventions, such as school-based programs. These 2 strategies have also been shown to be successful in reducing current smoking rates, ie, in persuading

smokers to quit. In addition, the TFCPS has identified healthcare system approaches that have been effective. These include:

- Provider reminder systems;
- Provider reminders + provider education (with or without patient education);
- Reducing patient out-of-pocket costs for effective treatments for effective tobacco use and dependence;
- Patient telephone support (“quit lines”) when combined with other interventions.

Breast Cancer

The USPSTF recommends screening mammography, with or without clinical breast examination (CBE) every 1–2 years for women over age 50, but has found insufficient evidence to recommend for or against routine clinical breast examinations alone or teaching or performing routine breast self-examination alone as screening tests for breast cancer.

The TFCPS has not yet developed recommendations on community-level interventions to increase mammography screening rates. However, a number of apparently successful programs utilizing community health advocates (lay health workers) has been reported.^{13–15}

Diet

With regard to increasing fruit and vegetable consumption, the USPSTF is not convinced that counseling average-risk patients is effective; it concludes that “the evidence is insufficient to recommend for or against routine behavioral counseling to promote a healthy diet in unselected patients in primary care settings.”¹⁶

The TFCPS has not yet made any recommendations on effective approaches to increasing the consumption of fruits and vegetables at the community level, but there is a surprisingly large number of papers in the literature on this topic. Approaches reported to be successful include community organiz-

Table 2. Opportunities for cancer prevention

Cancer Site	Primary Prevention	Secondary Prevention
Lung	Smoking prevention/cessation	Helical CT scanning
Colorectal	Increased fruit/vegetable and/or decreased fat consumption	Fecal occult blood testing/flexible sigmoidoscopy OR colonoscopy
Breast	Chemoprevention for high risk; (genetic testing/prophylactic mastectomy)	Mammography
Prostate		PSA screening

ing,¹⁷ motivational interviewing,¹⁸ telephone counseling,¹⁹ tailored newsletters,²⁰ and traditional health education.²¹ These have been reported to increase fruit and vegetable consumption on a community level by half a serving to one serving a day. On a population-wide basis, this would probably be enough to reduce the incidence of colorectal cancer substantially.

Colorectal Cancer

There is widespread agreement that clinicians should screen patients 50 years of age and older for colorectal cancer, but there is less consensus on the best protocol. For instance, the USPSTF states that the most cost-effective strategy is either colonoscopy every 10 years or annual fecal occult blood testing (FOBT) *plus* flexible sigmoidoscopy every 5 years.²² The American Cancer Society recommends that the clinician and patient choose one strategy from a list of 5: annual FOBT; flexible

sigmoidoscopy every 5 years; annual FOBT *plus* flexible sigmoidoscopy every 5 years (preferring this over the first 2); colonoscopy every 10 years; or double-contrast barium enema every 5 years.²³ To date, there has been relatively little research on community-based strategies to increase screening for colorectal cancer.

DISPARITIES IN CANCER PREVENTION

In 1965 (at the time of the first Surgeon General’s Report on Tobacco and Health), there was a substantial disparity in smoking prevalence among men, with Blacks smoking at higher rates than Whites (Figure 4). This gap has narrowed over the years so that in 2000 there is no longer a disparity; Black and White men are smoking at about the same rate. Among women, there has been virtually no Black-White disparity

during this 35-year period. Both of these patterns are reflected in the lung cancer mortality rates discussed earlier: a substantial disparity between Black and White men but not women.

Figure 5 illustrates the Black-White disparity in mammography rates among women 40 years of age or older during the period 1987–1994; note that the disparity has virtually disappeared since 1994. At the same time, the overall rate of mammography at least every 2 years increased from 25% to 30% of women in 1987 to about 70% of women in 2000.

As illustrated by Figure 6, Whites are more likely than Blacks to eat 5 or more servings of fruits and vegetables per day and less likely to eat 0–2 servings, but the differences are modest. Overall, only 20%–25% of people report eating at least 5 servings per day. Whites are also more likely than Blacks to have been screened for colorectal cancer (Figure 7), and, again, the overall figures leave a great deal of room for improvement for both races.

PROSPECTS FOR REDUCING DISPARITIES IN MORTALITY

As noted, the disparity in smoking rates between Black and White men has now been eliminated and we can expect to see the disparity in lung cancer mortality rates greatly reduced or eliminated in perhaps 2 decades. If helical CT scanning or some other screening test proves useful, that time period may be shortened. Hopefully, current anti-tobacco

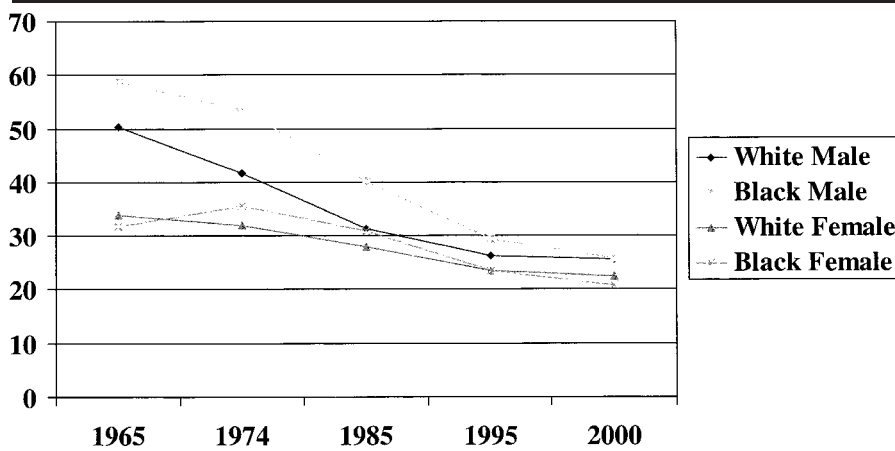


Fig 4. Smoking prevalence, Blacks vs Whites, 1965–2000

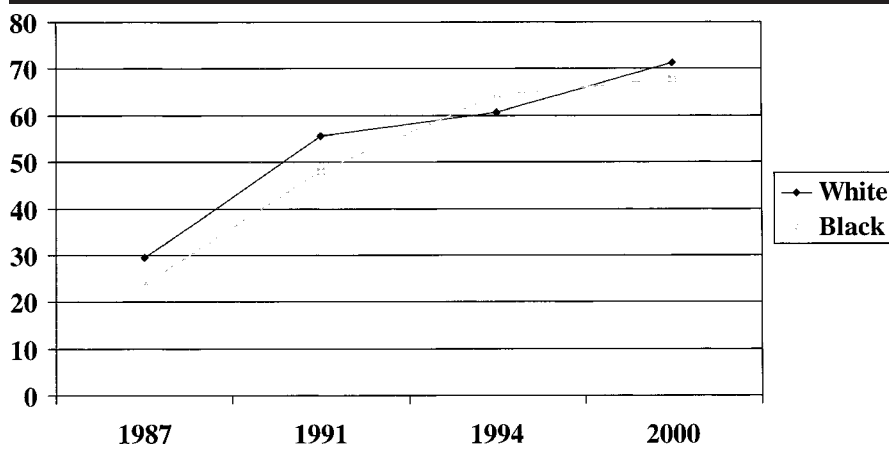


Fig 5. Mammography rates among women 40 years of age or older, 1987-1994

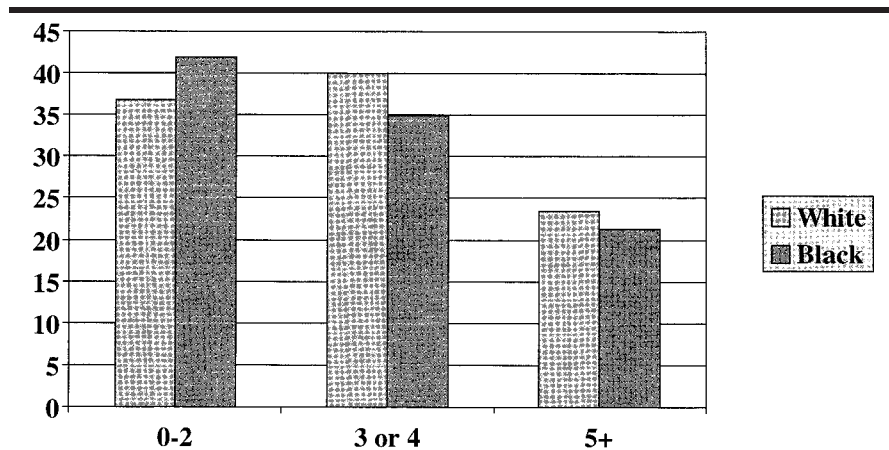


Fig 6. Percentage of individuals reporting consumption of servings of fruit and vegetable, Blacks vs Whites

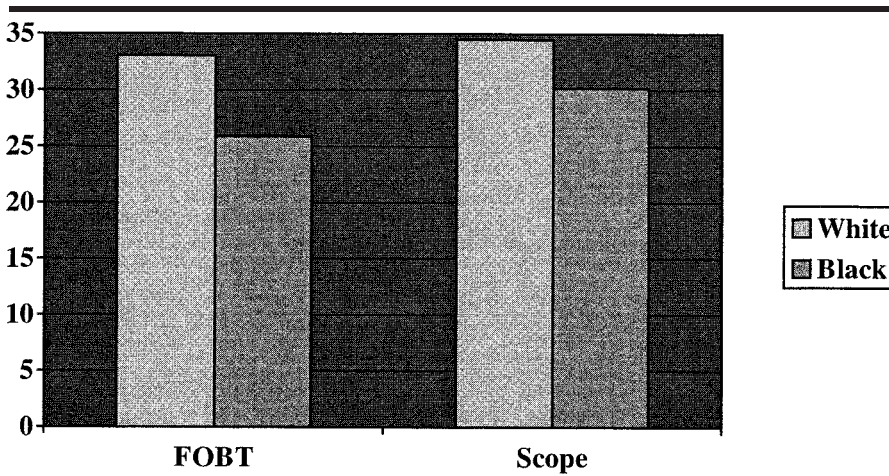


Fig 7. Rates of screening for colorectal cancer, Blacks for Whites. FOBT=fecal occult blood test; Scope=colonoscopy

initiatives will reduce rates of smoking below current levels in both races.

With respect to colorectal cancer, there exists the opportunity to reduce the disparity both through primary prevention and secondary prevention because there is a disparity in both of those modalities. These preventive measures must be increased for both races. Considerable research is currently underway on improving colorectal cancer prevention at the community level, but a great deal more is needed.

Breast cancer prevention is perhaps our greatest success so far. The disparity in mammography rates has apparently been eliminated, or nearly so, and one would expect the disparity in mortality rates to disappear over the next few years. Moreover, we have made major advances in increasing screening rates in both races, so the decline in mortality that started in 1990 should continue.

On the other hand, reduction of the prostate cancer disparity remains our thorniest prevention problem. Prostate cancer is our greatest Black-White cancer disparity. With little current knowledge of primary preventive approaches and with screening still subject to considerable controversy, effective prevention programs must await the outcomes of future research.

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