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ABSTRACT This article highlights disparities in cancer incidence, mortality, and survival in relation to race/ethnicity, and census data on poverty in the county or census tract of residence. The incidence and survival data derive from the National Cancer Institute's (NCI) Surveillance, Epidemiology, and End Results (SEER) Program; mortality data are from the National Center for Health Statistics (NCHS); data on the prevalence of major cancer risk factors and cancer screening are from the National Health Interview Survey (NHIS) conducted by NCHS. For all cancer sites combined, residents of poorer counties (those with greater than or equal to 20% of the population below the poverty line) have 13% higher death rates from cancer in men and 3% higher rates in women compared with more affluent counties (less than 10% below the poverty line). Differences in cancer survival account for part of this disparity. Among both men and women, five-year survival for all cancers combined is 10 percentage points lower among persons who live in poorer than in more affluent census tracts. Even when census tract poverty rate is accounted for, however, African American, American Indian/Alaskan Native, and Asian/Pacific Islander men and African American and American Indian/Alaskan Native women have lower five-year survival than non-Hispanic Whites. More detailed analyses of selected cancers show large variations in cancer survival by race and ethnicity. Opportunities to reduce cancer disparities exist in prevention (reductions in tobacco use, physical inactivity, and obesity), early detection (mammography, colorectal screening, Pap tests), treatment, and palliative care. (*CA Cancer J Clin* 2004;54:78–93.) © American Cancer Society, 2004.

INTRODUCTION

The elimination of disparities in the burden of cancer is one of the overarching themes of the American Cancer Society (ACS) 2015 challenge goals.¹ A series of reports published by ACS in the late 1980s documented large disparities in cancer burden by race and ethnicity.^{2–4} Socioeconomic factors such as poverty, inadequate education, and lack of health insurance appeared to be far more important than biological differences. In 1991, Dr. Samuel Broder, then-Director of the US National Cancer Institute (NCI), declared “poverty is a carcinogen.”⁵ In practice, the elimination of disparities is defined as a reduction in cancer incidence and mortality and an increase in cancer survival among socioeconomically disadvantaged people to levels comparable to those in the general population.¹ The US Department of Health and Human Services (DHHS) Healthy People 2010 initiative has also committed the nation to the goal of eliminating health disparities.⁶ The goal of reducing and ultimately eliminating the cancer burden is ambitious, even for the collective resources of federal, state, and private health organizations.

In 2003, the Institute of Medicine (IOM) published a comprehensive review of racial and ethnic disparities in health care.⁷ The IOM report and other authoritative reviews⁸ describe a model in which health care disparities arise from a complex interplay of economic, social, and cultural factors (Figure 1). Socioeconomic factors influence cancer

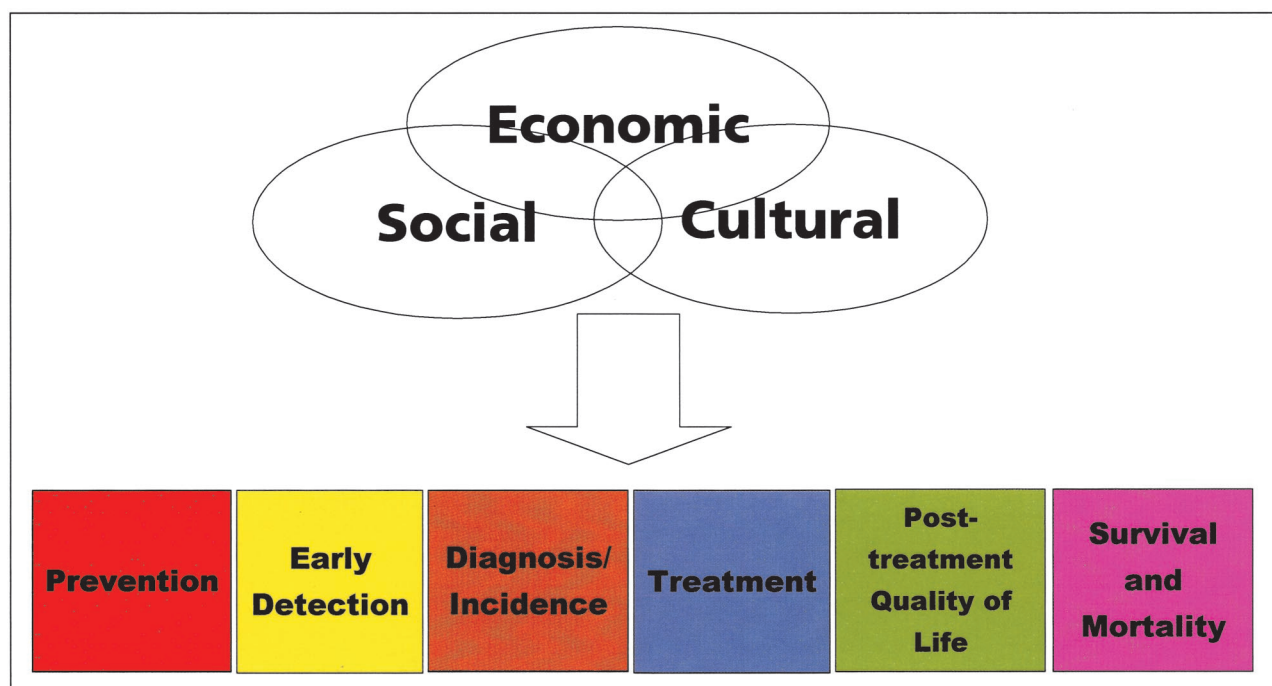


FIGURE 1 Factors That Influence Social Disparities.

Source: Adapted from Freeman, HP³ and Institute of Medicine.⁷

risk factors such as tobacco use, poor nutrition, physical inactivity, and obesity. Income, education, and health insurance coverage influence access to appropriate early detection, treatment, and palliative care. Poor and minority communities are selectively targeted by the marketing strategies of tobacco companies, may have limited access to fresh foods and healthy nutrition, and are provided with fewer opportunities for safe recreational physical activity. Social inequities, such as the legacy of racial discrimination in the United States, can still influence the interactions between patients and physicians, as noted in the IOM report.⁷ Cultural factors also play a role in health behaviors, attitudes toward illness, and belief in modern medicine versus alternative forms of healing.^{3,4,8}

This report focuses on disparities for selected cancer sites (lung and bronchus, colon and rectum, female breast, prostate, uterine cervix, stomach, and liver) that show large variations by race and ethnicity. Together, these sites comprise 60.0% of new cases and 56.3% of cancer deaths anticipated in the United States in 2004.⁹ We highlight differences in cancer

risk factors, screening, stage at diagnosis, and treatment between population groups that could be reduced or possibly eliminated by applying current knowledge about cancer prevention, early detection, and treatment equally to all segments of the population.

MATERIALS AND METHODS

Data Sources

Data on cancer incidence, stage at diagnosis, and survival derive from the Surveillance, Epidemiology, and End Results (SEER) Program, which provides data on cancer incidence, mortality, stage at diagnosis, and survival for Whites and African Americans from 1975 to 2000¹⁰ and for Hispanic/Latino,¹¹ American Indian/Alaskan Native,¹² and Asian/Pacific Islander¹² populations from 1992 to 2000.¹³ Mortality data are from the National Center for Health Statistics.¹⁴ Information on current percentage of the population with income under the poverty level and the percentage who have graduated high school are from the US Census Bureau.^{15,16}

Data on cancer occurrence by area socioeconomic status were obtained from a recently published SEER monograph: "Area Socioeconomic Variations in US Cancer Incidence, Mortality, Stage, Treatment, and Survival, 1975 to 1999."¹⁷ The poverty rate is defined as the percentage of the population in a county or census tract below the poverty level, a threshold that varies by size and age composition of the household (\$12,674 for a four-person household in 1990). This measure has several advantages as an index of socioeconomic inequalities in health.¹⁸ It is an easily understood measure of poverty at the census tract or county level. For most counties, the classification of poverty is similar when based on the 1990 or 2000 census and correlates closely with other area-level socioeconomic variables.¹⁷ Poverty rate was categorized into three levels: low (less than 10%), middle (10% to 19.9%), and high (greater than or equal to 20%).¹⁷ We refer to areas with a less than 10% poverty rate as "affluent" and those with a greater than or equal to 20% poverty rate as "poorer." Survival rates are cause-specific and represent the probability of escaping death due to the underlying cancer in the absence of other causes of death.

Data on behavioral risk factors and use of cancer screening tests is obtained from the National Health Interview Survey (NHIS), 2000, a population-based survey conducted annually by the National Center for Health Statistics, Centers for Disease Control and Prevention (CDC).¹⁹ Information on Asians and Pacific Islanders is sometimes combined, sometimes presented separately, and sometimes presented for Asians alone (due to the small number of Pacific Islanders). Other variations in the presentation by race or ethnicity reflect different sources and time periods.

Statistical Methods

Age-adjusted incidence and death rates, expressed per 100,000 population, were computed by using the 2000 US standard population. Estimates of rates, standard errors, and 95% confidence intervals were generated using SEER*Stat software.²⁰ Analyses of NHIS data, proportions, standard errors, and 95% confi-

dence intervals were calculated by using SAS and SUDAAN.^{21,22}

SELECTED FINDINGS

Table 1 presents summary measures of socioeconomic status, educational attainment, and access to medical care for the five largest racial and ethnic groups in the United States. In general, when compared with non-Hispanic Whites, racial and ethnic minorities had higher rates of poverty, lower educational status, and less access to health care coverage or a source of primary care (Table 1). Within the 11 SEER areas, 49.5% of African Americans, 47.5% of American Indians/Alaskan Natives, and 40.7% of Hispanics/Latinos lived in census tracts with a poverty rate of over 20%, compared with 7.0% of non-Hispanic Whites and 16.0% of Asian Americans/Pacific Islanders.¹⁷

Cancer Mortality, Survival, and Incidence

African Americans have the highest death rate from all cancer sites combined and from malignancies of the lung and bronchus, colon and rectum, female breast, prostate, and cervix of all racial or ethnic groups in the United States. The death rate from cancer among African American males is 1.4 times higher than that among White males; for African American females it is 1.2 times higher (Table 2).¹³

Among people who develop cancer, the five-year survival rate is more than 10 percentage points higher for persons who live in affluent census tracts than for persons who live in poorer census tracts (Figure 2). This gradient is seen in all racial and ethnic groups with the exception of American Indians/Alaskan Natives. Even when census tract poverty level is accounted for, however, African American, American Indian/Alaskan Native, and Asian/Pacific Islander men and African American and American Indian/Alaskan Native women have lower five-year survival than non-Hispanic Whites.¹⁷

With respect to cancer incidence rates, Asian Americans/Pacific Islanders have the highest incidence of cancer of the stomach and liver and

TABLE 1 Most Recent Available Data on Socioeconomic Characteristics and Medical Care Access, by Race and Ethnicity

Racial/Ethnic Group	% With Income Below Poverty Level*†	% Graduated High School ‡	% Under Age 65 With No Health Care Coverage§	With No Regular Source of Medical Care§
White (non-Hispanic)	8.0	85.5	11.9	13.9
African American	24.1	72.3	19.2	16.7
Hispanic-Latino	21.8	52.4	34.8	30.8
American Indian/Alaskan Native†	27.1	70.9	33.4	15.9
Pacific Islander	—	78.3	—	—
Asian	10.1	80.4	17.1	18.5
Asian/Pacific Islander	10.3	—	—	—

*Source: Poverty rate as of 2002 for White (non-Hispanic), African-American, Hispanic-Latino, Asian, and Asian/Pacific Islander populations. Poverty in the United States, 2002, US Census Bureau, September 2003.

†Source: Poverty rate as of 1999 to 2000 for American Indian/Alaskan Native population. Poverty in the United States, 2000. US Census Bureau, September 2001.

‡ Source: Educational Attainment, 2000. Census 2000 Brief, US Census Bureau, August 2000.

§ Source: Health, United States, 2003 With Chartbook on Trends in the Health of Americans, Hyattsville, Maryland, 2003.

intrahepatic bile duct, whereas Hispanics/Latinos have the highest incidence of cancer of the cervix (Table 2). Disparities for some subgroups within the racial and ethnic groupings are larger than indicated by these broad categories. For example, the incidence rate for invasive cervical cancer, much of which is preventable by screening, is four times higher among Vietnamese women than in all Asian American/Pacific Islander populations combined.²³ Cancer incidence rates among American Indian populations have been monitored more systematically in the Southwest than in other geographic regions but may not reflect the cancer experience of American Indians or Alaskan Natives residing elsewhere. For example, a study of mortality among American Indians/Alaskan Natives residing in counties on or adjacent to tribal reservations found that rates in the Alaska and Northern Plains region were higher than those in the United States as a whole, whereas lung cancer mortality in the Southwest was lower than in the United States overall.²⁴

Trends in Mortality by Race and Socioeconomic Status

The disparity in death rates from all cancers combined between African American and White males widened from 1975 until the early 1990s (Figure 3). Although this gap subsequently narrowed, it remains larger than it was in 1975. A similar although smaller divergence occurred in death rates between African American and White

women (Figure 3). Much of the disparity involved death rates from colorectal and breast cancer in women and colorectal and prostate cancer in men (Figure 3).¹³

Similar trends of greater disparities in the 1990s than in the 1970s are seen in relation to poverty level by county. The death rate from all cancers combined in 1975 was 2% higher among men in poorer compared with more affluent counties; by 1999, it was 13% higher.¹⁷ Among women, all cancer mortality was 3% lower in poorer compared with more affluent counties in 1975; in 1999, it was 3% higher.¹⁷ In 1975, residents of poorer counties had lower death rates from colorectal and breast cancer than residents of affluent counties, but by 1999, residents of poorer counties had higher death rates from both cancers than residents of affluent counties.¹⁷ Little variation was seen in prostate cancer mortality between poorer and more affluent counties from 1975 to 1989. However, since 1990, there has been a widening of the area socioeconomic gradient, with men in poorer counties experiencing a 22% higher death rate from prostate cancer in 1999 compared with men in more affluent counties.¹⁷

Points of Intervention to Reduce Cancer Disparities

Opportunities to reduce cancer disparities exist across the entire cancer spectrum, from primary prevention to palliative care.

TABLE 2 Age-standardized Incidence and Death Rates* for Selected Cancer Sites by Race and Ethnicity, US, 1996 to 2000

	White	African American	Asian/Pacific Islander	American Indian/Alaskan Native	Hispanic-Latino†
Incidence					
All Sites					
Males	555.9	696.8	392.0	259.0	419.3
Females	431.8	406.3	306.9	229.2	312.2
Breast (female)	140.8	121.7	97.2	58.0	89.8
Colon and rectum					
Males	64.1	72.4	57.2	37.5	49.8
Females	46.2	56.2	38.8	32.6	32.9
Lung and bronchus					
Males	79.4	120.4	62.1	45.6	46.1
Females	51.9	54.8	28.4	23.4	24.4
Prostate	164.3	272.1	100.0	53.6	137.2
Stomach					
Males	11.2	19.9	23.0	14.4	18.1
Females	5.1	9.9	12.8	8.3	10.0
Liver					
Males	7.3	11.0	21.1	6.1	13.8
Females	2.8	3.9	7.7	5.5	5.6
Uterine cervix	9.2	12.4	10.2	6.9	16.8
Mortality					
All Sites					
Males	249.5	356.2	154.8	172.3	176.7
Females	166.9	198.6	102.0	115.8	112.4
Breast (female)	27.2	35.9	12.5	14.9	17.9
Colon & rectum					
Males	25.3	34.6	15.8	18.5	18.4
Females	17.5	24.6	11.0	12.1	11.4
Lung & bronchus					
Males	78.1	107.0	40.9	52.9	40.7
Females	41.5	40.0	19.1	26.2	15.1
Prostate	30.2	73.0	13.9	21.9	24.1
Stomach					
Males	6.1	14.0	12.5	7.0	9.9
Females	2.9	6.5	7.4	4.2	5.3
Liver					
Males	6.0	9.3	16.1	7.6	10.5
Females	2.7	3.7	6.7	4.3	5.0
Uterine cervix	2.7	5.9	2.9	2.9	3.7

*Rates are per 100,000 and age-adjusted to the 2000 US standard population.

†Hispanics-Latinos are not mutually exclusive from Whites, African Americans, Asian/Pacific Islanders, and American Indians/Alaskan Natives.

Source: Ries LAG, Eisner MP, Kosary CL, et al.¹³

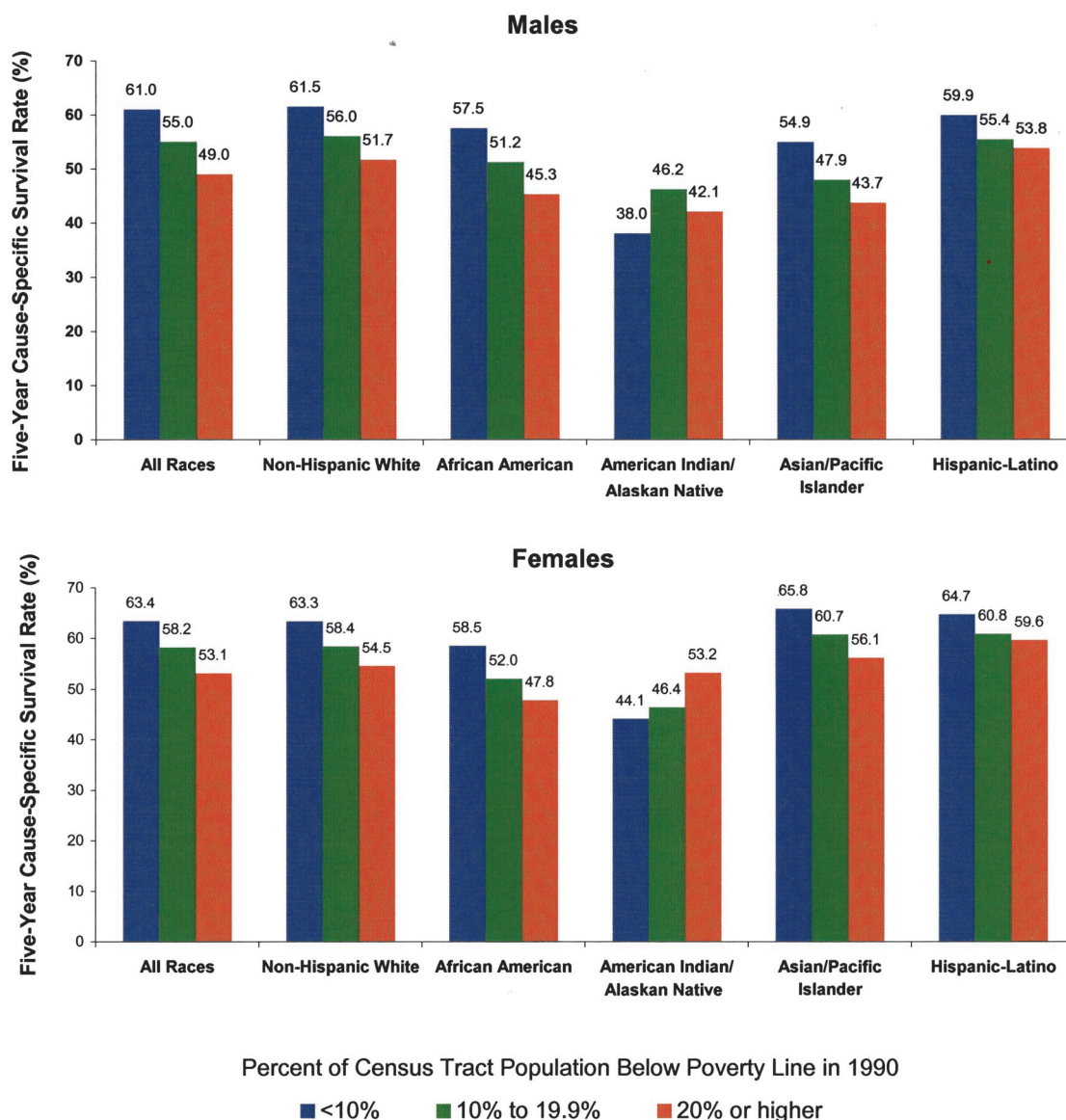


FIGURE 2 SEER Cancer (All Sites Combined) Survival Among Men and Women, 1988-1994 Patient Cohort.

*Survival rates are cause-specific, and represent the probability of escaping death due to the underlying cancer in the absence of other causes of death.

Source: Singh GK, Miller BA, Hankey BF, Edwards BK.¹⁷

Primary Prevention

The prevalence of underlying risk factors for some cancers differs among racial and ethnic groups. For example, higher rates of stomach cancer among Hispanics/Latinos and Asian Americans are thought to partly reflect the higher prevalence of *Helicobacter pylori* infection in the

countries of origin of recent immigrants.²⁵ Similarly, higher rates of liver cancer among Hispanics/Latinos and Asian Americans largely reflect the higher prevalence of chronic hepatitis B infection among recent immigrants.^{26,27} Differential rates of cervical cancer reflect differences in the prevalence and subtypes of human papilloma virus (HPV) infection among immigrants, as well

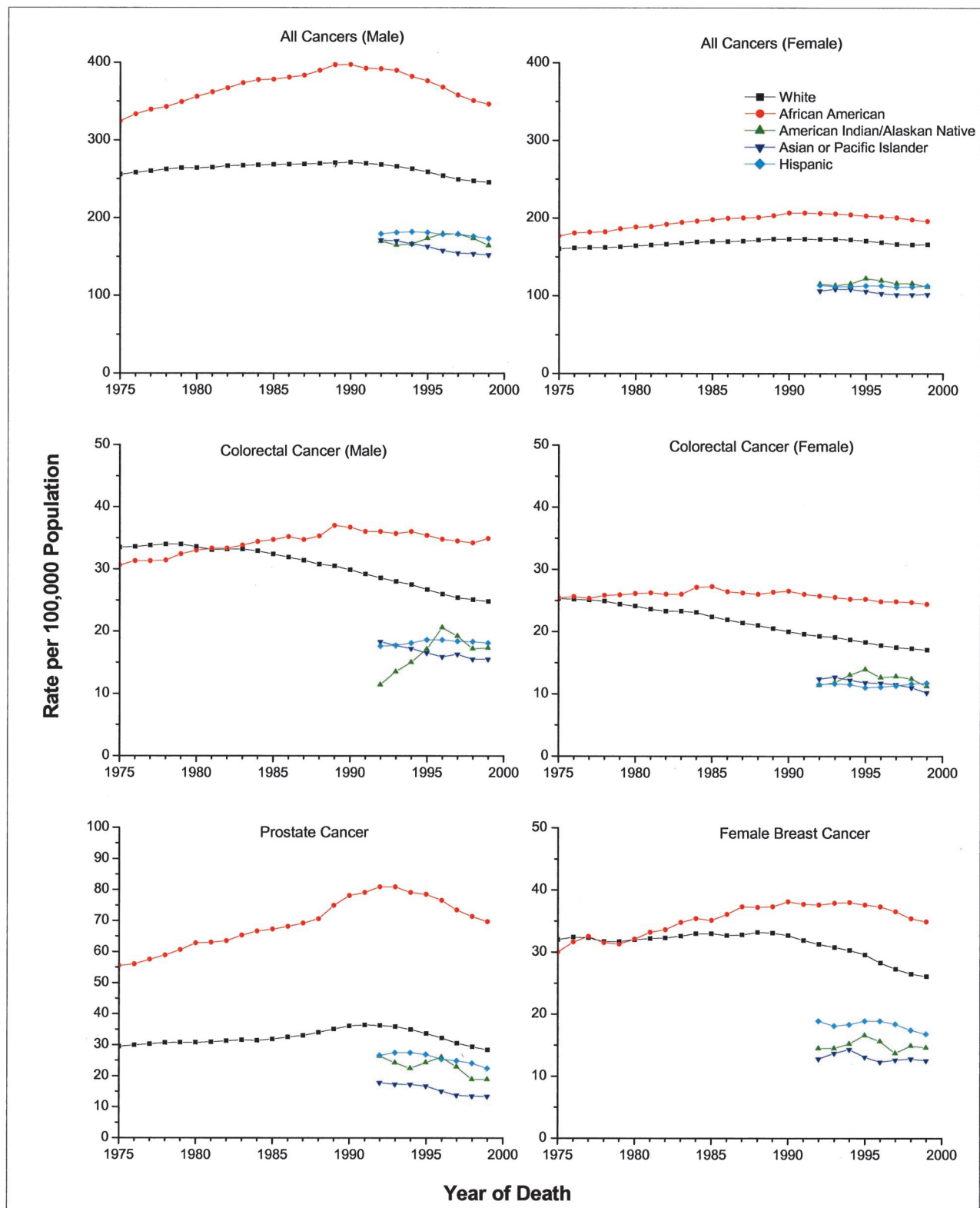


FIGURE 3 Trends in Mortality for All Cancers Combined, Colorectal, Prostate and Female Breast, by Race and Ethnicity, 1975 to 2000.

Source: Surveillance, Epidemiology, and End Results Program (SEER), 1975 to 2000, Division of Cancer Control and Population Sciences, National Cancer Institute, 2003.

as other factors.²⁸ Methods for primary prevention that are currently available include treatment of *H pylori* infection and vaccination against hepatitis B. Future interventions currently being developed or tested include vaccines for HPV and hepatitis C.

Other modifiable cancer risk factors that vary by race/ethnicity and socioeconomic status include cigarette smoking, physical inactivity, and obesity (Table 3). The prevalence of adult cigarette smoking is now highest for American Indian/Alaskan Native women (38.6%), followed by American Indian/Alaskan Native men (27.4%). Smoking prevalence is considerably lower among Hispanic/Latino women and Asian women (7.9%) compared with non-Hispanic White women (23.0%). Smoking prevalence also varies by highest level of educational attainment, with the highest prevalence of cigarette smoking being among individuals who have attended or completed high school but not attended or completed college or other postsecondary education. Regardless of race/ethnicity, men and women whose income is less than twice the poverty level are much more likely to be current smokers than those with higher incomes. These disparities result in part from targeted promotion and advertising by cigarette companies.²⁹

Inadequate physical activity increases the risk of certain cancers and contributes to the development of overweight and obesity.³⁰ Most national surveys have collected information only about leisure time physical activity, which may underestimate total physical activity.³¹ Hispanic/Latino men and women have the highest prevalence of no leisure time physical activity (51.9 among men and 56.5% among women) (Table 3). However, when occupational activity and housework are measured as well as leisure time physical activity, Hispanic/Latino women had a higher composite activity score than other groups.³¹ The strong inverse relationship between physical inactivity and educational attainment is also based on surveys that do not consider other forms of physical activity (Table 3).

African American women and American Indian/Alaskan Native men and women have higher rates of obesity (over 35%) than the general population (21.5% for men and 22.0%

for women) (Table 3). The prevalence of obesity varies slightly with the level of education in men and strongly with the level of education in women. Prevalence ranges from 12.4% in women with more than 16 years of education to 32.1% in women with 8 or fewer years of education. Variations in obesity prevalence by income are also greater among women than for men. The massive population shifts in the prevalence of obesity in the United States in the past decades resulted from changes in the social environment that have decreased physical activity and increased caloric consumption.³²

It has been estimated that between 2.4% and 4.8% of all US cancer deaths are occupationally related.³³ Most of these deaths are due to lung cancer, bladder cancer, and mesothelioma.³³ Exposure to many known occupational carcinogens, such as asbestos, is concentrated among manual and industrial workers, which may contribute to differences in cancer incidence by socioeconomic status.³⁴

Secondary Prevention (Screening/Early Detection)

Disparities in early detection of cancer are reflected both in rates of use of recommended screening tests and the higher stage at diagnosis.

USE OF RECOMMENDED SCREENING TESTS

Although 72.1% of non-Hispanic White women over 40 years of age reported having a mammogram in the past two years, only 56.9% reported a mammogram within the last year, consistent with ACS recommendations (Table 4). Mammography usage was lowest in American Indians/Alaskan Natives; only 52.0% had a mammogram within two years and only 36.6% in the last year. Mammography within the last year was even lower among women who immigrated to the United States in the past 10 years (33.7%) or who lacked health insurance coverage (27.9%). Rates were only slightly higher for mammography within the last two years (41.4% for recent immigrants and 39.5% for women with no health insurance).

Rates of colorectal cancer screening by fecal occult blood testing (FOBT) and endoscopy are low for all population groups, with even

TABLE 3 Prevalence of Major Cancer Risk Factors by Race/Ethnicity and Highest Level of Education, Adults 18 and Older, US, 2000*

Characteristic	% Current Smokers		% With No Leisure Time Physical Activity		% Obese†	
	Males	Females	Males	Females	Males	Females
Race/Ethnicity						
White (non-Hispanic)	25.7	23.0	33.1	36.8	21.3	19.6
African American (non-Hispanic)	25.5	20.4	47.3	55.7	24.4	35.9
Hispanic-Latino	23.2	12.8	51.9	56.5	23.0	26.1
American Indian/Alaskan Native‡	27.4	38.6	46.5	52.1	38.9	43.2
Asian American§	19.6	7.9	29.1	42.1	6.0	8.3
Education (years)¶						
8 or fewer	29.9	16.1	68.7	71.3	22.5	32.1
9 to 11	39.2	32.1	58.7	59.9	27.5	30.8
12	31.7	26.5	44.0	47.3	23.7	24.1
13 to 15	23.2	20.3	32.9	38.3	24.4	23.4
16	13.4	12.0	22.9	27.8	17.1	15.4
More than 16	8.7	7.2	17.6	23.6	15.7	12.4
Income						
Below poverty level	36.5	30.0	52.7	58.3	21.8	30.4
100% to 200% above poverty level	34.5	26.8	49.5	51.9	22.6	27.1
>200% above poverty level	22.6	18.5	29.2	32.9	21.8	19.5
Unknown	23.6	20.6	44.8	49.1	19.5	21.8
Total	25.0	21.0	36.6	41.5	21.5	22.0

*Percentages are adjusted to the 2000 US standard population.

†Body Mass Index (BMI) ≥ 30 kg/m², Age ≥ 20 yrs.

‡Estimates should be interpreted with caution because of small sample sizes.

§Does not include Native Hawaiians and other Pacific Islanders.

¶Persons aged 25 or older.

Source: National Health Interview Survey 2000, National Center for Health Statistics, Centers for Disease Control and Prevention.¹⁹

lower prevalence of screening among all racial and ethnic minority groups compared with non-Hispanic Whites (Table 4). Individuals with fewer years of education, no health insurance coverage, and recent (10 years or less) immigrants were the least likely to report having FOBT or endoscopy within the past five years.

The percentage of women aged 18 years and older who reported having a Pap test in the past three years was 83.9% in non-Hispanic Whites and 85.5% in African Americans, but lower in Hispanics (77.9%), American Indians/Alaskan Natives (78.4%), and Asians (68.2%), as well as recent immigrants (59.3%).

STAGE AT DIAGNOSIS

For the four cancer sites for which screening is widely recommended or practiced (colorectal, female breast, cervix, and prostate), the proportion of cases diagnosed at localized stage is lower and the proportion diagnosed at distant stage is higher in high-poverty compared with low-poverty census tracts (Table 5).¹⁷ For example, among people diagnosed with colorectal cancer, the percent of distant-stage diagnosis in more affluent census tracts (19.0% in men and 18.5% in women) was lower than for those residing in poorer census tracts (23.7% in men and 22.1% in women). Among women diag-

TABLE 4 Percent* Utilization of Screening, by Race/Ethnicity, Education, and Income

Characteristic	Mammography Prevalence in Women ≥ 40		Colorectal Cancer Screening in Adults ≥ 50		Pap Test in Women ≥ 18
	(within two yrs)†	(within last yr)‡	Fecal Occult Blood Test§	Endoscopy¶	(within three yrs)**
	%	%	%	%	%
Gender					
Male	—	—	17.1	33.5	—
Female	—	—	17.6	27.0	—
Race/Ethnicity					
White††	72.1	56.9	18.3	31.3	83.9
African American††	68.2	52.8	14.9	27.0	85.5
Hispanic-Latino	62.6	48.0	9.8	21.8	77.9
American Indian/Alaskan Native††	52.0	36.6	14.0§§	25.2 §§	78.4
Asian	57.0	47.8	14.5	19.2	68.2
Education (years)					
11 or fewer	56.8	41.7	12.1	22.0	74.3
12.0	68.9	54.7	16.4	28.1	82.5
13 to 15	73.3	58.2	19.4	31.9	86.2
16 or more	80.1	65.1	23.0	40.4	90.1
Health insurance coverage					
Yes	73.6	58.3	17.9	31.0	85.2
No	39.5	27.9	13.0	14.4	64.1
Immigration					
Born in US	71.6	56.2	18.1	30.9	84.1
In US ≤ 10 years	41.4	33.7 §§	3.37 §§	14.3 §§	59.3
In US 10+ years	65.0	50.9	12.7	23.8	79.2
Total	70.3	55.3	17.3	30.0	82.3

*Percentages are adjusted to the 2000 US standard population.

†A mammogram within the past two years.

‡A mammogram within the past year.

§A fecal occult blood test within the past year.

¶An endoscopy (tests include sigmoidoscopy, colonoscopy, or proctoscopy) within the past five years.

**Pap test for women with intact uterus.

††Non-Hispanic.

§§Estimates should be interpreted with caution because of small sample sizes.

¶¶Age ≥ 25 for Pap test prevalence by level of education.

Source: National Health Interview Survey, 2000, National Center for Health Statistics, Centers for Disease Control and Prevention.¹⁹

nosed with breast cancer, 67.0% of women in more affluent census tracts and 59.0% of women in poorer census tracts were diagnosed at a localized stage. There are currently no recommended screening tests or highly specific symptoms for lung cancer. However, during 1995 to 1999, a significantly higher proportion of men residing in high-poverty census tracts (59.0%) were diagnosed with distant-stage disease compared with those residing in low-poverty census tracts (54.6%).¹⁷ Earlier diagnosis may be related to increased awareness of symptoms and access to medical care.

Table 6 summarizes racial and ethnic variations in stage of diagnosis for screening-detectable cancers using two measures—the stage-specific incidence rate and the proportion

of cases diagnosed at each stage. For breast cancer, the proportion of women diagnosed with regional- and distant-stage disease is higher among African Americans, Hispanics/Latinos, and American Indians/Alaskan Natives than among Whites and Asian Americans/Pacific Islanders. Although Whites have the highest incidence rates of breast cancer for all stages combined (Table 1), African Americans have higher rates of regional- and distant-stage disease. Similar variations by race and ethnicity are seen for the other cancer sites.

Treatment

One measure of the quality of cancer treatment is five-year survival for patients with the

TABLE 5 Stage at Diagnosis, Among Cases with Stage Information, by Census Tract Poverty Rate, All Races, 1995 to 1999, 11 SEER Registration Areas

	Area Poverty Rate					
	<10%			≥20%		
	Localized (%)	Regional (%)	Distant (%)	Localized (%)	Regional (%)	Distant (%)
Lung						
Male	17.7	27.7	54.6	15.7	25.3	59.0
Female	21.5	26.5	52.0	18.8	24.4	56.8
Colorectal						
Male	43.2	37.8	19.0	40.0	36.3	23.7
Female	41.5	40.0	18.5	38.7	39.2	22.1
Prostate*						
Male	95.2	—	4.8	90.9	—	9.1
Breast						
Female	67.0	28.0	5.0	59.0	32.4	8.6
Cervix						
Female	59.6	32.2	8.2	52.3	37.9	9.8

*For prostate cancer, the percent for localized stage represents local and regional stages combined.

Source: Singh GK, Miller BA, Hankey BF, Edwards BK.¹⁷

same stage at diagnosis. African Americans have lower stage-specific survival than Whites for many cancers.³⁵ The poorer survival appears to result more from disparities in access to care and quality of cancer treatment than from biological differences in tumor characteristics or treatment outcomes between African Americans and Whites.³⁶ Studies of treatment outcome in settings where all patients have equal access to treatment and supportive care have documented that similar treatments yield similar outcomes.^{36–38}

A recent comprehensive review found limited evidence that racial and ethnic populations differ in their response to treatment.³⁹ However, access to high-quality cancer care varies substantially by socioeconomic status and race. Examples of well-documented treatment disparities are:

- Between 1988 and 1998, women with Stage I and II breast cancer were less likely to be treated with breast-conserving surgery (BCS) and radiation if they resided in poorer, compared with more affluent, census tracts (Figure 4).¹⁷
- African Americans with Stage I or II non-small cell lung cancer are less likely to re-

ceive the recommended treatment of surgery than Whites, even if they have insurance and are at the same income level. This is a disparity that accounts for much of the difference in survival rates.^{17,40}

- African Americans with cervical cancer are more likely than Whites to go unstaged and receive no treatment.⁴¹
- Whites are more likely than persons of other racial/ethnic groups to receive aggressive treatment for colorectal cancer, based on studies evaluating a variety of treatment differences, including receipt of any colorectal cancer-directed treatment, adjuvant therapy, and follow-up after initial potentially curative treatment.³⁹

Three factors potentially influence the availability and quality of cancer care: structural barriers, factors influencing physician recommendations, and those that affect patient freedom of choice and/or decision making.³⁹ Structural barriers include considerations such as health insurance or other financial support, geographical distance to the treatment facility, and access to transportation. Physicians may make different clinical recommendations for patients of different race, ethnicity, or socio-

TABLE 6 Stage at Diagnosis, Among Cases with Stage Information, of Colorectal, Breast, Prostate, and Cervical Cancer, by Race and Ethnicity, SEER 1996 to 2000

	Localized		Regional		Distant	
	Rate*	%	Rate*	%	Rate*	%
Colorectal						
White	21.4	42.0	19.7	39.0	9.6	19.0
African American	22.4	39.0	21.0	36.0	14.2	25.0
Hispanics-Latino†	14.6	39.0	14.4	39.0	7.9	22.0
AI/AN‡	11.8	35.0	13.2	40.0	8.5	25.0
API§	18.9	42.0	17.9	40.0	7.7	18.0
Breast (female)						
White	90.2	66.0	39.8	29.0	7.5	5.0
African American	65.6	55.0	40.6	36.0	10.6	9.0
Hispanic-Latino†	50.7	57.0	29.2	35.0	6.2	7.0
AI/AN‡	32.4	56.0	19.9	36.0	4.8	8.0
API§	63.1	65.0	28.2	30.0	4.3	5.0
Prostate¶						
White	145.2	95.0	—	—	8.2	5.0
African American	225.9	93.0	—	—	20.0	7.0
Hispanic-Latino†	112.1	93.0	—	—	9.7	7.0
AI/AN‡	42.6	88.0	—	—	7.2	12.0
API§	84.9	92.0	—	—	8.0	8.0
Uterine cervix						
White	5.0	58.0	2.9	33.0	0.8	9.0
African American	5.5	51.0	4.4	39.0	1.2	10.0
Hispanic-Latino†	8.1	57.0	5.8	34.0	1.6	9.0
AI/AN‡	3.3	57.0	2.5	36.0	0.5	7.0
API§	5.0	54.0	3.8	38.0	0.9	8.0

*Per 100,000, age-adjusted to the 2000 US population.

†Hispanic-Latinos are not mutually exclusive from Whites, African Americans, Asian/Pacific Islanders, and American Indians/Alaskan Natives.

‡ American Indian/Alaskan Native.

§Asian/Pacific Islander.

¶The rate and percent for localized stage represent local and regional stages combined.

Source: Ries LAG, Eisner MP, Kosary CL, et al.¹³

economic status, even when stage of disease, other prognostic indicators, and comorbidities are the same. Physician recommendations may be influenced by nonclinical factors such as perception of a patient's willingness or ability to comply with treatment recommendations, personal preferences, and biases.³⁹ Patient decision making may be affected by distrust of conventional medical care, inability to navigate the medical system, fatalism, and the lack of a trusted provider.⁷ The lack of sound information about the relative importance of structural, physician, and patient factors that impede access to high-quality medical treatment cur-

rently limits the ability to design targeted interventions. Although many factors contribute to treatment disparities, unequal access to health care for financial or economic reasons is undoubtedly the most important.

Palliative and End-of-life Care

Palliative care is defined as the "active total care of patients whose disease is not responsive to curative treatment."⁴² Much of the data on disparities in palliative care concerns the adequacy of pain management and usage of hospice care. Patients seen at outpatient centers

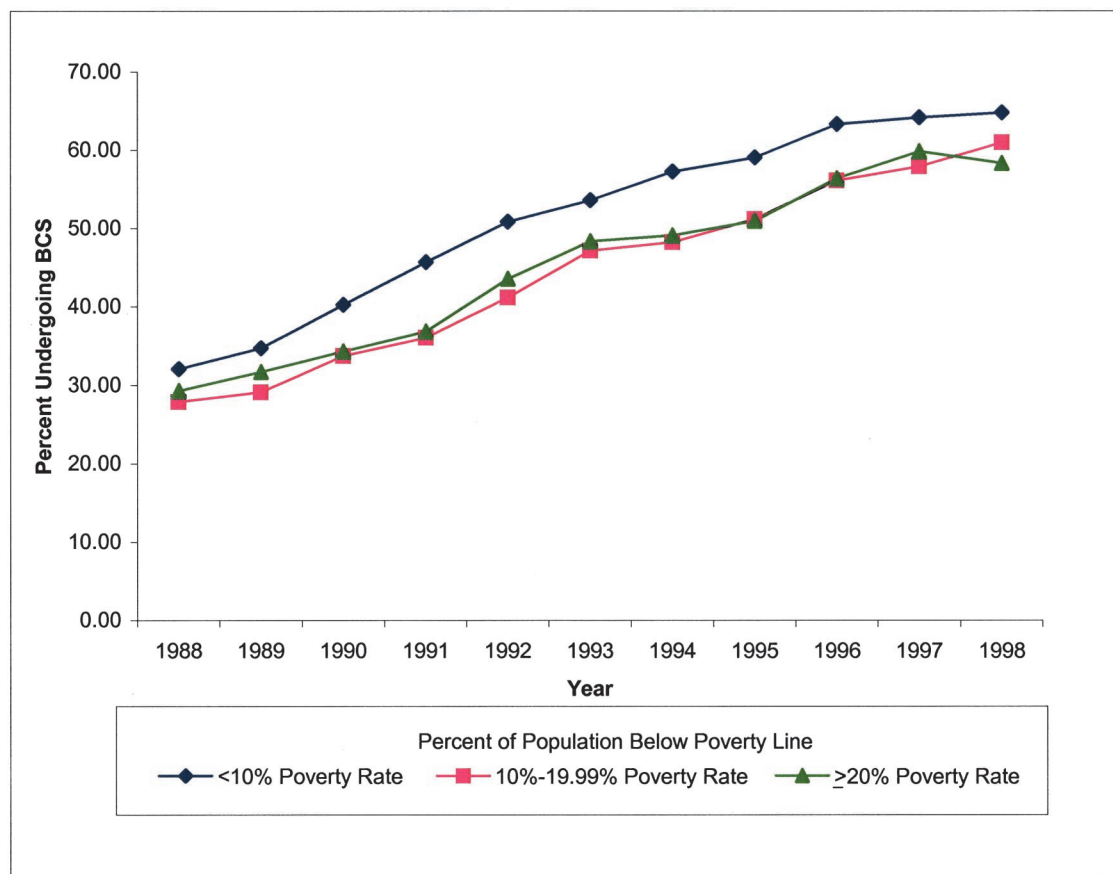


FIGURE 4 Percent of Stage I and II Breast Cancer Patients with Tumor Size ≤ 2 cm Undergoing Breast-conserving Surgery (BCS), 1988-1998.

Source: Singh GK, Miller BA, Hankey BF, Edwards, BK.¹⁷

that treated predominantly minorities were three times more likely than those treated elsewhere to have inadequate pain management, based on a study of 1,308 outpatients being treated for recurrent or metastatic cancer from 1990 to 1991.⁴³ Another survey, conducted in 1998, found that only 25% of pharmacies in predominantly non-White New York neighborhoods stocked morphine, whereas 72% of pharmacies in affluent White neighborhoods had sufficient stocks of these drugs.⁴⁴ It should be noted that pain management is inadequate for many cancer patients irrespective of socioeconomic status. A study published in 1997 found that 65% of a population of African Americans and Hispanics/Latinos with a range of malignancies did not receive guideline-recommended prescriptions for analgesics (pain

medications) compared with 50% of nonminority patients.⁴⁵

Studies have also shown lower use of hospice care among minority persons, including African Americans, Asian Americans, and Hispanics/Latinos.⁴⁶⁻⁴⁸ A study of barriers to hospice care among older patients dying from lung and colorectal cancer found later enrollment among individuals who were neither African American nor White.⁴⁹ Research is very limited on factors related to lower use of hospice care by racial and ethnic minorities, many of which overlap with factors that may explain disparities in treatment. To provide culturally effective end-of-life care and the best strategies to plan for the end of life and alleviate pain and suffering, cultural differences in attitudes toward illness or death between health care pro-

viders and patients and families must be understood.⁵⁰

Strategies to Reduce Cancer Disparities

Over the past decade, there has been increasing awareness of cancer disparities. Two major reports on cancer disparities by the IOM^{51,42} have stimulated the creation and strengthening of federal programs to reduce cancer disparities. Programs and organizations with important roles in national efforts to eliminate the unequal burden of cancer among ra-

cial and ethnic minorities and the medically underserved are listed in Table 7. The CDC's National Breast and Cervical Cancer Early Detection Program was created in 1991 to ensure that low-income, uninsured women have access to community-based cancer screening, outreach, and case management services. To date, over four million screening examinations have been provided to underserved women, and approximately 14,446 breast cancers, 55,210 precancerous cervical lesions, and 1,020 cervical cancers have been diagnosed. However, it has been estimated that this program

TABLE 7 Selected Programs and Resources Targeting Cancer Disparities

Name of Program and Web Address	Sponsors/Partners	Description
Intercultural Cancer Council (ICC) http://iccnetwork.org	Baylor College of Medicine	The ICC, established in 1995, promotes policies, programs, partnerships, and research to eliminate the unequal burden of cancer among racial and ethnic minorities and medically underserved populations in the United States and its associated territories. Prepares Cancer Fact Sheets that provide detailed information on cancer occurrence and risk factors among racial and ethnic minorities and the medically underserved.
National Center on Minority Health and Health Disparities (NCMHD)	National Institutes of Health (NIH)	The NCMHD was established in 2000. The Center leads and coordinates NIH efforts to improve the health of minority and medically underserved people.
Center to Reduce Cancer Health Disparities (CRCHD) http://crchd.nci.nih.gov	National Cancer Institute (NCI)	The CRCHD was created in 2001 to carry out NCI's Strategic Plan for Reducing Cancer Health Disparities. NCI's goal is to nearly triple the funding for cancer health disparities in four years. Research will investigate social, cultural, environmental, biological, and behavioral determinants of cancer disparities across the cancer control continuum from prevention to end-of-life care.
Special Populations Networks for Cancer Awareness, Research and Training http://crchd.nci.nih.gov/spn	National Cancer Institute (NCI)	The Special Populations Networks is a program within the CRCHD. The first projects were funded in 2001. Its purpose is to build relationships between large research institutions and community-based programs and to find ways of addressing important questions about the burden of cancer in minority communities. The major goal is to build infrastructure to promote cancer awareness within minority and medically underserved communities, and to launch from these communities more research and cancer control activities aimed at specific population subgroups. Currently the Special Populations Networks consists of 18 projects in 15 states.
Racial and Ethnic Approaches to Community Health (REACH) http://www.cdc.gov/reach2010	Centers for Disease Control and Prevention (CDC)	The REACH program funds community coalitions to develop and implement activities to reduce the level of disparities in one or more of six priority areas, which include breast and cervical cancer screening. The first projects were funded in 1999. The program emphasizes the importance of working more closely with communities to identify culturally sensitive implementation
National Breast and Cervical Cancer Early Detection Program (NBCCEDP) http://www.cdc.gov/cancer/nbccedp	Centers for Disease Control and Prevention (CDC)	The NBCCEDP was created by Congress in 1990 to help improve access to breast and cervical cancer screening among underserved women. This program, funded at \$200.6 million for fiscal year 2003, provides both screening and diagnostic services and has been implemented in all 50 states, five US territories, the District of Columbia and 15 American Indian/Alaskan Native organizations.

reaches only 12% to 15% of eligible women.⁵² The CDC's Racial and Ethnic Approaches to Community Health (REACH) program began funding community coalitions to reduce disparities in six priority areas, including breast and cervical screening in 1999.

The NCI has numerous research and surveillance activities that contribute to knowledge of cancer disparities, including the SEER Program. In 2000, the National Institutes of Health (NIH) established the National Center on Minority Health and Health Disparities to lead and coordinate NIH efforts to improve the health of minority and medically underserved people. In 2001, the Center to Reduce Cancer Health Disparities was created within the NCI to stimulate research in cancer health disparities. The various federal programs represent progress in understanding and addressing disparities. However, in the absence of equal access to high-quality medical care, these efforts can only be partially effective.

Although much is known about prevention, early detection, and treatment for some

cancers, for others, knowledge is extremely limited. Some of the cancers for which knowledge is limited disproportionately affect minority communities, including prostate cancer. Two relevant questions are: Why are African American men at greater risk of developing advanced prostate cancer? What markers of genetic susceptibility and tumor prognosis may improve current approaches to prevention and treatment? Development of safe and effective vaccines against HPV, the most important cause of cervical cancer, would reduce the toll of this disease that disproportionately affects poor and minority women.

Eliminating cancer disparities will require sustained efforts on the part of governmental, private, and nonprofit organizations, as well as individuals engaged in cancer research, cancer prevention, and cancer care. Although this goal is a challenging one, it is fundamental to the ACS mission and the aspirations of our many partners to eliminate cancer as a major health problem by preventing cancer, saving lives, and diminishing suffering from cancer.

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