

Cancer in African American Women

INTRODUCTION

African Americans continue to have a disproportionately high burden of disease, disability, and death. In recent history, African Americans have been emancipated, enfranchised, and empowered politically; have engaged in a massive migration from the rural areas of the South to the urban North; have realized dramatic economic gains; and have moved from caste segregation to social desegregation (Farley and Allen, 1987). These events have had a significant influence on the economic, social, political, and health status of the African American population. Yet large gaps remain between Whites and African Americans on most social, economic, and health indicators. Approximately one third of African Americans are poor, and poverty is perhaps the most profound and pervasive determinant of health (Jaynes and Williams, 1989). Their higher rate of poverty leaves African Americans at risk for several health conditions, including cancer.

The health of individuals is affected not only by their own socioeconomic and cultural characteristics, but also by how their social group exists in relation to the larger society (Kaplan, 1989). African American women have historically been in a subordinate position in U.S. society, and their lifestyles and behaviors have been associated with conditions that contribute to their poorer health status compared with that of White women.

The first section of this chapter includes a historical, demographic, and socioeconomic profile of African American women to provide a context in which to discuss the occurrence of cancer and cancer control within this group.

The second section of this chapter reviews cancer incidence and mortality statistics for African American women using data from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program (Miller et al., 1996; Ries et al., 1997; NCI/SEER, 2000). There are many similarities in the occurrence of cancer in African American and White women. Cancer is among the leading causes of death, and cancers of the lung, breast, and colon and rectum account for the largest proportion of overall female cancer mortality. For all women, incidence rates for all cancer sites combined increased from 1973 to 1992, as did mortality rates. The bulk of the increased incidence and mortality resulted from lung cancer. Cancer incidence and mortality for most cancers declined from 1992 to 1997 for both African American and White women (NCI/SEER, 2000).

The third section of this chapter discusses cancer control strategies as they apply to African American women. Finally, the conclusions drawn from this review are presented as recommended areas for future research and for implementation of cancer control programs.

There are important differences in cancer statistics by race, a glaring one being the lower cancer survival rate of African American women for almost all cancers. Most of this poorer survival is attributed to the more advanced stages of disease at which African American women first receive treatment, and to fewer resources available to cope with illness and its impact (Freeman, 1989).

Throughout this chapter, attention is given to the relative importance of race versus socioeconomic status (SES), particularly as factors affecting cancer incidence. Although most of the excessive cancer mortality in African American women reflects their disproportionate representation in low-SES strata (Freeman, 1989; Funch, 1985), patterns of incidence by race and SES vary across cancer sites. About two thirds of African Americans are not poor, yet few data are readily available to identify cancer patterns associated with social stratification within racial groups.

Cancer mortality could be reduced substantially by more widespread implementation of known cancer control strategies. The national prevalence of smoking has been decreasing, but considerable efforts are still needed to reduce smoking among younger and less-educated women. Common early detection procedures for cancer of the breast, cervix, and colon and rectum still elude too many women. Effective cancer control strategies must reach the entire spectrum of the national population, especially African Americans and other subgroups for whom cancer risk and excessive avoidable mortality are highest.

POPULATION PROFILE

In most sections of this chapter, the term “African American” is used to refer to those women who are Black and mainly of African heritage, and who live in the United States. However, on some occasions, and because of the terms used in some important reference sources (such as U.S. census data and SEER cancer statistics reports), the term “Black” is used to include persons who may be from various geographical regions, including Africa, the Caribbean, Central and South America, and the Middle East.

Historical and Cultural Background

Blacks of African descent have resided in the United States for more than 400 years. To summarize events over such a span of time inevitably leads to oversimplification. This population encompasses as many different kinds of people as one finds in any society.

Yet even with this rich, varied history and composition, one element sets African Americans apart: For almost all of American history, African Americans have been perceived and treated as different from and inferior to other Americans. Three results stemming from this basic fact are important to the present discussion. First, a disadvantaged social position for African Americans is still evident from current socioeconomic indicators and is reflected in their health status, including cancer incidence. Second, over time African Americans have developed and maintained a unique culture that has served to help them make sense of and cope with their predicament. This subculture encompasses community and kinship networks, family structure, beliefs and practices related to health and illness, and the special role of women across these elements. It may even affect current lifestyles, health practices, and who is likely to be influential in health-related decisions. Third, African American culture has developed its own view and judgment of the larger American society. Cultural guidelines about interacting with members and institutions of the larger society, including those that are health related, have often emphasized caution, mistrust, and avoidance. Cancer control efforts initiated by mainstream agencies to change the lifestyles or health care practices of African Americans must speak to the positive features of this population's community and culture and address its understandable wariness.

Slavery and Post-Emancipation Times. African Americans were among the first indentured servants to be brought to the colonies. As the plantation system evolved into the main mode of production in the South, the demand for cheap labor increased. Africans became the preferred source of labor, and slavery became the system to secure their labor. The colonies soon had a flourishing and legalized system of slavery, fed by the continued forcible importation of Africans as well as by reproduction. Under this system, most African Americans were held as slaves for the duration of their lives, with little chance for freedom or legal rights. Children born to slaves automatically became slaves (Farley and Allen, 1987). By the 1790 Census, only about 10 percent of African Americans were free (Meltzer, 1971).

Slavery had a devastating impact on the African American family, putting especially undue strain on women. Black people who were brought to the United States came from several different African tribes in which marriage was often polygamous and more a joining of two families than an arrangement between individuals. The women in these cultures generally were part of large, extended, and intergenerational households, although bonds among husband, wife, and children also were strong (Farley and Allen, 1987). Forcibly taken to an unknown land, Africans—who had a history of well-ordered societies that placed great emphasis on the family and considered it an important social, political, and religious unit—were now placed into slavery with no assurance of family stability. In fact, slavery purposely aimed at destroying relationships between husbands and wives and between parents and children. African American women in slavery, viewed as chattel by their owners, were often degraded sexually and in other

ways by the master. In addition, children could be forcibly removed from their mothers, which commonly happened when the children became older.

Slavery was abolished in 1865, but many of the practices associated with it remained in new forms. Post-emancipation laws were passed that institutionalized segregation and discrimination and that, for all practical purposes, still confined African Americans to a position of servitude, with little possibility for economic advancement. Segregation and social ostracism were reflected in limited access to schools, housing, jobs, mainstream churches, public transportation, hospitals, and other institutions. Although segregation laws were harsher and lasted longer in the South, a variety of other official and unofficial restrictions severely limited the socioeconomic opportunities and civil rights of African Americans across the country.

African American family and kinship networks, strengthened in part by the role of women, served to buffer the social and economic discrimination of the post-emancipation era. Communities had to organize to provide their members with basic social services denied them by the larger society. The main institution that helped meet this function was the African American church. The extended family and church also provided their members with the emotional security of belonging and a sense of identity and dignity that were denied African Americans in interactions with the larger community (Robinson-Brown, 1990; Eng et al., 1985).

The influential roles of respected family members and church leaders extended to health-related matters. Until recent times, mainstream medical care was not available to African Americans, especially in the South. African American health professionals were extremely few in number because of discriminatory practices in admission to medical and nursing schools, and few resources were devoted to establishing health care facilities for African Americans (Jackson, 1981). As a result, there was considerable reliance on home remedies and alternative health care providers—a practice that remained prevalent among African Americans even while mainstream America was adopting a science-oriented health care system.

Many of these family and community characteristics are still apparent in recent times. As late as the 1960s, studies described African American families as having strong and extended kinship ties, adaptability of family roles, bilateral orientation with matrilineal kin carrying more weight, and a high degree of contact and various types of economic and social support among relatives beyond the nuclear family (Robinson-Brown, 1990). Health promotion agents among African Americans still find it effective to work through community and church organizations. However, at present, few reliable data are available on how or whether these traditional African American cultural and social forms of organization have survived or adapted to today's urban circumstances (Jackson, 1981).

Modern Times. In this century, African Americans have experienced new and significant social and demographic changes that may affect their overall health, including a shift from mostly rural to mostly urban residence, desegregation and improved social and economic conditions, and increased social stratification.

Until early in this century, the vast majority of African Americans lived in rural areas of the South. By 1990, more than half had left the South, and 84 percent were living in urban areas. The bulk of this migration was to northern industrial metropolises and occurred between 1940 and 1970 at a pace of 1 million immigrants per decade (Lieberson, 1980; O'Hare, 1987). Population shifts of this magnitude are inevitably accompanied by significant lifestyle and cultural changes that have implications for well-being and health. In 1999, the largest numbers of Black residents lived in the states of New York, California, Texas, Florida, Georgia, and Illinois (U.S. Census Bureau, 2001).

Desegregation and the civil rights movement of the 1950s and 1960s opened up unprecedented educational, occupational, and residential opportunities for African Americans. In the ensuing decades, social and economic conditions improved considerably for the majority of African Americans, although inequalities were not eliminated completely (Farley, 1987). These improvements have brought about the emergence of a sizable African American middle class that is in many ways similar to the rest of the country's middle class. At the same time, there has been increased social stratification of the African American population, with great variation in health status and risks. Recently reported health statistics report on both racial and income/poverty categories, making ever more clear the double disadvantage for those who are both African American and poor (National Center for Health Statistics [NCHS], 2000).

For a sizable minority of African Americans, conditions today are in many ways worse than in the past. Many African Americans continue to be poor—the poverty rate for Blacks was 23.6 percent in 1999, more than twice the 11.8 percent rate across all races (U.S. Census Bureau, 2001). Many are now concentrated in so-called high-poverty areas (areas in which 20 to 40 percent of families are officially poor) (Wilson, 1987). These areas also have inordinately high rates of unemployment, crime, substance abuse, and other social problems (Wilson, 1987). The well-being of women in these high-poverty areas is further jeopardized by high rates of teenage pregnancy and single motherhood, and lack of economically supportive male partners (Wilson, 1987; O'Hare et al., 1991). Qualitative data from women in such areas often indicate traumatic conditions of extreme social isolation, stress, and anxiety (Lacey et al., 1993c). Little attention has been paid to the effects of these conditions on health, except for studies of infant mortality and homicide. Only recently have data become available to assess how the health status of the

more severely disadvantaged subgroups contribute to the excessive morbidity and mortality of African Americans overall.

Sociodemographic Characteristics of African American Women

There are approximately 34.7 million Blacks living in the United States, and they comprise 12 percent of the total U.S. population (U.S. Census Bureau, 2001). African American adult women currently number about 15.3 million. Key sociodemographic characteristics of African Americans for 1997 and 1999 are summarized in Table 1. (Data for Whites are included for comparison.) African Americans are less likely to be married, are less educated, and are twice as likely to be in a family living in poverty (U.S. Census Bureau, 2001). African American women are younger and have a higher fertility rate than White women; thus, the African American population is projected to continue to increase faster than the White population (O'Hare et al., 1991). Compared with White women, African American women are disproportionately employed in service and labor positions and have a lower median income. The proportion of African Americans and Whites who complete high school are now similar, though about twice as many Whites are college graduates or have earned higher academic degrees (U.S. Census Bureau, 2001).

The well-being of many women also is tied to the financial situation of the men in their lives. Employment and income disparities by race are stronger among men than among women. Compared with White men, African American men have a lower median income, are more likely to be unemployed and experience longer periods of unemployment (O'Hare et al., 1991), are more susceptible to downward economic cycles, and experience greater difficulties in obtaining jobs, especially first jobs, even when all other personal characteristics are equal (Kirschenman and Neckerman, 1991). The economic status of African American women and children is further jeopardized by a dramatic decline in the proportion of women who are married and an increase in the proportion of female-headed families.

HEALTH STATUS INDICATORS

Life Expectancy and Infant Mortality

Life expectancy and infant mortality are sensitive indicators of the overall health of a population, with high rates generally associated with severe poverty and social inequality (Kaplan, 1989; Wilkinson, 1992). Throughout this century, the life expectancy of African Americans has remained lower than that of the total population (U.S. Department of Health and Human Services [USDHHS], 1991a,b). For women, the gap has decreased, from a difference of 9.3 years in 1950 (USDHHS, 1991a) to a difference of 5.2 years in 1998 (NCHS, 2000), with most of the reduction occurring between 1950 and 1970 (O'Hare et al., 1991; USDHHS, 1991a). For both Blacks and Whites, life expectancy is higher and has improved more in women than in men between 1940 and 1990 (O'Hare et al., 1991).

African American women continue to have higher maternal and infant mortality rates compared with other women (Wegman, 1992). The infant mortality rates in 1992 were 6.9 per 1,000 for White women and 16.8 per 1,000 for African American women (Centers for Disease Control and Prevention [CDC], 1994b). Both groups had improved by 1998, with infant mortality rates of 6.0 per 1,000 for White women and 13.9 per 1,000 for African American women (NCHS, 2000).

Leading Causes of Mortality and Morbidity

The Secretary of Health and Human Services' Task Force on Black and Minority Health (USDHHS, 1986a) identified six causes of death that, taken together, accounted for more than 80 percent of mortality among African Americans. These conditions were cancer, cardiovascular disease and stroke, chemical dependency (measured by deaths attributed to cirrhosis), diabetes, homicide and accidents, and infant mortality. As shown in Table 2, all cancers combined have accounted for about one fifth of all deaths among African American women since 1981. By 1998, there had been some changes in the leading causes of death, such that pneumonia and influenza, chronic obstructive pulmonary disease, septicemia, kidney disease, and AIDS are now among the top 10 causes of death for African American women (NCHS, 2000). AIDS is now the tenth leading cause of death and accounts for 1.6 percent of all deaths among Black women (NCHS, 2000).

Risk Factors

Health risk factors with disproportionately high prevalence among African American women include obesity, diabetes, and hypertension. These risks are interrelated. Using age-adjusted data, from 1988 to 1994, more than 66 percent of African American women were considered overweight (body mass index greater than or equal to 25), and more than 37 percent were obese (body mass index greater than or equal to 30) (NCHS, 2000). This is a higher rate of overweight and obesity than for any other reported racial minority (NCHS, 2000). The prevalence of diabetes is 1.7 times as high among African Americans as among Whites (American Diabetes Association, 2001). The overall Black rate for diabetes is 10.8 percent among Blacks (American Diabetes Association, 2001). Hypertension remains an important risk factor for coronary heart disease and cerebrovascular disease. Hypertension among African American women is 1.75 times more prevalent than among White females, with 33.9 percent of African American women and only 19.3 percent of White woman diagnosed with hypertension (NCHS, 2000).

Other factors contributing to the overall poorer health and lower life expectancy of African Americans include lifestyle habits (such as smoking, diet and lack of physical activity), occupational influences, a greater likelihood of experiencing life stressors, and individual and systematic barriers to preventive health care (USDHHS, 1986b; NCHS, 2000). Similarly, the main risk factors for cancer incidence are

cigarette smoking, diet- and nutrition-related factors, and exposure to occupational and environmental carcinogenic agents and radiation (USDHHS, 1986b). Many African Americans consider stress a serious cause of disease, including cancer (Williams, 1993).

Smoking. Cigarette smoking is the chief cause of lung cancer and a causal factor for cancers of the mouth, larynx, esophagus, stomach, bladder, pancreas, liver, and kidney, as well as for myeloid leukemia (USDHHS, 1989b; Doll, 1996). The overall cancer mortality rate of smokers is twice that of nonsmokers. Cigarette smoking is a major risk factor for cardiovascular disease, chronic obstructive pulmonary disease, and other major diseases, as well as for pregnancy complications and infant and child health problems (USDHHS, 1986b; U.S. Environmental Protection Agency, 1992).

In 1998, overall smoking prevalence rates were 21 percent for African American women and 23 percent for White women (NCHS, 2000). This rate represents a considerable decline since 1985. However, smoking prevalence is higher and is not declining among young, uneducated, and poor women (CDC, 1993a, 1994a; Novotny et al., 1988; Pierce et al., 1989). For African American women in programs serving primarily poor women, smoking rates have been found to range from 42 to 49 percent (Schramm, 1985; Burling et al., 1991; O'Campo et al., 1992; Jones et al., 1994).

African American women start smoking at an older age than White women and smoke fewer cigarettes daily. Among women who ever smoked daily, 5.9 percent of Blacks first tried a cigarette before the age of 12, compared with 8.9 of Whites and 6.9 percent of Hispanics; 66.8 percent of Blacks, compared with 85.9 percent of Whites and 68.6 percent of Hispanic women, reported having tried smoking before the age of 18 (USDHHS, 1998). However, smoking prevalence by race converges by the age of 25 (Geronimus et al., 1993).

NHIS data indicate that 4.5 percent of Black women were heavy smokers, compared to 14.0 percent of White and 2.1 percent of Hispanic women. The mean number of cigarettes smoked per day for Black women was 11.0 (± 1.0), compared with 16.1 (± 0.4) for White women and 9.1 (± 0.9) for Hispanic women (NCHS, 1998; USDHHS, 1998, p.44). Despite heavier smoking among White women and greater reported levels of nicotine dependence, Black women have been found to have higher blood levels of cotinine than White women who smoke comparable quantities of cigarettes (Ahijevych et al. 1996; Caraballo et al. 1998; USDHHS, 1998, p.88) These data may explain why Black women have greater difficulty quitting smoking even though 74.9 percent of African American women smokers have said they want to stop smoking (USDHHS, 1998, p.579).

Among women smokers, the lifetime mean number of quit attempts was 8.1 (± 3.0) for Black women, and 6.1 (± 1.2) for White women (NCHS, 1992; USDHHS, 1998, p. 97). But Black women are significantly less likely to quit than White women (Novotny et al. 1988; Fiore et al. 1990; Hatziandreu et al. 1990; McWhorter et al. 1990, USDHHS, 1998, p. 101). Cessation has been found to be lowest among Black women (34.3 percent) and highest among White women (47.7 percent) (USDHHS, 1998, p.101).

Although it is not clear what the relationship is between quitting and the use of mentholated cigarettes among African American women, 90 percent of African American women in an Ohio study reported smoking mentholated cigarettes (Ahijevych and Wewer 1993; USDHHS, 1998, p.46). In this same study, the most popular brands used were Newport, Kool, Salem, Benson & Hedges, which combined accounted for 78 percent of the brands smoked (Ahijevych and Wewer 1993). The widespread use of mentholated cigarettes (which allow for greater smoke inhalation) by African American women may offset the benefits of reduced cigarette consumption (USDHHS, 1991c). In addition, it has been postulated that more frequent smoking of menthol cigarettes by African Americans contributes to their rates of lung cancer, (Harris et al., 1993; USDHHS, 1998, p.142), although the specific mechanism is unknown.

Smokeless tobacco use has also been linked to several types of cancer including oral cancer and oral leukoplakia, and gingivitis recession, periodontal disease, elevated blood pressure, and increased risk for cardiovascular disease (NCI, 1992; USDHHS, 1994; Bolinder et al., 1994; USDHHS, 1998, p.174). Although the use of smokeless tobacco is low among women, Black women (1.0 percent) are more likely to use smokeless tobacco than White women (0.2 percent) (NCHS, 1998; USDHHS, 1998, p.119). Smokeless tobacco use is greater among older Black women (Rouse 1989; Bauman et al. 1989; USDHHS, 1998, p. 119).

Dietary Factors. In the overall population, dietary factors are estimated to account for 35 percent of cancer deaths (Doll and Peto, 1981; World Cancer Research Fund, 1997). Current recommendations are to reduce the consumption of total fat to no more than 30 percent of daily caloric intake; increase the intake of grains, fruits and vegetables, and certain vitamins and minerals; and maintain optimal body weight (USDHHS, 1990, 2000). More than half of all African American women are overweight, and nationally representative dietary data suggest that Black non-Hispanic women consume fewer grains, vegetables, fruit, and milk than White or Hispanic women, and more meat, discretionary fat and added sugars (Kumanyika and Krebs-Smith, 2000). However, evidence from other dietary studies of health risks is contradictory. Some sources show that, compared with Whites, African Americans consume more animal fat, less fiber, and fewer fruits and vegetables (Hargreaves et al., 1989). Other studies indicate similar or even better dietary patterns among African Americans (USDHHS, 1991a). African American females participating in the baseline survey of the Multiethnic Cohort Study had relatively low intakes of

vegetables, but higher intakes of fruit (Kolonel et al., 2000). On average, Americans are not meeting any of the dietary recommendations aimed at reducing cancer risks.

Extent of Physical activity. In the population, findings from observational studies suggest that physical activity can lower overall cancer incidence and mortality rates (Thune and Furberg, 2001). Current physical activity recommendations suggest that every adult accumulate at least 30 minutes of moderate-intensity physical activity at least 5 days of the week (USDHHS, 1996). Compared to Whites, African American women are less active (Crespo et al., 1996; Crespo et al., 2000; Jones et al, 1998; USDHHS, 1996). Approximately 24.1 percent of African American women meet the Surgeon General's recommendation for physical activity, compared with 31 percent of White women (Jones et al, 1998). The percentage of African American women who accumulate 30 minutes of moderate-intensity activities at least 5 days of the week ranges from 12.6 percent to 18 percent, whereas between 19.8 percent and 21.5 percent of White women engage in this extent of activity (USDHHS, 1996). Similarly, fewer African American women do 20 minutes of moderate to vigorous physical activity at least 3 days of the week (ranging from 9.4 percent to 10.4 percent) than do White women (15.9 percent to 17.1 percent) (USDHHS, 1996). Finally, more African American women are inactive than White women ((33.2 to 42.7 percent of African Americans compared with 23.1 to 28.2 percent of Whites) (Crespo et al., 2000; USDHHS, 1996).

Occupational and Environmental Risk Factors. Carcinogenic agents in the workplace include certain metals, solvents, dyes, organic and inorganic dusts, pesticides, and herbicides; in some industries, radiation exposure also is a cancer risk (USDHHS, 1986b). Exposure to these cancer risks is associated primarily with blue-collar occupations and within industries with more hazardous jobs, which historically have gone to African Americans (USDHHS, 1986a; Olden et al., 1989). However, evidence regarding occupational cancer risks is based primarily on studies conducted with male workers. The degree to which occupational exposure risks also affect African American women is unknown, and it is unclear what role, if any, occupational exposures may play in the etiology of Black female cancers.

Attempts to isolate environmental cancer risks have focused on urban pollution, especially motor vehicle exhaust and residence in proximity to heavy industry or hazardous waste dumps (Swanson et al., 1993). African Americans are more likely than nonminorities to live in residential areas where environmental and urban pollution are the highest (Williams, 1993).

Extent of Medical Services Utilization and Insurance Coverage. African Americans have a lower average number of physician contacts than Whites, in spite of their greater morbidity (USDHHS, 1991a). A 1986 national survey on use of health services showed a significant deficit in access to health care among

African Americans compared with White Americans, and the gap occurred at all income levels (Blendon et al., 1989). The less-than-optimal African American access to health care—especially to elective preventive health care—is clearly illustrated by national statistics on health insurance coverage (USDHHS, 1989a). Compared with Whites, African Americans are less likely to have private insurance coverage (52.9 percent versus 80.8 percent) and employment-related insurance (48.5 percent versus 69.1 percent), and more likely to have public insurance coverage only (25.1 percent versus 6.8 percent) or to be uninsured (22.0 percent versus 12.4 percent). Among people over age 65, African Americans are more likely than Whites to have only Medicare (35 percent versus 16 percent) or Medicare plus Medicaid (20 percent versus 5 percent). Out-of-pocket medical expenditures are a greater burden for low-income individuals, who may therefore forego needed care when it is not perceived as essential. Health care expenditures represent about 18 percent of total income for individuals in the lower 20 percent of income brackets, compared with about 2 percent for those in the top 20 percent (USDHHS, 1991a).

Available data for 1997-98 indicate that African Americans of both sexes are more likely than Whites to have no usual source of health care (18.7 percent versus 16.9 percent) (NCHS, 2000). These data now provide a breakdown by poverty status, and show that the poor and near-poor Blacks are much more likely to not have a regular source of health care than are nonpoor Blacks (23 to 25 percent compared with 14 percent) (NCHS, 2000).

African Americans are more likely than nonminority individuals to receive care in hospital emergency rooms, outpatient departments, or public health clinics rather than in private physician offices (USDHHS, 1991a). In these settings, they are more likely to experience discontinuity of care and to be treated only for the immediate problem at hand. Interaction with the health care provider may be such as to include little patient education.

CANCER STATISTICS

Data Sources and Limitations

The main sources of cancer statistics for African American women are the same as those for the general population. Mortality data are obtained from National Center for Health Statistics (NCHS) public use tapes. Incidence and survival data are obtained from NCI's Surveillance, Epidemiology, and End Results (SEER) Program. A comprehensive analysis of cancer statistics on minorities was presented in the *Report of the Secretary's Task Force on Black and Minority Health, Vol. 3: Cancer for the period from 1978 to 1981* (USDHHS, 1986b). More recent data are included in the *SEER Cancer Statistics Review for 1973-94* (Ries et al., 1997) and *for 1973-96* (Ries et al., 1999); in the report *Racial/Ethnic Patterns of*

Cancer in the United States 1988-1992 (Miller et al., 1996); and on the *SEER 3.0 Public Use CD-ROM* (NCI/SEER, 2000). In contrast to the available data on other minorities, the SEER data are considered to reflect adequate representation of African Americans (Miller et al., 1996).

Neither the SEER nor the NCHS data routinely include information about individual socioeconomic status. Cancer statistics for African Americans reflect a greater likelihood of being in the lower SES strata; nevertheless, two thirds of African Americans are not poor. Although there is no medical evidence that the differences in cancer patterns by race can be traced to genetic explanations, interpreting the cancer statistics for African Americans as interchangeable with low SES also may be misleading. The variable "race" subsumes potential cultural differences, such as diet and lifestyle; economic factors such as access to care; and educational factors such as knowledge about guidelines for early detection and treatment.

Identifying correlations between cultural factors and cancer incidence may improve our understanding of risk factors. Potentially useful clues are not likely to emerge from existing national statistics on cancer in African Americans without first separating the overpowering interaction of race and SES. Although data to conduct such analyses are not readily available, interesting findings about cancer incidence and mortality rates have emerged when using surrogate SES indicators, such as type of hospital, census tract characteristics, or other aggregate data (Freeman, 1989; Funch, 1985; Baquet et al., 1991; McWhorter et al., 1989; Breen et al., 1999; Dignam, 2000). In the following discussion of cancer incidence, mortality, and survival rates, the relative effect of race and SES will be addressed wherever that information is available.

Overall Incidence, Mortality, and Survival

Incidence Rates and Trends. Disparity in cancer incidence rates for African Americans has been well documented, and it continues to exist (Baquet and Ringen, 1986; American Cancer Society [ACS], 2000; Miller et al., 1996). African Americans have higher overall cancer incidence rates and lower survival rates than Whites. In 1994, the age-adjusted incidence rates were 456.0 per 100,000 for African Americans and 409.6 per 100,000 for Whites (Ries et al., 1997). Rates for African Americans were 444.6 per 100,000 in 1999 (American Cancer Society, 2000). The excessive cancer incidence for African Americans is largely the result of the high rate for males. For African American women, the incidence rate for all cancer sites in 1999 combined was lower than that for White women (337.4 per 100,000 for African Americans versus 352.4 per 100,000 for Whites) (American Cancer Society, 2000).

Incidence rates for the major cancer sites from 1992 through 1998 are shown in Table 3 for African American and White women. In both racial groups, the breast, lung, and colon and rectum are the three

sites with the highest cancer incidence rates. Much of the lower overall incidence for African American women is a result of their lower incidence of cancers of the breast, uterus, and reproductive sites other than the cervix. African American women also have lower incidence rates for cancers of the skin and bladder and for lymphomas and leukemia. However, African American women have higher incidence rates of multiple myeloma and cancers of all digestive system sites combined and of all respiratory system sites combined, and about the same incidence for cancer of the cervix (NCI/SEER, 2000).

Table 4 shows the trends in cancer incidence between 1992 and 1998. In this period, overall incidence rates decreased annually by 0.1 percent for African American women while increasing by 0.3 percent for White women. This represented a downturn from the period between 1973 and 1992, during which there were 18 and 14 percent increases for African American and White women, respectively. Much of that increase in cancer incidence was believed to be explained by known factors, including improved detection, increased cigarette smoking in women, and sunlight exposure. However, some of the increased incidence remained unexplained (Devesa et al., 1995).

The cancers with the greatest decreases in incidence in African American women were cancer of the cervix and leukemia. African American women's annual estimated percentage increase in incidence rates was only significantly different from zero for non-Hodgkin's lymphoma, although for this cancer and for cancer of the stomach the estimated annual percent increase was higher than that for White women. (NCI/SEER, 2000).

Incidence by Socioeconomic Status. The patterns of overall cancer incidence by race change when adjusting for SES. In one study, adjusting for median income, education, and population density of the census tract reversed the race-related risk for cancer of all sites combined, giving African Americans (males and females combined) a significantly lower overall cancer incidence risk than Whites (Devesa et al., 1995). The effect of adjusting for these SES indicators varied by cancer site. There was a dramatic reversal for incidence of lung cancer, with a higher incidence for White than for African American women after controlling for SES. However, incidence of cancers of the cervix, esophagus, pancreas, colon, and prostate, as well as of multiple myeloma, remained higher for African Americans after controlling for SES (Devesa et al., 1995).

Mortality Rates and Trends. African American women have an overall higher cancer mortality rate than White women, despite their lower overall cancer incidence. Mortality and 5-year relative survival rates are shown in Table 3. From 1992 through 1998, the annual age-adjusted cancer mortality rates for all sites combined were 166.6 per 100,000 for African American women compared with 138.0 per 100,000 for White women. The 5-year relative survival rates (1988 to 1997) for all sites combined were 51.7 percent

for African American women and 62.2 percent for White women. African American women had higher mortality rates for all cancers listed and poorer survival rates for all cancers except those of the stomach, gallbladder, ovary and non-Hodgkin's lymphoma and multiple myeloma—the latter site being the cancer where 5-year relative survival rates were higher among African Americans compared with Whites (NCI/SEER, 2000).

Risk factors for poor survival include delayed detection and treatment, less-than-optimal initial and follow-up treatment, and lack of support and resources to cope with treatment and the disease (Freeman, 1989; Long, 1993; Breen et al., 1999; Dignam, 2000). Differences in survival by race are less clear after controlling for age and stage of disease, and vary depending on cancer site (Ragland et al., 1991), though stage at diagnosis did not fully account for differences in outcomes between African American and White women in a review of recent studies (Dignam, 2000). More African American than White breast cancer patients did not receive the "minimum expected therapy," according to the Black-White Cancer Survival Study (Breen et al., 1999). Also, when stage and treatment were comparable within a trial, outcomes for Black women did not differ from those for Whites (Dignam, 2000); this suggests that treatment disparities may be important contributors to differential survival rates. Being African American appears to aggravate the negative effect of low SES on survival, but may have little effect in the higher SES groups (Farley and Flannery, 1989; Wells and Horm, 1992). In the following sections, incidence, mortality, and survival patterns are discussed for cancers of the breast, cervix, colon and rectum, and lung.

Breast Cancer

Breast cancer remains the most common type of cancer in women. Estimates indicate that one in eight women will develop breast cancer by age 85 (ACS, 2000). The annual incidence rates for 1992 through 1998 were 101.5 per 100,000 for African American women and 115.5 per 100,000 for White women (see Table 3). Incidence for women younger than age 50 is higher for African American women (Wilson, 1989). Breast cancer incidence has increased steadily among African Americans as well as among White women since 1992, but the increase has been relatively less for African Americans (see Table 4). Increased incidence has been attributed to the increased use of mammography during this period, as indicated by the large proportion of cancers detected at an early stage (Miller et al., 1992; Simon et al., 1993; Swanson et al., 1993). The increase in incidence has slowed since the early 1980s, as would be expected after screening has been in effect for a while (Miller et al., 1992). However, a true increase in breast cancer incidence also may have occurred because asymptomatic tumors accounted for only 40 percent of the increased incidence among White women and only 25 percent of the increased incidence among African American women (Liff et al., 1991). The decrease in mortality that should follow widespread screening had not yet occurred by 1990, but became apparent in the mid-1990s. For African

American women, breast cancer mortality decreased in the years 1992-98, but at a rate lower than the decrease in White women (see Table 4).

Increasing age is the greatest risk factor for contracting breast cancer, starting at age 40 and becoming more significant as a woman gets older. Other risk factors include family history of breast cancer, early age at menarche, late age at menopause, nulliparity or late age at first birth, and higher SES (Miller et al., 1992; Mayberry and Stoddard-Wright, 1992). Variability in cancer incidence rates on an international basis also correlates with variations in diet, especially fat intake, although a causal role has not been firmly established (Doll and Peto, 1981). In general, the risk factors are the same for African American and White women. However, there appear to be differences in the relative importance of family history and age at menarche, and a long history of oral contraceptive use may be a risk factor for African American women, but not for White women (Mayberry and Stoddard-Wright, 1992).

Breast cancer is more prevalent among high-SES than among low-SES women. Adjusting for income level reduces, but does not eliminate, the excessive breast cancer incidence for White women (Baquet et al., 1991; McWhorter et al., 1989). African American women have lower breast cancer incidence than White women in the lowest income groups but somewhat higher rates at the top income levels (Baquet et al., 1991). The effect of higher SES on breast cancer is suspected to be mediated by nulliparity and late age at first birth, because these variables are strongly interrelated.

African American women have a higher rate of breast cancer mortality than White women in spite of their lower incidence rate. Breast cancer mortality from 1992 through 1998 was 31.3 per 100,000 for African American women and 24.3 per 100,000 for White women (see Table 3). Between 1992 and 1998, mortality for African American women fell by 0.6 percent annually (see Table 4). However, the estimated annual percentage reduction for White women was higher (reduction of 2.7 percent). There also has been improvement in breast cancer survival for Black women. The 5-year relative survival rate for African American women was 47 percent for the period 1955 through 1964, 61 percent for the period 1973 through 1979 (Funch, 1985), 64.1 percent for 1983 through 1989 (Miller et al., 1992), and 73.8 percent for 1992 through 1998 (Ries et al., 1997; NCI/SEER, 2000) (see Table 3). For White women, the survival rate for the period 1992 through 1998 was 86 percent (NCI/SEER, 2000).

Breast cancer in African American women is more likely to be diagnosed at later stages than it is in White women (Richardson et al., 1992; Saunders, 1989), with about 14 percent fewer cases in situ or at Stage I and about 11 percent more cases in Stage IIB or later stages (Ries et al., 1997). After controlling for SES, African American women have later-stage diagnoses than White women in the lower SES categories only (Farley and Flannery, 1989; Wells and Horm, 1992). Factors that mediate the effect of

low SES on later stage at diagnosis in African American women include poorer access to health care, lack of regular mammography and clinical breast examinations, patient delay in seeking care (Long, 1993; Ragland et al., 1991), and possibly increased body mass index (Hunter et al., 1993).

Although survival improves with earlier diagnosis, breast cancer survival rates remain lower for African American women within each stage of diagnosis (Ries et al., 1997; Dignam, 2000). There is speculation about whether the lower survival rates of African American women may be the result of more aggressive manifestations of the disease (Long, 1993), including greater lymph node involvement (Bain et al., 1986) and a higher proportion of tumors that are receptor-negative (Stanford and Greenberg, 1989; Mohla et al., 1989). In the SEER data, African American women with breast cancer are younger and have larger tumors and greater axillary node involvement than White women. Other studies have found incidence at a younger age to be the only clear difference between African American and White women in the natural history of breast cancer, with no significant differences in survival when adequately treated (Briele et al., 1990).

African American women may be less likely than White women to receive state-of-the-art diagnostic procedures and treatment for breast cancer (Diehr et al., 1989; McWhorter and Mayer, 1987; Breen et al., 1999). Treatment differences associated with race are difficult to confirm, but recent studies appear to document those differences while controlling for stage at diagnosis (Breen et al., 1999; Dignam, 2000). The breast cancer treatment received by African American women may be affected more by the types of hospitals where they are treated than by different treatment within the same institutions (Hand et al., 1991).

In summary, breast cancer incidence rates are increasing among African American women and mortality rates are decreasing. Because there is no known primary prevention for breast cancer, the most important tool for women is early detection through mammography and clinical breast examination. The performance of these measures by physicians remains below recommended levels (Manfredi et al., 1998; McPhee et al., 1986; Salive et al., 1996). The differences in early detection, stage at diagnosis, and treatment, and the potentially different tumor types and disease progressions, should be the focus of further research.

Cervical Cancer

Cervical cancer accounts for a relatively small proportion of overall cancer incidence and mortality—about 4 percent. Invasive cervical cancer incidence rates (all diagnoses) from 1992 through 1998 were 11.1 per 100,000 for African American women and 8.1 per 100,000 for White women (see Table 3). For those over age 50, the rates for Blacks (26.6) were almost twice those for Whites (13.8) (Ries et al., 1999).

Since the 1950s, incidence rates have been declining among women of both races (Ries et al., 1997; NCI/SEER, 2000). Most of this decreased incidence is attributed to more widespread screening through the Pap test. Incidence also may be affected by the many hysterectomies performed in this country (Baquet and Ringen, 1986; Schairer et al., 1991).

The association of cervical cancer incidence with age is different for African American and White women. Among African American women, incidence continues to increase steadily up to age 80 and older. Among White women, incidence peaks at ages 40 through 44, and increases very little at all later ages (Ries et al., 1997). Increased incidence of cervical cancer at older ages is attributed to a combination of lack of screening in earlier years and a decreased likelihood of screening for older women (Miller et al., 1992). However, the difference in incidence by age in African American women compared with White women is so large, and follows such a different pattern, that it is doubtful whether it can all be accounted for by screening patterns.

Cervical cancer incidence is strongly associated with low SES. The association remains significant after controlling for age and race (Funch, 1985). However, the excessive incidence among African American women compared with White women tends to disappear when controlling for SES (McWhorter et al., 1989), or it persists only in the lowest income groups (Baquet et al., 1991).

In assessing risk factors for cervical cancer, it must be remembered that incidence rates reported in all but the most recent data exclude *in situ* cases and reflect only localized or later stages (Miller et al., 1992; Baquet and Ringen, 1986; NCI/SEER, 2000). Incidence rates thus reflect the likelihood of receiving Pap tests at regular intervals, in addition to risk factors associated with actual onset of pathological changes. Possible risk factors in the development of cervical cancer include sexual practices (number of sexual partners or marriages, age at first coitus, and exposure to human papillomavirus) and cigarette smoking (Brinton and Fraumeni, 1986; Devesa et al., 1989). These factors are associated with low SES (Funch, 1985) and, except for cigarette smoking, are more prevalent in African American women than in White women (Schairer et al., 1991).

Mortality rates for cervical cancer from 1992 through 1998 were 5.7 per 100,000 for African American women and 2.4 per 100,000 for White women (see Table 2). These rates represent a decrease since the early 1990s of 4.8 percent annually for African American women and 1.8 percent annually for White women (see Table 4). The reduction in mortality is the result of both reduced incidence and improved survival. Between the periods 1974 through 1976 and 1986 through 1993, 5-year relative cervical cancer survival remained stable for White women (69.5 versus 71.4 percent, respectively) and decreased from 63.6 percent to 57.1 percent, respectively, for African American women (Ries et al., 1997). For the period

1988 to 1997, Black 5-year relative survival (67.8 percent) remained significantly lower as compared to White 5-year relative survival (77.7 percent).

Factors associated with poorer cervical cancer survival include later stage at diagnosis and older age. Five-year survival rates are 90 percent for those diagnosed with localized disease but only 13 percent for women with distal disease. Only about 40 percent of cervical cancers among African American women are detected while the disease is localized compared with 54 percent among White women. Five-year relative survival decreases steadily with age for all women. For women younger than age 65, survival rates for the period 1986 through 1993 were 59.3 percent for African American women and 76.3 percent for White women. The corresponding rates for women older than age 65 were 50.0 and 50.6 percent, respectively (Ries et al., 1997). Improvements in screening are still needed, especially for older African American women, who have the greatest risk of incidence and a low likelihood of receiving regular Pap tests.

Colon and Rectal Cancer

Colorectal cancer is the third most frequently diagnosed cancer among women. Incidence rates from 1992 through 1998 were 44.7 per 100,000 for African American women and 36.3 per 100,000 for White women (see Table 2). Between 1973 and 1994, colon cancer in African American women increased by 28.3 percent, whereas it decreased for White women by 9.2 percent. It decreased in both races from 1992 to 1998, at about the same annual percentage for Whites as for Blacks (0.3 versus 0.4 percent decrease) (see Table 4). There is no clear association between colon cancer incidence and socioeconomic status in African American women (Baquet et al., 1991; McWhorter et al., 1989).

Risk factors for colorectal cancer include older age, personal or family history of cancer or polyps of the colon or rectum, and inflammatory bowel disease. A diet that is high in fat and low in fiber also may be associated with an increased risk of colorectal cancer (Doll and Peto, 1981). In the years 1992 to 1998, African American women had a higher incidence than White women for cancers of all digestive system sites combined (77.1 versus 57.0 per 100,000) (see Table 2). From 1992 to 1998, too, cancer incidence for digestive system sites overall, and for colon cancer in particular, has decreased for both African American and White women, with a faster rate of decrease occurring among White women (see Table 4).

Mortality rates for cancers of the colon and rectum combined are 19.6 per 100,000 for African American women and 13.9 per 100,000 for White women (see Table 2). Survival rates for cancers of the colon and rectum are significantly lower for African American women than for White women (see Table 2). Between 1973 and 1994, mortality from colorectal cancer fell 27.2 percent for White women but dropped only slightly (0.1 percent) for African American women. Significant annual declines in mortality have been

observed only among Whites from 1992 to 1998—African American women have been unable to narrow that gap (see Table 4).

Colorectal cancer has a survival rate of nearly 90 percent when diagnosed at the localized stage, but survival within each stage is lower for African American women. Only about one third of cases are diagnosed when still localized, with little difference by race (Ries et al., 1997). This proportion could be improved with better early detection practices.

Digestive Tract Cancers

African American women are more likely to develop digestive cancers than White women, with incidence rates per 100,000 women at 77.1 and 57.0, respectively (see Table 2). Several factors may help explain the high rates of digestive tract cancers (colon, stomach, and pancreas) among African American women. *Helicobacter pylori*, bacteria found in the stomach, are an important cause of stomach cancer (Graham, 2000), and this bacteria has been found to be more prevalent in African Americans than Whites (Brown, 2000). Low fruit and vegetable consumption, common in African American women, is also a risk factor for cancers of the stomach (La Vecchia, 2000), colon (Potter, 1996), and pancreas (Gold, 1998). High fiber has a protective effect against pancreatic (Gold, 1998) and colon cancer (Potter, 1996), but African American women have relatively low intakes of fiber.

Lung Cancer

As the second most common cancer in women, lung cancer is a major contributor to overall cancer incidence. The proportion of cancer mortality attributed to lung cancer is particularly striking, given that most lung cancer cases are concentrated in the approximately one third of the population that smokes. From 1992 through 1998, the incidence of lung cancer (including cancer of the bronchus) was 45.7 per 100,000 for African American women and 43.6 per 100,000 for White women (see Table 2). Incidence rates increased in the 1970s and 1980s (Ries et al., 1987), but are beginning to decrease slightly in women of both races since 1992 (NCI/SEER, 2000) (see Table 4).

Lung cancer incidence is associated with low SES (Baquet et al., 1991). African American women have lower lung cancer rates than White women in the lower income categories and similar rates in the higher income categories (McWhorter et al., 1989). These patterns reflect smoking prevalence patterns.

Cigarette smoking is the major causal factor for lung cancer, and the connection between smoking and lung cancer is clear. Besides cigarette smoking, other risk factors for lung cancer include exposure to certain industrial substances, such as arsenic, organic chemicals, and asbestos, particularly

synergistically with smoking (Miller et al., 1992). However, most of these additional risks are restricted to specific occupational groups, or their effect is less clear than the risk posed by smoking.

From 1992 through 1998, age-adjusted lung and bronchus cancer mortality rates were slightly higher for African American than for White women—about 34 per 100,000 versus 31 per 100,000 (see Table 2). Because of its increased incidence, and because early detection is difficult and survival generally poor, lung cancer is now the leading contributor to overall cancer mortality in women. Overall survival rates are slightly better for women than for men, but are still only between about 18 and 20 percent for Black and White women, respectively (see Table 2). Survival is better when the disease is localized, but only a small fraction of all lung cancer cases are diagnosed at this early stage. There was little improvement in lung cancer survival between 1973 and 1993 (Ries et al., 1997), but substantial mortality decreases were seen between 1992 and 1998 (see Table 4) (NCI/SEER, 2000).

Early lung cancer detection is difficult because symptoms may not appear until the disease is advanced. Avoidance of smoking is the best way to prevent lung cancer. Unless current smoking trends change, African American women will continue to bear a heavy mortality burden from smoking.

CANCER CONTROL INTERVENTIONS

Early Detection and Screening

Screening Guidelines and Prevalence. The breast, cervix, and colon and rectum are the cancer sites for which screening has the greatest potential for reducing overall cancer mortality among women. Effective early detection procedures exist for these cancers, and guidelines for their regular application have been issued by the American Cancer Society (ACS) and NCI, as well as by other professional organizations. For mortality reduction from breast, cervical, and colorectal cancer, age-appropriate screening tests are strongly recommended.

Estimates of screening rates for African Americans and Whites are available from two periodic surveys: the National Health Interview Survey (NHIS), a continuing national household survey conducted by the NCHS, and the Behavioral Risk Factor Surveillance System (BRFSS) survey, conducted annually by the the national Centers for Disease Control and Prevention (CDC). Screening rates based on the 1987 and 1992 NHIS (CDC, 1995) are shown in Table 5. These data show that over this period, there was a considerable increase in the proportion of women who had a mammogram in the preceding year. There were only minimal differences by race in the proportion of women screened for cervical, breast, and colorectal cancer. However, these overall rates of screening still fell short of the year 2000 objectives.

The proportion of women age 40 or older who had had a mammogram within the previous 2 years was much higher by 1998, at 66 percent for African American women and 68 percent for White women (NCHS, 2000).

The proportion of women screened for breast and cervical cancer is lower among older and poorer women, although the gap is decreasing (CDC, 1993b,c; NCHS, 2000). By 1990, almost all women younger than age 70 had received at least one Pap test during their lifetime (CDC, 1993b; NCHS, 1993). However, screening at regular intervals is still deficient. In 1990, only about half of all African American women had received a Pap test in the previous year (CDC, 1993b,c), and this proportion was lower among older and poorer women. Screening of older and poorer African American women increased between 1973 and 1985 (Makuc et al., 1989). However, the data in Table 5 suggest little further improvement between 1987 and 1992 in the proportion of those who had recently had Pap tests; indeed, the percentage of White women receiving Pap tests decreased slightly in that period. Several studies have provided insights into factors affecting African American women's use or nonuse of mammography screening exams (Glanz et al., 1996; Crump et al., 2000; Zhu et al., 2000a,b).

Table 5 shows that the guidelines for early detection of colorectal cancer are still poorly applied. Only between 12 and 16 percent of all women aged 50 and older received regular Hemoccult slide tests in 1992. Moreover, recent data suggest that many adults aged 50 and older are not receiving endoscopic exams as recommended.

Cancer Screening and Stage at Diagnosis by Race. Although still indicating a need for greater screening efforts, the NHIS data do not clearly support the general assumption that the later stages at diagnosis of breast and cervical cancers in African American women are the result of a decreased likelihood of receiving early detection exams. From 1986 through 1993, about 14 percent fewer cases of breast cancer were diagnosed in situ or localized in African American women than in White women (40.7 percent versus 54.7 percent, respectively) (Ries et al., 1997), but the prevalence of mammography in African American women appears to be only slightly lower than in White women (see Table 5). The likelihood of receiving a mammogram decreases significantly with low income, but BRFSS data suggest that in the lower income categories, mammography is more prevalent in African American women than in White women (CDC, 1993b). This pattern has also been observed in the NHIS data (Makuc and Breen 1999). Among women with an annual income of less than \$10,000, the 1989 BRFSS indicated that 53 percent of African American women and 41 percent of White women had had a mammogram in the previous year. In the income bracket of \$10,000 to \$20,000, the percentages were 61 percent and 48 percent, respectively (CDC, 1993b).

National survey data for cervical cancer show little support for lack of screening as an explanation for later stage at diagnosis in African American women. The proportion of cervical cancers found at the localized stage is 40 percent for African American women and 54 percent for White women (Ries et al., 1997). Yet, according to 1989 BRFSS data, 60 percent of African American women in the lowest income bracket had had a Pap test in the preceding year, compared with 48 percent of White women in the same income bracket (CDC, 1993b).

One possible explanation for these inconsistencies is that Pap test rates in African American women started increasing only in the late 1970s or early 1980s and mammography rates only in more recent years, especially for older women (Makuc et al., 1989). Thus, an improved stage at diagnosis may not yet be evident. Another possible explanation is that Pap test screening rates decline with age, whereas cervical cancer incidence increases with age in African American women, but not in White women. However, the difference by race in the proportion of cervical cancers diagnosed at advanced stages is greatest for women younger than age 50, when the difference in incidence by race is still relatively small (Miller et al., 1992). Although continued efforts need to be devoted to increased screening of African American women, the higher proportion of breast and cervical cancers diagnosed beyond the localized stage in African American women compared with White women needs to be researched further. This is especially true given the apparently similar likelihood by race of receiving a mammogram and the greater likelihood of African American women receiving regular Pap tests.

Alternatively, more data are needed to supplement the NHIS and BRFSS findings. The NHIS and BRFSS data reflect self-reported behavior, which has been shown to inflate cancer screening estimates, especially regarding recency of exams (Warnecke, 1981; Whitman et al., 1993), and to be subject to much geographical variation across surveys (NCI's Breast Cancer Screening Consortium, 1990). It also is possible that these telephone survey data underrepresent the most disadvantaged population groups, particularly those women who may be at high risk but are least likely to be identified in telephone sampling. Screening rates determined from medical chart reviews (rather than interviews) and in health care settings serving primarily low-income, urban, African American women yield much lower estimates of screening than those based on NHIS or BRFSS results (Manfredi et al., 1998; Whitman et al., 1991). According to these data, as few as 26.4 percent of women aged 50 and older had had a mammogram, and 38.6 percent of women aged 18 and older had had a Pap test, in the previous 2 years (Lacey et al., 1993a). Of course, data from chart reviews also are subject to bias, particularly due to the quality of record keeping and the possibility that patients may have received the procedures from sources of care other than the one studied. It is not clear by how much the above screening estimates are lower than those from the national surveys because of the different study methods or the special populations studied.

Finally, lack of regular screening may be further aggravated by delay in follow-up of suspicious findings. Adherence to referral for follow-up of abnormal Pap tests and other suspicious findings is low among disadvantaged African American women (Lacey et al., 1993b; Manfredi et al., 1990).

Public Awareness and Behavior

Findings from several studies provide information about the cancer perceptions of African Americans. However, many of the studies were conducted on relatively small or nonrandom samples and often were limited to low-income African Americans, thus limiting the generalizability of their findings. Overall, the available data indicate that African American women tend to overestimate the deadliness of cancer; underestimate cancer prevalence in their population; lack knowledge about cancer-related risks, warning signs, and screening methods; and have a fatalistic attitude about the disease (ACS, 1981; National Analyst, 1982; NCI, 1987; AMC Cancer Research Center, 1995).

Studies conducted in Chicago among generally low-income African American women, including young women smokers, women in several geographic areas, and older women, have provided insights into cancer perceptions such as those discussed above (Lacey et al., 1993c, 1989; List et al., 1994). These women viewed cancer as a fatal disease because they personally knew few individuals who, once diagnosed, had survived cancer. Although they expressed a belief that cancer could be cured if diagnosed early, the women in these studies tended not to think about the disease and did not see screening for early detection as a priority. As possible explanations for the causes of cancer, they suggested such factors as stress, additives and chemicals in food, cigarette smoking, viruses, heredity, and the environment, but most did not really believe that there are specific causes of cancer. Older women did not see age as a risk factor; in fact, they felt that younger women were more at risk for some cancers, such as those of the breast and cervix, because they were more likely to still be sexually active (List et al., 1994).

African Americans have beliefs about health maintenance in general that can lead to practices consistent with cancer prevention. Eating a balanced diet, consuming roughage, taking supplemental vitamins, avoiding salt, quitting smoking, and reducing stress are seen as advisable practices that will prevent debilitation of the body system and make it more resistant to all diseases (National Analyst, 1982). African American women appear to be particularly interested in learning about food and health, especially if the programs are tailored to their experiences and dietary habits (Hargreaves et al., 1989).

As is the case for other smokers, the majority of African American women who smoke would like to quit, plan to do so at some time in their lives, and have tried to quit in the past (Manfredi et al., 1992; Orleans

et al., 1989). However, African American women may be less likely to succeed in quitting (Novotny et al., 1988; Fiore et al., 1989). The decreased likelihood of quitting may be partly the result of limited awareness and limited access to adequately targeted smoking cessation programs. Although there are significant differences between African American and White women in several of the factors associated with smoking cessation—such as beliefs about the health risks of smoking and benefits of quitting, social norms, expectations of social support, and perceived difficulties of quitting (USDHHS, 1991c)—the differences are not so wide nor of such a consistent pattern as to suggest a different process leading to cessation (Orleans et al., 1989; Fiore et al., 1989). However, for many low-SES African American women, barriers to quitting include reliance on cigarettes as a way of coping with staggering life stressors and social isolation, and the perception that the health risks posed by smoking are trivial in the face of other more immediate and visible health risks (Lacey et al., 1993c).

Existing studies provide little additional information about the predictors of cessation among African American women or about factors that help women in cessation programs to remain abstinent. Few programs have been successful in clinic- or community-based settings. In one study, 46 percent of African American pregnant women smokers relapsed after childbirth, compared with 28 percent of White women, but the only significant predictor of relapse was the use of formula instead of breast milk (O'Campo et al. 1992). These findings were consistent with another longitudinal study by McBride et al. (1992) (USDHHS, 1998, p. 487). A study in a primary care prenatal clinic found that NCI's "four A's" protocol (Assess; Advise/educate; Assist; Arrange follow-up) with telephone contact intervention group had a 15.5 percent cotinine-validated abstinence rate, compared to 0.0 percent in the control group. At follow-up, a significantly greater percentage of African American women were abstinent (84.6 percent) compared with 15.4 percent of White women (Gebauer et al. 1998; USDHHS, 1998, p. 580). Lillington et al. (1995) compared Black women who received a culturally appropriate intervention with the control group that received usual care, print materials, and a group message on cessation. At 9-month gestation, 44 percent in the intervention clinics were abstinent, compared with 23 percent in the control group, and 6 weeks after delivery, 27 percent in the intervention group were abstinent compared with 8.5 percent in the control group (USDHHS, 1998, p. 580). Other clinic- and community-based cessation studies have also been conducted among African Americans and have found mixed results with regard to cessation approaches. The results indicate a need to further identify programs that will help African American women quit smoking and remain abstinent.

The limited knowledge about cancer and attitudinal barriers to cancer prevention among African American women can be overcome with culturally appropriate materials and strategies. Evidence is building that African American women respond well to programs that are sensitive to their concerns, are targeted to them, and are delivered through relevant channels (USDHHS, 1991c; AMC Cancer Research Center,

1995; Lacey et al., 1989; List et al., 1994; Whitman et al., 1994). The electronic media and health care providers are just as crucial as sources of health information for African American women as they are for nonminority women (Denniston, 1981). Encouraging results have been achieved in experimental programs aimed at smoking cessation and cancer screening that have been delivered through the mass media (AMC Cancer Research Center, 1995; Warnecke et al., 1991), the health care delivery system (Manfredi et al., 1996; Windsor et al., 1985), the Head Start program (Jones et al., 1994), and community organizations (USDHHS, 1991c; Lacey et al., 1989, 1993b; AMC Cancer Research Center, 1995; Hunkeler et al., 1990).

Several programs have attempted to disseminate cancer knowledge and encourage preventive practices through family and community networks, which may be important channels for health education. The use of lay peer educators from the community has shown promise (AMC Cancer Research Center, 1995; Lacey et al., 1989; Sung et al., 1992; Campbell et al., 1999, 2000). The benefit of using lay workers lies in their credibility in the community and their ability to relate to others in their normal environment. Other community outreach interventions have included securing the cooperation of churches, housing organizations, and other community groups (AMC Cancer Research Center, 1995).

One nationally targeted effort to promote and maintain community outreach on a continuous basis is provided by the Cancer Information Service (CIS), an NCI program to disseminate cancer information and promote cancer prevention and proper cancer treatment to the public. In recent years, local CIS offices across the country have included a community outreach component, for which the objectives include targeted efforts to involve African American communities and institutions in cancer control activities.

Improving Screening and Early Detection

While knowledge, attitudes, and beliefs are important factors that may reinforce screening behavior, these factors alone are not considered sufficient to explain differences in screening prevalence. Much of the recent literature examining disparities in screening has moved from demographic and psychosocial correlates of behavior to health system influences. Characteristics of health care delivery, including health insurance, usual source of health care, and provider gender, age, and specialty are important factors reported to enable people to pursue screening. For women of all ages, Mandelblatt and others have found that having a usual source of health care was the strongest predictor of screening (Mandelblatt et al., 1999). This finding has been confirmed with recent national data showing that having a usual source of care had the strongest influence on screening (O.R.= 4.7), while the odds ratios for insurance coverage and education were smaller (2.7 and 2.1 respectively) (Breen et al., 2001).

A recent meta-analysis evaluating the effectiveness of interventions to promote mammography use among women who historically have underutilized this technology provides evidence that geographical and economic context can influence mammography uptake (Legler et al., 2002). The most effective intervention strategies addressed structural, economic, and geographical barriers to mammography use (i.e., access-enhancing interventions) as well as intrapersonal and interpersonal factors. In contrast, social networks and media campaigns did not show comparable effects. It may be that access-enhancing interventions serve as a bridge between health care settings and the environment in which women reside. Likewise, these strategies may provide cues to prompt behavior. Access enhancements include such strategies as mobile mammography vans, transportation services, low cost vouchers, and translation services.

Individually directed strategies within the health care setting also are effective in improving mammography use and supporting the notion of “inreach.” These strategies recruit women in community health centers and clinics, and in some cases provide a complement to broader community outreach efforts. Strategies shown to be effective in the health care setting include: bilingual program materials; individualized in-person or telephone counseling; individualized letters and reminders; vouchers and coupons; bus passes, appointment scheduling, or other facilitation; and case management or intervention by health educators or lay health advisors (Legler et al., 2001).

While providers are aware of and interested in early detection tests for cancer (Belcher et al., 1988; Gemson and Elinson, 1986), their ability to implement screening guidelines is impeded by factors relating to time constraints, competing health problems, inadequate expertise, insufficient space to carry out the procedures, inadequate reimbursement, provider forgetfulness and inconvenience, and office organization (Gemson and Elinson, 1986; McPhee et al., 1986; Pommerenke and Weed, 1991). Many of these barriers are likely to be more pronounced in the kind of settings where many African American women receive care, such as hospital outpatient areas or emergency rooms, as well as in private practices that have limited resources and serve large volumes of publicly insured patients. Providers' perceptions of their patients also influence who will or will not receive cancer early detection procedures and information (McPhee et al., 1986; Resnicow et al., 1989). African American patients are less likely than their White counterparts to receive cancer early detection tests or other preventive health care measures, even when they receive regular medical checkups (Warnecke, 1981), are in similar health care settings (Gemson et al., 1988), or are on Medicare (Escarce et al., 1993).

Interventions directed toward increasing physicians' performance of cancer screening have been developed (McPhee et al., 1989; Dietrich et al., 1992). Efficacious methods for changing physician practices toward promoting increased screening have included reminder systems, office staff education,

physician continuing education, and patient education interventions (Pommerenke and Weed, 1991). One goal of these interventions is to enhance the office environment to make it more conducive for physicians and staff members to educate and screen women for the prevention and early detection of cancer. Systemwide interventions, such as policy guidelines, quality assurance standards, and subsidies for services and equipment, have been shown to result in cancer diagnosis at earlier stages (Holland et al., 1993).

Interventions to reach African American women for the purpose of cancer screening have included community-wide efforts to target candidates and motivate them to undergo the procedures, educate them about the importance of early detection, and enhance existing resources (Lacey et al., 1989; Whitman et al., 1994; Paskett et al., 1999; Mann et al., 2000; Bailey et al., 2000; Sadler et al., 2000). Compliance with referrals for testing or follow-up procedures increased when patients were well informed about the severity of the problem and were given precise directions about how to comply with the referral (Manfredi et al., 1990; Lacey et al., 1989; Whitman et al., 1994), or were assisted in securing a prompt appointment and in navigating the medical system to reach the needed services (Lacey et al., 1993b). The most promising early cancer detection programs have combined interventions to facilitate access to services and to inform and support providers with community education and outreach programs (Paskett et al., 1999). The latter have been most effective when conducted in cooperation with individuals and organizations in the communities (Mann et al., 2000; Bailey et al., 2000; Sadler et al., 2000).

It is encouraging to note the recent national legislative efforts to promote early detection of cancer in women. The Breast and Cervical Cancer Mortality Prevention Act of 1990 established the National Breast and Cervical Cancer Early Detection Program. This program assists with the development and implementation of programs throughout the country to reach women, especially minority women and others at high risk of not being screened. CDC has funded states in providing targeted education and screening for these underserved and disadvantaged women.

State-of-the-Art Treatment

Cancer mortality could be reduced by more widespread application of existing state-of-the-art treatment modalities, as well as by accelerated advances in treatment (Greenwald and Sondik, 1986). Efforts to speed up this process include programs that disseminate existing knowledge and that support clinical trials (Hubbard et al., 1987). These programs so far may not have been effective in reaching African Americans.

The evidence about differential cancer treatment by race is less than conclusive, partly because treatment protocols depend on factors that also may be associated with race, such as patient age, stage

of disease at diagnosis, and tumor type. Early studies that were in large part limited to breast cancer treatment suggested several observations. First, differences in type of treatment by race are not evident within individual institutions (Hand et al., 1991). Second, differences in treatment may be a function of characteristics of providers or places of care (Diehr et al., 1989). Poor application of some state-of-the-art protocols for African American women was associated with receiving care in rural hospitals or in small urban hospitals that have limited resources and few or no oncologists (Hand et al., 1991). Third, African American patients are underrepresented in clinical trials (Hunter, 1989). Poor clinical trial participation not only directly decreases opportunities to receive advanced treatment, but also limits the extent to which African Americans can benefit from knowledge accrued from the trials (Dignam, 2000). Because treatment protocols are established based on results obtained primarily with White patients, many questions about drug effectiveness and toxicity levels across races remain unanswered.

Importantly, more recent studies appear to document treatment differences associated with race, while controlling for stage at diagnosis (Breen et al., 1999; Dignam, 2000). Participation in clinical trials may accelerate the dissemination of research advances (Dignam, 2000).

FUTURE DIRECTIONS

Cancer mortality in African American women could be reduced by the widespread and methodical application of what is currently known about cancer control strategies and how to apply them effectively to special population subgroups. At the same time, there is a continuing need for research that examines cancer among African American women, identifies methods to reduce it, and suggests responses to unmet needs related to cancer in this population group. Some areas for future intervention and research follow.

To improve preventive health practices:

- Ensure that existing national programs and initiatives to educate the public and promote cancer prevention include adequate efforts to reach African American women.
- Continue and strengthen the initiatives of NCI's CIS program that are aimed at African Americans, especially CIS community outreach programs.
- Ensure that the current initiatives aimed at population-wide smoking control are successfully reaching the more disadvantaged African American communities.
- Promote the incorporation of cancer prevention education as part of routine health care through medical education, normative professional standards, and adequate reimbursement. The National Medical Association should be a partner in the development and implementation of these efforts.

To improve cancer screening:

- Work through local health resources, such as health departments and community health centers, to expand cancer screening, especially to reach low-income and at-risk women.
- Increase efforts to disseminate knowledge about proven cancer control techniques to health care providers, especially African American health professionals.

To improve treatment and survival:

- Ensure that existing information and dissemination systems reach health professionals who provide cancer care to African American women.
- Establish programs that assist African American patients at the time of diagnosis and first treatment and ensure that they have adequate support through follow-up treatment.
- Increase attention to quality of life issues for survivors (Ashing-Giwa et al., 1999).

Areas for future research:

- Carry out more epidemiological research on cancer incidence in African American women.
- Routinely include SES indicators in the SEER data and add links to related types of data.
- Conduct research about the suspected differences in manifestation of breast and cervical cancers in African American women.
- Update available information on cancer-related health beliefs and prevention practices among African Americans. (What little is known is outdated or based on samples with limited generalizability.)
- Expand research to develop and evaluate cancer control interventions for African Americans.
- Design and evaluate strategies to institutionalize and disseminate cancer control programs that prove to be effective in research and demonstration projects with African American women.

CONCLUSION

Cancer continues to be a major source of morbidity and mortality for African American women. The differential cancer experience of African Americans has been well documented, continues to exist, and is in large part explained by socioeconomic disadvantages rather than by major differences in cancer type prevalence or genetics. The excess cancer mortality for African American women is of particular concern. Mortality for African American women is higher than for White women across virtually all cancer sites, including sites for which African American women have lower incidence. Much of this excessive mortality is explained by overall socioeconomic disadvantages.

Risk factors are critical to understanding the conditions that may predispose a person to cancer. Major risk factors are the same for African American women as for the general population, including tobacco use, alcohol consumption, dietary habits, lack of physical activity, and occupational and environmental exposure. The overall smoking prevalence of African American women is similar to that of White women. A high proportion of African American women are overweight. Addressing these risk factors may reduce cancer incidence in African Americans, and educational efforts concerning these risks continue to be needed.

Any effect of race on cancer incidence patterns in African Americans is likely to reflect differences in culture, lifestyles, and health care practices; incidence trends over time may be related to unique sociodemographic changes. Epidemiological studies of cancer incidence by race to identify any such potential associations could lead to an improved understanding of cancer etiology and risks. These analyses are not possible without sorting out the powerful interaction of race and SES. Strategies should be explored to add SES indicators to the SEER data or to devise linkages to other data sets that provide this information.

Early detection procedures are available for two major female cancers (breast and cervix) and for colon cancer, but their application is still not sufficiently widespread. More aggressive screening and early detection are needed to achieve a reduction in African American women's mortality rates from these cancers. These must be accompanied by equally vigorous efforts aimed at the health care delivery system, particularly for providers and health care settings serving poor African American women.

African American women have lower cancer survival rates, even after controlling for cancer stage at diagnosis. Patient advocacy and support programs are needed to assist disadvantaged African American women during the development of treatment plans and to ensure adequate support during treatment. Programs are needed to speed up the dissemination of state-of-the-art diagnostic and treatment modalities to providers and institutions serving African Americans, including continued efforts to ensure the success of NCI's minority-based community outreach programs.

Intervention strategies to address many of the cancer control issues discussed in this chapter have had promising results. More research is needed to build on this initial knowledge and to understand how to improve cancer prevention, early detection, and treatment in African American women. In addition, interventions that have been proven effective when conducted as research or demonstration projects must be maintained over time and on a large scale to maximize their benefits in reducing cancer-related health disparities at the population level.