

B. Lee Green, Jenna L. Davis, Desiree Rivers,  
Kyrel L. Buchanan, and Brian M. Rivers

## 6.1 Introduction

Many improvements in health and health outcomes have occurred in recent years; however, there are segments of the United States (US) population that have not seen the same improvements. Among the group that has not seen equitable progress are racial and ethnic minorities, who comprise 36 % of the US population (U.S. Census Bureau 2010).

Minority groups in the USA have worse overall health and often receive lower standards of health care. This trend also applies to those who have lower incomes, are less educated, and those who live in poor neighborhoods (Health Affairs 2011). In some cases the health of these populations has declined. For more than 25 years, researchers have documented the differences and gaps in health between individuals from specific racial and ethnic groups (Braveman and Gruskin 2003). In 2000, these gaps (health disparities) were given a legal definition via the United States Public Law 106–525, also known as the “Minority Health and Health Disparities Research and Education Act,” which was authorized by the National Institute for Minority Health and Health Disparities. This definition reads “a population is a health disparity population if there is a significant disparity in the overall rate of disease

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B.L. Green, PhD (✉)

Department of Health Outcomes and Behavior, Moffitt Diversity,  
Moffitt Cancer Center, Tampa, FL 33612, USA  
e-mail: lee.green@moffitt.org

J.L. Davis, MPH • B.M. Rivers, PhD, MPH

Department of Health Outcomes and Behavior,  
Moffitt Cancer Center, Tampa, FL 33612, USA

D. Rivers, PhD, MSPH

Department of Family Medicine, University of South Florida,  
Tampa, FL 33612, USA

K.L. Buchanan, PhD, MPH

Sanoa Consulting LLC, Muscle Shoals, AL 35661, USA

incidence, prevalence, morbidity, mortality or survival rates in the population as compared to the health status of the general population” (Minority Health and Health Disparities Research and Education Act 2000). Health disparity populations, specifically racial/ethnic minorities, also have lower life expectancy, higher mortality, and morbidity compared to Whites. In addition to overall health, individuals from these groups experience lower quality of care and have more problems accessing health care. In some cases these differences appear regardless of income or coverage by health insurance (Smedley et al. 2003; Bulatao and Anderson 2004). The goal of researchers and scientists is to identify why these differences exist and to determine strategies to reduce or eliminate them (Haynes and Smedley 1999).

Causes of health disparities are varied and complex but include factors such as the physical environment (where we work, live, and play), social environment (i.e., interactions with family, community, schools, places of worship), behavior (i.e., health choices—diet, exercise, smoking, alcohol use), and biology (genetic profile). The complex nature of health disparities necessitates multilevel, comprehensive plans and programs that involve multiple disciplines to address the aforementioned etiological factors (Carter-Pokras and Banquet 2002; Eberhardt and Pamuk 2004; Farmer and Ferraro 2005; House 2002).

Based on emerging trends in the Census data, it is evident that the US population is becoming increasingly racially and ethnically diverse. From 2000 to 2010, every racial or ethnic minority group either increased in population or remained the same; Whites are the only racial group who decreased in population (Humes et al. 2011). Given this continuing demographic shift, and because of the evidence of poorer health outcomes in these groups, there is an urgency to understand the magnitude of disparities across various disease states, such as cancer. In order to reduce and eliminate health disparities, it is important to understand how, where, why, and for whom they arise. The purpose of this chapter is to provide information that can address these questions regarding cancer health disparities.

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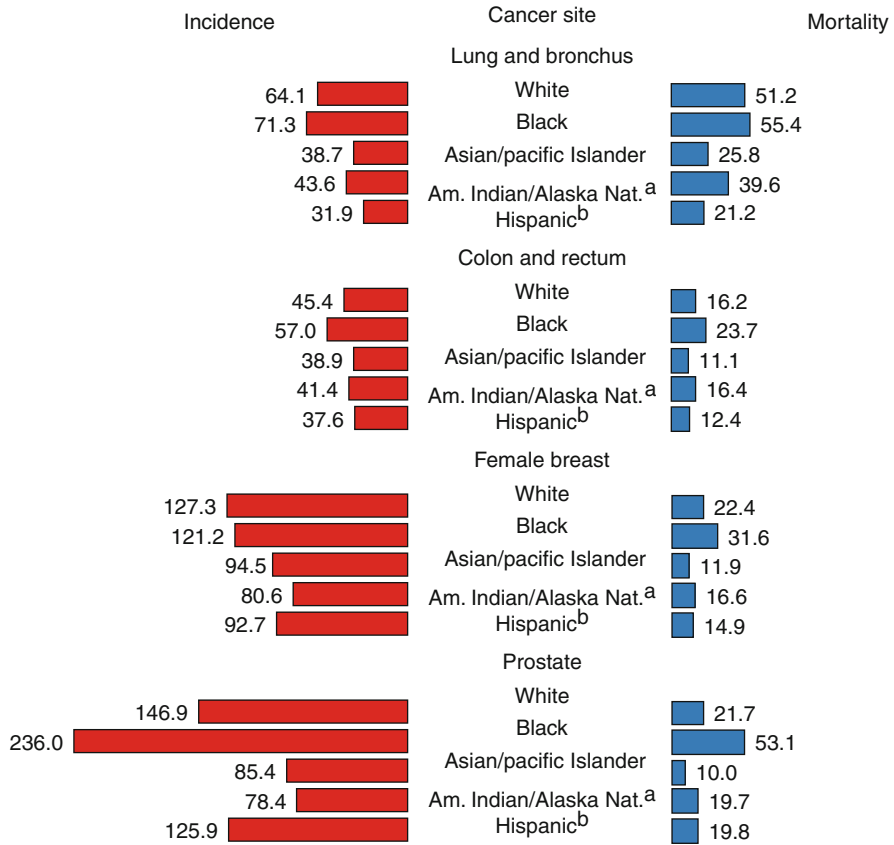
## 6.2 Cancer Health Disparities

Cancer health disparities are defined by the National Cancer Institute (NCI) as adverse differences in cancer incidence (new cases), cancer prevalence (all existing cases), cancer death (mortality), cancer survivorship, and burden of cancer or related health conditions that exist among specific population groups in the USA (NCI 2008). This chapter will discuss in more detail disparities in breast (female), cervical, colorectal, prostate, and lung cancers. These five cancers provide the best overall picture of how and for whom cancer disparities exist.

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## 6.3 Epidemiology

Although cancer’s detrimental effects are felt across all demographic groups, some groups are more affected than others regarding incidence, survival, and mortality rates. Incidence and mortality rates for all cancer types have steadily decreased or



Source: SEER 18 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose Monterey, Los Angeles, Alaska Native Registry, Rural Georgia California excluding SF/SJM/LA, Kentucky, Louisiana, New Jersey and Georgia excluding ATL/RG) and US Mortality Files. National Center for Health Statistics, Centers for Disease Control and Prevention.

<sup>a</sup>Rates for American Indian/Alaska Native are based on the CHSDA (Contract Health Service Delivery Area) countries.

<sup>b</sup>Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/ Alaska Natives.

Incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.

Mortality data for Hispanics exclude cases from the District of Columbia, North Dakota and South Carolina.

**Fig. 6.1** SEER cancer incidence and US death rates, 2005–2009 by cancer site and race/ethnicity

remained stable since 1975. Blacks or African Americans (Blacks) have the highest incidence and mortality rates for all cancer sites combined compared to any other racial/ethnic group (NCI 2008). Figure 6.1 illustrates the incidence and mortality rates for breast (female), colorectal, prostate, and lung cancers by racial/ethnic group from 2005 to 2009 according to the Surveillance Epidemiology and End Results (SEER) data (Howlander et al. 2012).

White, non-Hispanic women have the highest incidence rate of breast cancer (127.3 per 100,000 women) and have for the last two decades. However, Black

women's breast cancer mortality rates (31.6 per 100,000 women) are astonishingly higher than women of all other races and ethnicities. Interestingly, from the 1950s through the 1980s, both incidence and mortality rates were lower for Black women compared to White, non-Hispanic women. Beginning in the 1990s, this trend changed and the mortality rates for Black women are now staggering compared to other racial/ethnic groups.

Overall, colorectal cancer incidence in the USA has decreased over the last 30 years, yet it has increased in patients younger than 50 years of age. The most significant increase in colorectal cancer has occurred in patients aged 40–44 years old. Since 1985, colon cancer rates have dipped 20–25 % for Whites, while rates have gone up for Black men and stayed the same for Black women. The overall increase in colorectal cancers seems to derive largely from a higher increase in cancers located in the rectum. Patients between the ages of 20 and 45 have an increasing incidence in each 5-year interval for both colon and rectal cancer.

The disproportionate impact of prostate cancer among Black men in the USA has persisted over the past two decades. Prostate cancer accounts for nearly 40 % of the overall disparity in cancer mortality between Black and White men (American Cancer Society [ACS] 2009). In comparison to Whites, prostate cancer afflicts Black men at an earlier age, higher grades, and more advanced stages (ACS 2010b). Black men experience a 60 % higher incidence and are twice as likely to die in comparison to Whites (ACS 2011b). Due to late stage presentation at the time of clinical diagnosis, the rates of cure and survival are low for Blacks as compared to Whites (ACS 2010b). However, strides are being made as it relates to this disparity. From 1999 to 2008, the incidence of and mortality from prostate cancer decreased significantly among Black men. In spite of the declines in incidence and mortality, the disparity remains.

For both men and women, lung cancer is the second most commonly diagnosed cancer and is the leading cause of cancer-related mortality in the USA (Jemal et al. 2009). An examination of lung cancer rates shows that it affects some races more than others. There has been a decrease in overall lung cancer death rates for Blacks and other racial and ethnic groups; however, the disparity continues to persist. Blacks suffer from lung cancer more than any other population group in the USA. Blacks have higher mortality and incidence rates as compared to Whites and lower survival rates (Gadgeel and Kalemkerian 2003; Bach et al. 1999). Black men are 37 % more likely to develop lung cancer compared to White men even considering that their overall exposure to cigarettes, a proven risk factor, is lower (Howlander et al. 2012). An examination of SEER data indicate that Blacks tend to present with lung cancer at a later stage and were 66 % less likely to receive appropriate therapy and timely care compared to their White counterparts, thus partially contributing to lower survival rates.

As of 2009, there were over 247,000 women in the USA living with a diagnosis of cervical cancer. From 2005 to 2009, the cervical cancer age-adjusted incidence rate for all races was 8.1 per 100,000 women and the mortality rate was 2.4 per 100,000 women (Howlander et al. 2012). Hispanics have the highest incidence at 11.8 per 100,000 women, followed by Black women. Black women have the highest

mortality at 4.3 per 100,000 women and American Indian/Alaskan Native women have the second highest mortality (Howlader et al. 2012). More than 60 % of cervical cancer cases occur among underserved and under-screened populations of women (Scarinci et al. 2010).

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## 6.4 Potential Causes of Cancer Health Disparities

### 6.4.1 Social Determinants

Cancer health disparities are a very complex set of issues that includes a myriad of potential causes. One contributor gaining increasing attention is social determinants and their impact on health disparities. According to the World Health Organization, social determinants of health are “complex, integrated, and overlapping social structures and economic systems that include the social environment, physical environment, and health services; structural and societal factors that are responsible for most health inequities. Social determinants of health are shaped by the distribution of money, power, and resources at the global, national, and local levels, which are themselves influenced by policy choices” (Commission on Social Determinants of Health 2008). More specifically, social determinants include areas such as discrimination, child development, social support, transportation, working conditions, housing, food security, health-care services, culture, and socioeconomic status (Kreiger 2005).

Socioeconomic status (SES) is a term that is used to describe one’s place in society related to education, income, employment, and insurance status. All of these factors potentially affect the risk of developing and surviving cancer. It is well documented that Blacks score lower on measures of SES compared to the White population. About 13 % of the US population lives in poverty. Of this group 8 % are White and 24 % are Black. SES plays a major role in access to health care, health services, and health insurance. There are studies that have shown that health disparities track more closely with SES than race or ethnicity. Low SES, lack of health-care access, and lack of health insurance tend to be fairly prominent causes of health disparities. These individuals are also often diagnosed at later stages of disease. Many of these cancers can be prevented or treated effectively if diagnosed early (House and Williams 2000; Kaplan 1999; Keppel et al. 2005).

### 6.4.2 Disparities in Access to Care and Insurance Coverage

Access to care is critical in addressing an individual’s health needs. Having access means that the patient has a doctor or health-care provider, hospital or clinic that is available, has the means to get there, and has the financial ability to pay for the cost of the visits and treatment if necessary (Mulligan et al. 2006). When all minority communities are compared to Whites, they are less likely to have health insurance, have more difficulty in getting care, and have fewer choices in which to receive

needed care. One clear example is that Blacks tend to receive the majority of their care in emergency rooms and are less likely to have a regular primary care doctor (Smedley 2006).

Significant data supports the fact that lack of health-care insurance significantly contributes to health-care disparities. Lack of insurance often impacts when and where individuals get treated for a medical condition. This has a direct impact on health outcomes, including cancer (Flenaugh and Henriques-Forsythe 2006). Furthermore, minorities are much more likely than Whites to be uninsured or underinsured. Thirty-seven percent of Hispanics are uninsured, which is the highest rate among all ethnic groups and 2½ times the rate of Whites. Blacks fare slightly better with approximately 25 % being uninsured. The data for Asian-Americans, Pacific Islanders, and American Indians indicate an uninsured rate of about 20 % (DeNavas-Walt et al. 2011). The rates tend to be connected to lower rates of employment-based insurance.

Underserved and low-income communities are placed at a disadvantage for receiving necessary screenings because those with health insurance are more likely to have a usual source of care than those who are uninsured (Williams 2002), and underserved communities are considerably less likely to have health insurance (DeNavas-Walt et al. 2011). For example, lacking access to care because one is uninsured greatly affects participating in cancer screenings. Not being routinely screened increases the chances of presenting with cancer at later stages when it is harder to treat, increasing the disparities in cancer mortality. Disparities in cancer screening participation exist among various population groups. For instance, in 2010, White (77.7 %) and Black women (77.8 %) were more likely to have had a Pap test within the last 3 years compared to Asian (66.1 %) and Hispanic women (73.4 %) (Smith et al. 2012). Additionally, women with higher education and access to health care are more likely to have had a Pap test within the last 3 years (Smith et al. 2012).

### 6.4.3 Disparities in Quality of Care

In 2003, the Institute of Medicine published a landmark report entitled “Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare” (Smedley et al. 2003). The report examined the notion that racial and ethnic minorities receive lower quality health care compared to nonminorities, even when access-related factors such as insurance status, income, and education are controlled. The report contends that these disparities are complex, rooted in historic and contemporary inequalities, and involve many participants at different levels including health systems, the processes within the health systems, managers who oversee utilization, health-care professionals, and patients. Since 2003, general improvements in the quality of care that individuals receive have occurred; however, for minorities the poor quality of care seems to persist at unacceptably higher levels compared to Whites (Agency for Healthcare Research and Quality 2011a, b). It is believed that because of the nature and complexity of this issue, a comprehensive and multilevel strategy is needed to eliminate these quality-of-care disparities.

### 6.4.4 Behavioral Risk Factors

Many forms of cancer can be attributed, in part, to behavioral risk factors such as smoking and tobacco use, diet, exercise, and obesity. SES plays a role in behavioral aspects of cancer risk (Kawachi et al. 2005). Those who are at lower SES tend to engage in riskier health behaviors such as smoking and tobacco use, lack of exercise, increased alcohol intake, and lower uptake of screening recommendations for most cancers. Over the past four decades, there has been tremendous progress in the reduction of individuals who use tobacco in the USA (Dube et al. 2009). Despite these efforts, one in five adults in the USA continues to smoke with some groups having higher rates of smoking. Blacks, for example, have rates that usually exceed those of other populations. Blacks initiate smoking at a later stage but continue to smoke later in life (Williams and Jackson 2005).

Obesity, exercise, and diet are well-known risk factors for cancer. According to data collected by the National Health and Nutrition Examination Survey (NHANES), Black and Hispanic men and women have higher rates of obesity (over 34 %) (National Center for Health Statistics [NCHS] 2010). An examination of exercise levels revealed White men and women report higher levels of exercise compared to all other minority groups. A correlation also exists between physical activity and education. For example, 57 % of individuals with less than an 8th grade education report no physical activity. Regarding diet, there are differences in reported nutrition intake between populations. It has been found, with the exception of Asians, that all racial and ethnic groups show low-prevalence levels of fruit and vegetable intake. These rates tend to be even lower among individuals with less education and higher levels of poverty.

Most of these behavioral differences can be attributed to being poorer and living in minority communities. Within these communities there are fewer resources, inadequate housing, fewer safe recreational facilities, less access to grocery stores that sell fresh fruits and vegetables, greater exposure to carcinogens, and marketing strategies that target this community for tobacco products. It is also believed that culture, health literacy, attitudes, and beliefs also play a role in health behaviors within minority communities.

### 6.4.5 Patient-Level Causal Factors

There are several patient-level factors that are believed to impact some of the observed cancer health disparities. These include patients' preferences, provider concordance, patient mistrust and experiences with discrimination, and patient refusal of recommended treatment.

#### 6.4.5.1 Patient Preferences

Patients' preferences play a critical role in how they interact with the health-care system and their health-care providers. Patients approach the clinical encounter with different fears, beliefs, hopes, and cultural factors which may influence the

level and type of care that they receive. Patients also enter the clinical encounter with a certain level of comfort concerning the effectiveness of recommended treatment plans. This comfort level may have a direct impact on their decision to accept the recommendation from their health-care provider concerning the most appropriate cancer treatment. If there are high levels of reluctance to accept the recommendations of the health-care provider, the chances of health-care disparities increase significantly. This reluctance may stem from a lack of trust resulting from racial discrimination and a long-held history of inferior care for minorities. The negative experiences with the health-care system and providers might decrease the likelihood that minorities would participate in more robust treatments—thus directly impacting cancer outcomes and disparities (Smedley et al. 2003).

#### **6.4.5.2 Provider Concordance**

The relationship between a provider and a patient potentially impacts cancer disparities. Studies demonstrate that Black and Hispanic patients are more likely to report dissatisfaction with their provider, tend to receive poorer quality of care, and report that care is disjointed. These findings have introduced the importance of physician/patient concordance, which occurs when the physician and patient have shared identities or similarities such as race, ethnicity, gender, or age. It has been found that concordance increases trust, satisfaction, utilization of services, and informed and shared decision making among those patients. This is an area that needs further investigation regarding cancer diagnosis and treatment (Smedley et al. 2003).

#### **6.4.5.3 Patient Mistrust and Experiences with Discrimination**

Minority patients have shown higher levels of mistrust of the health-care system and health-care providers compared to other populations due to historical breaches of trust within the research enterprise and the medical encounter (Ard et al. 2003). Numerous studies have reported higher levels of perceived racial and ethnic discrimination in the health-care setting for minorities compared to nonminorities (Williams 1999; Corbie-Smith et al. 1999). More Blacks as reported by LaVeist et al. (2000) endorse the notion that racial discrimination is a common practice in health-care settings and doctors' offices. A study by Lillie-Blanton and LaVeist (1996) found in a nationwide study that 30 % of Hispanics and 35 % of Blacks believe that racism is a major problem in health care compared to only 16 % of Whites. More than half of the sample of minorities, compared to 22 % of Whites, indicated that they are very or somewhat concerned that they or a family member could be treated unfairly while seeking medical care because of their race or ethnicity.

#### **6.4.5.4 Patient Refusal of Recommended Treatment**

Multiple studies have examined how patient refusal of treatments has had an impact on health-care disparities. Black and other ethnic minorities may be more likely to refuse more invasive treatments and procedures. Given the invasive nature of some cancer treatments, more research needs to be conducted to better understand the role of patient refusal (Smedley et al. 2003). Additionally, recommendations for diagnosis, treatment, and pain management vary. For example, significant



health-care disparities occur in the receipt of appropriate cancer diagnostic tests as well as analgesics. These differences remain even after controlling for stage of the cancer and other key clinical factors (Smedley et al. 2003).

## 6.4.6 System-Level Causal Factors

### 6.4.6.1 Lack of Diversity in Medicine

The lack of diversity in medicine, research, and health care has been postulated to assume a role in cancer health-care disparities. It is believed that increasing the racial and ethnic diversity of medical providers is essential in providing care that is culturally and linguistically appropriate, especially within a nation that is becoming increasingly diverse (Kington et al. 2001). A more diverse and representative workforce will help to advance cultural competency, increase overall access to high-quality health care, help strengthen the research agenda that impacts minority communities, and address diverse management of our health-care system (Kington et al. 2001).

Another reason for diversity in the health-care workforce is to help provide access to high-quality health care for individuals who are underserved. Minorities disproportionately populate designated health professional shortage areas. Physician shortages exist in those areas; therefore, it is likely that access to high-quality care will be compromised because there are fewer places to go for care (Smedley et al. 2004; The Sullivan Commission 2004). Similarly, there is a lack of minority scientists who can help to broaden the conversation or agenda surrounding cancer health disparities. Without minority scientists, many research questions may go unstudied, and research agendas may not include issues that impact minority communities, who are disproportionately impacted by cancer (The Sullivan Commission 2004).

Equally important to the discussion of a diverse health-care workforce is the preparing and hiring of health-care executives from diverse backgrounds. The success of a health-care organization hinges on the management and leadership team. Individuals in management roles make key decisions that greatly impact the community in general and minority communities specifically. Diverse management teams, who represent the community, provide varied perspectives which often lead to tactical and strategic advantages. These advantages help position health-care organizations for success (Perez et al. 2007).

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## 6.5 Cancer Site-Specific Disparities

As mentioned previously, this chapter delves into disparities that exist among five cancer sites. These five cancer sites demonstrate the greatest evidence of cancer disparities among segments of the US population. The information given will highlight epidemiology, causes of disparities, and strategies for reducing and eliminating each site-specific cancer.

## 6.5.1 Breast Cancer Disparities

Cancer is the second leading cause of death for women in the USA, and breast cancer is the most commonly diagnosed form of cancer (Eheman et al. 2012). Over the past decade, breast cancer mortality has decreased. While decreases in mortality rates are apparent, incidence rates are stagnant (Eheman et al. 2012). Given the devastating impact of breast cancer on individuals, families, and communities, many efforts and initiatives have been established to research, treat, and ultimately eradicate this disease.

### 6.5.1.1 Epidemiology of Breast Cancer Disparities

Breast cancer mortality has decreased; however, racial and ethnic disparities persist. Black women's breast cancer mortality rates (31.6 per 100,000 women) are higher than women of all other races and ethnicities. Overall, White, non-Hispanic women have the highest incidence rate of breast cancer (127.3 per 100,000 women) and have for the last two decades. However, when stratified by age, Black women have higher incidence rates among women that are age 40 and younger (Baquet et al. 2008). The aforementioned represents a shift that has occurred over the last three decades. According to Menashe et al. (2009), a racial mortality gap was noted in the 1980s and has increased since then. Currently, mortality rates for Black women are higher, with lower survival rates (Baquet et al. 2008). Additionally, Black and Hispanic women are diagnosed at more advanced stages, partially contributing to a poorer prognosis (Vona-Davis and Rose 2009). Native Hawaiians and Native Americans also have worse prognosis than White women, while Japanese-American women's breast cancer outcomes are better than those of Whites (Maskarinec et al. 2011). In addition to stage of diagnosis, other contributing factors are also apparent.

### 6.5.1.2 Causes of Breast Cancer Disparities

The existence of breast cancer health disparities has been documented for over 30 years. However, causes of disparities in breast cancer prognosis, incidence, mortality, and survival rates are not yet conclusively understood. At a basic level, evidence suggests that the risk profile for Black women, in particular, may differ from that of White women (Bernstein et al. 2003). Existing socioeconomic disparities have been identified as a major contributor to observed differences in breast cancer mortality (Vona-Davis and Rose 2009), specifically regarding the increased mortality among Hispanic and Black women. Similarly, other social determinants such as culture, poverty, and social injustice have been identified (Gerend and Pai 2008). Within the broad category of culture are more nuanced contributors such as folk beliefs, a mistrust of the health-care system, and perceived invulnerability. The role of poverty is demonstrated via less access to quality health care, the absence of a primary care physician, and inadequate or no health insurance. Health insurance often influences a woman's decision regarding when, where, and what type of care to seek—perhaps resulting in the delay of care due to the costs of testing and treatment. This delay can exert detrimental effects on timely diagnosis and treatment.

Unfortunately, Black and Hispanic women delay treatment longer than White women (Fedewa et al. 2011). However, when Black women do seek treatment, disparities in the prescribed treatment have been noted. Specifically, Black women are less likely to receive surgery as the recommended treatment (Baquet et al. 2008). Racial profiling and discrimination have been identified as social injustice barriers. However, according to Gerend and Pai (2008), many of these factors can be modified. Practically, modification of these factors will take substantial commitment and action at both the patient and system levels.

Biological factors such as family history/genetics certainly assume a role (Spector et al. 2011; Nemesure et al. 2009), with the area of genetic testing gaining prominence as women desire to make more informed decisions based upon their family history. However, there are marked disparities in genetic counseling participation, with significantly fewer Black women (with a family history of breast or ovarian cancer) receiving genetic counseling compared to White women with a similar family history (Armstrong et al. 2005). Information derived from genetic tests has prompted some women to elect mastectomies or in some cases double mastectomies based upon their risk.

The disparities that are observed with breast cancer are also due, in part, to behavioral factors such as nutrition, physical activity, and screening behaviors. According to Ehemann et al. (2012), overweight individuals and those who do not engage in the recommended amount of physical activity are at a higher risk of cancer. Indeed, physical activity has been associated with a 64 % decrease in breast cancer risk among Black women (Sheppard et al. 2011). However, in a study of sisters of women with breast cancer, results indicated that Black women consumed less fruits and vegetables and were less likely to meet the ACS recommended body mass index and amount of physical activity compared to White women. Moreover, as a group, these women were no more likely to engage in healthy eating and physical activity behaviors than the general population, despite being at a higher risk for breast cancer due to their family history (Spector et al. 2011). The higher BMI, lower physical activity, and less healthy diet among Black women has also been previously observed (Forshee et al. 2003). Even Black female breast cancer survivors engage in less physical activity compared to female survivors of other races and ethnicities (Paxton et al. 2012). Screening participation is also integral to early detection, which is oftentimes dependent upon individual and system-level factors, such as pain from mammograms and cost (Mishra et al. 2012). Unfortunately, Black women are more likely to have received inadequate mammographic screening, compared to White women (Smith-Bindman et al. 2006), except in rural areas where they are more likely to be screened compared to Whites and Hispanics (Bennett et al. 2012). Inadequate screening increases the propensity for more advanced stage diagnosis, thus contributing to health disparities.

An emerging area of study is investigating causal differences among racial and ethnic subgroups. For example, in a comparative study of African-Barbadian and African American women, differences in reproductive patterns were discovered. Preliminary results suggest that this may partially account for the lower breast cancer incidence among postmenopausal African-Barbarian women (Nemesure et al.

2009). Given the influx of various subpopulations in the USA, it is necessary to understand contributors among these groups and how they may differ from those born in the United States.

### **6.5.1.3 Strategies to Reduce and Eliminate Breast Cancer Disparities**

Strategies in research, practice, and mainstream communications have been developed to address contributors to breast cancer disparities. There are a variety of approaches designed to predict risk for breast cancer as well as to better understand environmental and behavioral factors. The Gail and Contraceptive and Reproductive Experience (CARE) models are two of the more commonly accepted breast cancer risk assessment models. As with many models, these two were initially developed for White women. The Gail model was not validated among Black women (Bondy and Newman 2003) and consequently underestimated risk among this population (Adams-Campbell et al. 2009). Therefore, the CARE model was developed with an aim to supplant the Gail model (Adams-Campbell et al. 2009).

Risk models may assist with early detection, which has contributed to the overall decrease in cancer mortality and cannot be over emphasized. Women are also encouraged to get mammograms, beginning as early as age 40 depending upon whose recommendations are followed. In 2009, mammography recommendations by the U.S. Preventive Services Task Force changed. Its current recommendations are for women from 50 to 74 to get a mammogram every 2 years, while the American Cancer Society recommends that women over 40 get a mammogram annually. In 2010, a greater percentage of American Indian/Alaska Native women (71.2 %) reported receiving a mammogram in the past 2 years, followed by Black, White, and Hispanic women (67.9, 67.4, and 64.2 %, respectively). Between 2000 and 2010, mammography use within the past 2 years was stable among all age groups of women 40 years of age and over (NCHS 2012). However, there are nuances within that recommendation that are not as frequently discussed, such as when a woman with a family history of breast cancer should begin getting mammograms. Because mortality rates are higher among Black women and disparities persist, better understanding of this subgroup's screening needs is necessary. Also, the limitations of mammograms have been stated and some endorse ultrasound techniques, in lieu of or in combination with mammograms, because they are thought to be more sensitive (Berg et al. 2008). Consensus needs to be reached and recommendations must be clearly articulated and disseminated to women, so that they can make the best health decision possible. Research can also augment efforts to understand perceptions regarding mammograms.

Community-based participatory research (CBPR) is a research orientation that has been commonly implemented to engage the affected populations as equal partners in the research process. This opens an avenue to better understand breast cancer disparities and its determinants from the target population's perspective. CBPR has been used to further delve into screening participation (Mishra et al. 2012). Theoretical models, such as the health belief model, have been employed to assess and improve individual-level factors such as Black women's understanding of breast cancer (Doughty 2012). Other interventions have utilized multiple methods to

modify screening behaviors, within the clinical encounter, by engaging the patient and providers. Results indicate that such multifaceted interventions are promising for enhancing mammography participation (Fiscella et al. 2011). Additionally, patient navigation interventions have been widely used to improve screening and are also found to increase adherence to breast cancer care regimens (Robinson-White et al. 2010).

Although genetics is considered a non-modifiable risk factor, gene expression profiling of breast tumors is a currently proposed technology for increasing survival and quality of life for diagnosed individuals. However, there are concerns that this available procedure will potentially *increase*, not decrease, breast cancer health disparities. In essence, this procedure has not been well tested and validated using minority samples (Odierna et al. 2011). Therefore, its utility among and benefit for these groups is questionable.

Marketing campaigns have also been launched which have garnered widespread attention, raised awareness, and placed breast cancer in the mainstream spotlight. Such campaigns include American Cancer Society branding itself as the “official sponsor of birthdays.” Nationally televised programs and fundraisers such as “Stand Up 2 Breast Cancer” have also spurred national interest. The month of October has been widely embraced as breast cancer awareness month. Organizations such as Susan G. Komen and American Cancer Society have launched major initiatives to bring attention to this serious health issue. These corporate efforts have given breast cancer and breast cancer research greater visibility, as well as raised millions of dollars to support much needed research. It is hoped that this research will help to reduce and eliminate cancer health disparities.

Despite current initiatives, culturally appropriate efforts are still needed which focus on groups with lower survival and higher mortality rates, such as Black women. While some individual-level interventions may be helpful, it has become evident that efforts which address social determinants must be enacted to make larger leaps toward eliminating disparities and ultimately finding a cure.

## 6.5.2 Cervical Cancer Disparities

### 6.5.2.1 Introduction to Cervical Cancer Disparities

Prior to the 1950s, cervical cancer was one of the major causes of cancer deaths in women (NCI 2010). Since then, there has been a decrease in cervical cancer incidence and mortality rates, which can be attributed to advancements in the early detection of cervical cancer via the Papanicolaou (Pap) smear test (NCI 2010). For women in whom precancerous lesions have been detected through Pap tests, the likelihood of survival is nearly 100 % with appropriate evaluation, treatment, and follow-up care (ACS 2010a). The human papillomavirus (HPV) causes almost all cervical cancer cases. Specifically, two strands of HPV (HPV-16 and HPV-18) cause 70 % of cervical cancer cases (NCI 2010). The Federal Drug Administration has approved two vaccines for girls and boys ages 9–26 years old to prevent HPV infections caused by these two strands.

Even with the advancements of cervical cancer screening and prevention, there still remain groups of the population that suffer disproportionately from cervical cancer (Downs et al. 2008). Minority women, women living in certain geographical regions of the USA, and low-income women are more prone to be diagnosed with and/or die from cervical cancer (Downs et al. 2008). To address these disparities in cervical cancer, researchers and health professionals are strategically working to promote prevention through HPV vaccinations and early detection through Pap smear testing.

### **6.5.2.2 Epidemiology of Cervical Cancer Disparities**

As previously noted, Hispanics have the highest incidence rate of cervical cancer. Black women have the second highest incidence rate and the highest mortality rate (Howlander et al. 2012). Higher cervical cancer rates are associated with low income, lower education levels, and medically underserved populations (Freeman and Wingrove 2005; Scarinci et al. 2010). Disparities in cervical cancer mortality also exist within different geographical areas. White women living in largely rural counties within the Appalachia area, Black women in the Deep South, Hispanic women along the Texas-Mexico border, American Indians in the Northern Plains, and Asian women in parts of the Central Valley of California have higher rates of cervical cancer mortality than do women in other parts of the country (Freeman and Wingrove 2005). For example, women living in Appalachia have an incidence rate of 15 per 100,000 women for invasive cervical cancer (Hopenhayn et al. 2005).

Differences in cervical cancer screening rates also exist among certain population groups. Asian and Hispanic women are less likely to report being up-to-date on Pap test screenings (Smith et al. 2012). Additionally, women with higher education and access to health care are more likely to have had a Pap test within the last 3 years compared to those with a high school degree or less and uninsured women (Smith et al. 2012). Women aged 65 years and older are less likely to be adherent to Pap testing recommendations (Akers et al. 2007; ACS 2012b). Foreign-born women are less likely to get screened for cervical cancer, regardless of race/ethnicity (Goel et al. 2003; Singh and Miller 2004). It was found that foreign-born Whites, Hispanics, and Asian-American/Pacific Islanders had lower odds of reporting a Pap smear than US-born Whites (Goel et al. 2003).

### **6.5.2.3 Causes of Cervical Cancer Disparities**

Even though cervical cancer is nearly a preventable disease, there are underlying environmental, social-behavioral, as well as cultural issues causing disparities among portions of the US population. Cervical cancer screening, incidence, and mortality rates vary widely according to sociodemographic factors and access to health-care services (Akers et al. 2007). Major factors contributing to cervical cancer disparities consist of lacking access to care and experiencing cultural barriers that lead to screening nonadherence, low knowledge levels of HPV infection/vaccination and cervical cancer risk, and inappropriate follow-up for abnormal Pap smears (Akers et al. 2007).

Socioeconomic barriers affect access to and affordability of care and of screening services. Poverty is a strong predictor of cervical cancer screening, diagnosis, treatment, and survival odds regardless of other variables (Newmann and Garner 2005). Women living below the poverty line are three times more likely to be infected with a high-risk strain of HPV than those who are not poor (Kahn et al. 2007). Further, the factors that usually measure socioeconomic status (income, poverty level, and educational level) have all strongly been associated with cervical cancer screening, resulting in the lower the socioeconomic position, the less likely a woman will be screened for cervical cancer (Akers et al. 2007). Lacking access to health-care services is strongly correlated to low cervical cancer screening rates and receiving appropriate treatment (Akers et al. 2007; Freeman and Wingrove 2005). A usual source of care (Akers et al. 2007; O'Malley and Forrest 2002) and a physician's recommendation (Coughlin et al. 2005) has been shown to be strong predictors of Pap testing in many populations. Therefore, uninsured women are less likely to have had a recent Pap test, compared to women who have health-care coverage because they are not receiving a physician's recommendation nor do they have a usual source of care (Freeman and Wingrove 2005).

Cultural barriers affecting screening participation also exist (Downs et al. 2008). For example, Hispanic and Asian women's nonadherence to cervical cancer screening is associated with low acculturation, limited English proficiency, and being born outside the USA (Coronado et al. 2004; De Alba and Sweningson 2006; Nguyen et al. 2002; Rodriguez et al. 2005; Newmann and Garner 2005). Other cultural barriers include stigmas of sexually transmitted diseases and fears or fatalistic beliefs of cancer (Cain et al. 2007; Akers et al. 2007; Kim et al. 2008; Johnson et al. 2008).

A lack of knowledge or awareness of cervical cancer risk, screening, and HPV vaccination contributes to cervical cancer disparities as well (Behbakht et al. 2004; Cain et al. 2007). Among studies involving females ages 13 years and older, only about 15–31 % heard of HPV (Klug et al. 2008). Approximately 50 % of adolescent girls and 2 % of boys have been vaccinated (Etter et al. 2012), whereas only 32 % of age-eligible females have received all three recommended doses (Pierce Campbell et al. 2012). The Centers for Disease Control and Prevention (CDC) explored HPV awareness in a sample of diverse women and found most women did not know HPV was linked to cervical cancer (Friedman and Shepard 2007). One study examining Haitian women's knowledge and perceptions of HPV found that they had generally low knowledge levels of HPV and had some misconceptions about viral transmission and the role of HPV in cervical cancer (Kobetz et al. 2011). Similarly, low knowledge levels of HPV infection and vaccine exist among Hispanic and Black women (Luque et al. 2010; Cates et al. 2009). The aforementioned is critically important, considering that women with low health literacy are less likely to seek medical attention for an abnormal Pap smear compared to those with adequate health literacy (Norman et al. 1991).

Another contributing factor to cervical cancer disparities is timely follow-up of an abnormal Pap test. Adherence for a follow-up test ranges considerably from 20 to 74 % (McKee 1997). The National Breast and Cervical Cancer Early Detection Program (NBCCEDP) reported that about 56 % of women with an abnormal Pap



test who were enrolled in the program did not receive the necessary follow-up care (Downs et al. 2008). Minority women seemingly have inconsistent follow-up care after an abnormal Pap test (Engelstad et al. 2001; Cardin et al. 2001). Specifically, Black women tend to have a higher percentage of no follow-up care for an abnormal test compared to other races and ethnicities (Benard et al. 2005). Untimely follow-up care may lead to diagnosis of cervical cancer at later stages when it is harder to treat, perhaps partially accounting for observed disparities.

#### **6.5.2.4 Strategies to Reduce and Eliminate Cervical Cancer Disparities**

Key strategies for reducing and eliminating cervical cancer disparities should focus on increasing access to care and improving information and communication (Freeman and Wingrove 2005). In particular, community-based education and outreach efforts are crucial for promoting prevention/early detection and increasing knowledge and awareness of cervical cancer. Community health workers (CHWs; also called promotoras, patient navigators, or lay health advisors) have successfully provided cancer education, helped minority women navigate screening services, and drastically increased participation in Pap testing (Partridge et al. 2005; O'Brien et al. 2010). In the Appalachian region, patient navigators have been utilized to increase access for abnormal Pap smear follow-up care among underprivileged women (Scarinci et al. 2010). Strategies to address disparities in the Asian community have sought to educate and inform women on the importance of cervical cancer screening, explore the relationship between cultural factors and screening behavior, and connect women to low-cost providers or providers who do not require health insurance in the local community (Nguyen et al. 2011). A CBPR approach was implemented to address cervical cancer disparities in Haitian women. Several facilitators/barriers for receiving the vaccine were identified, which highlights the importance of culturally tailored education to address gaps in knowledge of HPV and cervical cancer (Kobetz et al. 2011).

Other vital strategies in reducing cervical cancer disparities exist within local and national programs that seek to increase access to screening services for women. For example, at the local level, the Los Angeles County Office of Women's Health implemented a Cervical Cancer Prevention and Education Initiative. This initiative is a comprehensive, multifaceted outreach and education campaign to increase awareness among high-risk, low-income, underserved minority women about the importance of Pap tests and to increase the number of screenings and treatment services provided to them (Stone-Francisco et al. 2004).

Two federal laws (Breast and Cervical Cancer Mortality Prevention Act of 1990 and Breast and Cervical Cancer Prevention and Treatment Act of 2000) have led to the creation and funding for the CDC's National Breast and Cervical Cancer Early Detection Program (CDC 2012a). NBCCEDP provides low-income, uninsured, and underserved women access to timely cervical cancer screening and diagnostic services. From 2006 to 2011, NBCCEDP screened over one million women for cervical cancer: 46 % White, 27 % Hispanic, 14 % Black, 6 % Asian/Pacific Islander, and 5 % American Indian/Alaskan Native (CDC 2012b).



Advancements in cervical cancer research, screening methodology, and vaccinations have led to decreased incidence and mortality rates, producing an almost preventable disease (Freeman and Wingrove 2005). Unfortunately, individuals still suffer disproportionately from cervical cancer in the USA due to lack of screening, HPV vaccine uptake, and not having access to care. The national endeavors to address cervical cancer disparities are valuable because individuals are being motivated to take action in the form of health-promoting behaviors, resulting in better health outcomes and reduced disparities within the community (Smedley and Syme 2000).

### **6.5.3 Colorectal Cancer Disparities**

#### **6.5.3.1 Introduction to Colorectal Cancer Disparities**

Colorectal cancer is one of the few cancers that is considered largely preventable due to effective screening and removal of polyps. Early stage colorectal cancer may not present any symptoms; thus, screening is key. A colonoscopy every 10 years is the preferred screening strategy as it has the potential to image both cancer and polyps, thus increasing the chances of removing any polyps and preventing cancer (ACS 2011a). The average-risk man and woman should be screened starting at age 50. Those who are high risk should be screened sooner. Blacks are at increased risk of developing colorectal cancer and should be screened beginning at age 45 (Rex et al. 2009).

The general risk factors for colorectal cancer include obesity, physical inactivity, long-term smoking, a diet high in red or processed meat, alcohol, and very low fruits and vegetables intake. Also, a personal/family history of colorectal cancer or polyps, chronic inflammatory bowel disease, or inherited genetic conditions, such as Lynch syndrome, is also a risk factor. Heavy cigarette smoking and obesity are linked to an increased risk and the development of colorectal cancer at an earlier age (ACS 2011a).

Colorectal cancer risk can be decreased by increasing intake of milk, calcium, and high blood levels of Vitamin D. Also nonsteroidal anti-inflammatory drugs, such as aspirin and menopausal hormone therapy (among high-risk populations), have been found to lower ones risk of colorectal cancer (ACS 2011a).

Colorectal screening is lowest among underserved populations, including minorities and the poor, resulting in high mortality. A possible rationale for the low screening rates is that colorectal screening tests depend on a clinician referral, unlike screening exams for breast or cervical cancer. Thus, many postulate that effective communication between providers and patients is needed. This is especially true in the case of discordant race relations between doctors and patients when their differences in culture might impact their discussions and ability to convey meaning and significance of screening (Gao et al. 2009).

#### **6.5.3.2 Epidemiology of Colorectal Cancer Disparities**

Colorectal cancer is the third most common cancer diagnosis for men and women, following prostate (men) and breast (women). About 91 % of colorectal cancers are diagnosed at age 50 or older. Approximately, 143,000 new cases of colorectal

cancer will be diagnosed in 2012, and more than 51,000 colorectal cancer patients will die in 2012. Colorectal cancer is the second most common cause of cancer death. Fortunately, incidence and mortality has declined in the past 20 years; however, many preventable cases of colorectal cancer still arise. About 91 % of colorectal cancers are diagnosed at age 50 or older. Colorectal cancer is more frequent in Blacks. Overall, Blacks are 38–43 % more likely to die from colon cancer than Whites. Blacks tend to be diagnosed at a later stage, to suffer from better differentiated tumors, and to have worse prognosis when compared with Whites. Blacks are more likely to develop colorectal cancer overall, at a younger age, be diagnosed at advanced stage, and have higher colorectal cancer-related mortality (Hou et al. 2012; Dimou et al. 2009).

### **6.5.3.3 Causes of Colorectal Cancer Disparities**

Numerous patient, provider, and health-care system barriers impede appropriate screening and early detection among minorities (Gao et al. 2009). For example, patients often lack awareness about screening recommendations, lack a regular doctor or doctor's recommendation for screening, and are burdened by the cost of co-pays or deductibles. Minority cancer patients often lack health insurance, need assistance with transportation, or cannot afford to take time off work. Some fear the screening test or test results and experience language or cultural barriers in the medical encounter. Additionally, providers often lack knowledge about current regulations or do not follow current best practices. Some providers lack office reminder systems for screenings and have an inability to meet the needs of a multicultural practice. In general the health-care system offers a lack of medical care or medical homes for patients. There is a lack of funding for uninsured patients with a colorectal cancer diagnosis and too few primary care doctors perform screenings. The high co-pays and deductibles for the insured pose a financial burden, and the lack of medical providers who accept uninsured, medical assistance, or Medicare patients also poses a challenge.

Given such factors, more than 40 % of the disparity in incidence and approximately 20 % of the disparity in mortality between Blacks and Whites can be explained by differences in screening uptake. Blacks tend to receive significantly less frequent screening than Whites. Among people with multiple affected first-degree relatives, or relatives diagnosed before age 50 years, Blacks were less likely than Whites to follow the screening guidelines. Blacks who have a family history are less likely to be screened compared with their White counterparts and when compared with Blacks who are at average risk for colorectal cancer. Ensuring access to care could dramatically reduce the disparities burden (Lansdorp-Vogelaar et al. 2012).

### **6.5.3.4 Strategies to Reduce and Eliminate Colorectal Cancer Disparities**

A number of strategies have been enumerated as ways to curb colorectal cancer disparities, including patient-provider communication and access to care. Provider recommendation is essential to patients' adherence to colorectal cancer screening. Such recommendations should be consistent with the preferences of individual

patients. In 2002, U.S. Preventive Services Task Force (USPSTF) recommended that “the choice of specific colorectal cancer screening strategy should be based on patient preferences” (USPSTF 2002). It is possible that continually low screening rates are due in part to the complexity of the screening recommendations. Primary care patients have distinct preferences for different screening tests preferring either fecal occult blood test or colonoscopy. For example, Blacks prefer colonoscopies. Patient choice is an important factor in improving screening adherence in studies reporting improved screening rates (Hawley et al. 2008).

Additionally, efforts should be taken to address the financial factors that significantly contribute to receipt of services such as providing insurance that will improve the likelihood of receiving services and prevent deferring care due to cost of screening (Bennett et al. 2012).

Given colorectal cancer’s largely preventable nature, it is paramount that widespread screening efforts ensue to halt the progression of this disease. Patients, providers, and health systems can work together to reduce the barriers and burden of colonoscopy screenings, while simultaneously promoting the benefits of early detection and treatment. By employing culturally and linguistically appropriate education and outreach efforts, those who are at highest risk for colorectal cancer will understand the relevance of disease detection and appreciate the urgency in participating in screening behaviors as well as practicing healthy lifestyles that reduce the risk of colorectal cancer.

## **6.5.4 Prostate Cancer Disparities**

### **6.5.4.1 Introduction to Prostate Cancer Disparities**

Over the past decade, there has been a tremendous investment in the identification of effective intervention strategies to reduce and eliminate prostate cancer disparities. When compared to men of other racial and ethnic groups, prostate cancer has affected Black men at an unmatched rate. Despite declines in prostate cancer incidence and mortality, Black men continue to have the highest incidence rates for prostate cancer in the USA and are more than twice as likely as White men to die of the disease (ACS 2010b). With the only well-established risk factors for prostate cancer being age, race, and family history, there has been an increased focus on better understanding the genetic basis of this disease, the interplay with the social and environment context, and individual behavior. In the following sections, we discuss the epidemiology and postulated causal factors for prostate cancer disparities and potential intervention strategies for reduction and elimination.

### **6.5.4.2 Epidemiology of Prostate Cancer Disparities**

Prostate cancer is the most commonly diagnosed cancer and the second leading cause of cancer-related death among US men. The disproportionate impact of prostate cancer among Black men in the USA has persisted over the past two decades. Black men experience a 60 % higher incidence rate and are twice as likely to die in comparison to Whites (ACS 2011b). However, strides are being made as it relates to

this disparity. From 1999 to 2008, the incidence of prostate cancer has decreased significantly by 1.7 %/year among Black men. During this same time period, deaths from prostate cancer have decreased significantly by 3.7 %/year among Black men. From 2004 to 2008, the age-adjusted incidence rate for prostate cancer was 228.6 and 142.5 per 100,000 for Black and White men, respectively (U.S. Cancer Statistics Working Group 2012). The age-adjusted death rate for the same time period was 54.9 and 22.4 per 100,000 for Black and White men, respectively (U.S. Cancer Statistics Working Group 2012). Although we are seeing declines in incidence and mortality, the disparity remains. Prostate cancer is thought to account for nearly 40 % of the overall disparity in cancer mortality between Black and White men (ACS 2009). In comparison to Whites, prostate cancer afflicts Black men at an earlier age, higher grades, and more advanced stages (ACS 2010b). As a result of late stage presentation at the time of clinical diagnosis, the rates of cure and survival are low for Blacks compared to Whites (ACS 2010b). About 60 % of all prostate cancer cases are diagnosed in men 65 years of age and older, and 97 % occur in men 50 and older (ACS 2010b).

#### **6.5.4.3 Causes of Prostate Cancer Disparities**

While the disparity in prostate cancer mortality is well documented, examination of the causes is recent. As noted previously, the non-modifiable risk factors for prostate cancer are being Black, age, and family history. For men whose father, brother, or son has had prostate cancer, they have a higher-than-average risk of prostate cancer. In addition to these risk factors, to better understand the etiology of prostate cancer disparities, there are studies in progress examining the role and impact of other potential contributing factors. Such factors that have been postulated and are currently being examined include access to care, patient-centered communication, concordance of patient and physician race, level of prostate cancer knowledge, attitudes toward and perceptions of care, socioeconomic differences, differences in biological manifestation, type and aggressiveness of treatment, diet, genetics, lifestyle, and environmental factors (Bennett et al. 1998; Conlisk et al. 1999; Cooper et al. 2003; Freedland and Isaacs 2005; Howard et al. 2000; Odedina et al. 2004; Roetzheim et al. 1999; Tarman et al. 2000; Vijayakumar et al. 1996). While the examination continues, evidence of these factors being modifiable risk factors to support the exact etiology of prostate cancer disparities remains inconclusive.

Although screening and early detection, a secondary preventive strategy, have contributed to the decline in prostate cancer mortality, the scientific evidence to date has not definitively shown that screening with the PSA test reduces deaths (Andriole et al. 2009). The uncertainty with the biomarker PSA has led to much contention between clinicians, researchers, advocates, and policy makers. The contention relates in part to the biology of prostate cancer. Prostate cancer is biologically heterogeneous, where some prostate cancers grow slowly and never cause symptoms, while other prostate cancers are fast growing and metastasize quickly. The PSA is currently used as the clinical standard to detect prostate cancer. The PSA is secreted by prostate cells and when a large amount of this protein is seen in the blood, further evaluation is administered. An elevated amount of PSA does not mean cancer is

present but could be the result of an enlarged prostate or an infected prostate. Thus, the PSA is not a good predictor of detecting cancer and is likely to contribute to increased false positives and overtreatment.

From a behavior perspective, prior research has indicated that Black men know little about prostate cancer, which may serve as a primary barrier to participation in the preventive care strategies (Agho and Lewis 2001; Barber et al. 1998; Collins 1997; Wahnefried et al. 1995; Forrester-Anderson 2005; Fowler and Christie 1996; Price et al. 1993; Robinson et al. 1996; Smith et al. 1997; Steele et al. 2000; Weinrich 2001; Weinrich et al. 1998). While prostate cancer knowledge has not been correlated with increased screening behavior as some men decide to be screened after learning of the controversy surrounding the PSA test, lower knowledge levels among Blacks have been correlated with inability to recognize cancer symptoms, less access to cancer screening services, late stage presentation, lack of participation in screening activities for prostate cancer, and delays in seeking care after diagnosis, all of which ultimately impacts morbidity and mortality (ACS 2010b; Richardson et al. 2004; Smith et al. 1997; Targonski et al. 1991).

Genetic studies suggest that strong familial predisposition may account for 5–10 % of prostate cancers. Recent studies from the NCI's Cancer Genetic Markers of Susceptibility program and other investigations have identified variants in human DNA that are associated with the risk of developing prostate cancer. Different combinations of these variants have been found in men from different racial/ethnic backgrounds, and each combination is associated with higher or lower risk for prostate cancer. Nearly all of the variants associated with increased risk of developing prostate cancer were found most often in Black men, and certain combinations of these variants were associated with a five-fold increased risk of prostate cancer in men of this racial/ethnic group (Agalliu et al. 2009; Foulkes 2008; Amundadottir et al. 2006; Gudmundsson et al. 2007).

#### **6.5.4.4 Strategies to Reduce and Eliminate Prostate Cancer Disparities**

Over the last decade, there has been a host of strategies employed to address prostate cancer disparities. These strategies include the use of decision aids for prostate cancer screening and treatment in clinical and non-clinical settings, the use of lay health advisors through the community-based participatory research model, changes in public policy, addressing health literacy, and advancing models of health communication in community-based settings. While most of these aforementioned strategies focused on increasing education and awareness, the processes allowed for the examination of other etiological factors related to prostate cancer disparities. The goal to increase the knowledge levels of patients to a level which allows them to make an informed decision was found to be a unique challenge. However, Yarnall et al. (2003) concluded that due to the time constraints of the physician, they are limited in regards to being able to fully educate their patients. Educational efforts must continue at the patient level, but a change must take place in the source and method of administering such information. Myers et al. (1999) found men were more likely to participate in the informed decision-making process by the provision

of health education messages that emphasize the salience and coherence of early detection and elevation population risk. For many of the men in their study, their knowledge levels of prostate cancer treatment options were very low to nonexistent. Wilkinson et al. (2003) demonstrated prostate cancer awareness and knowledge could improve dramatically after a 1-hour seminar on the topic of treatment options for prostate cancer. Similar to the Wilkinson study, researchers are increasingly turning to decision aids as a primary source of education regarding prostate cancer treatments. Schapira et al. (1997) concluded that a videotape decision aid would benefit clinical practice by conveying knowledge to patients regarding treatment options and outcomes and encourage them to participate with their physicians in medical decision making. Onel et al. (1998) concluded standardized video presentations of treatment alternatives for prostate cancer could be incorporated into busy office practices. Both patients and physicians benefit from the increased level of understanding that allows physician/patient discussions to focus on the critical risk/benefit trade-offs rather than simply describing treatment alternatives. Similar studies assessing the role of videos in the shared decision-making process have led to similar conclusions. Besides videos, researchers have also concluded brochures and pamphlets have a significant role in the decision-making process. Schapira and VanRuiswyk (2000) concluded when used in a primary care setting, an illustrated pamphlet decision aid was effective in increasing knowledge of prostate cancer treatments. These findings were echoed by Cegala et al. (2000) who highlighted the role of brochures of enabling patients to communicate effectively. Thus, we see decision aids as a promising source in the future for educating patients regarding health matters, in our case prostate cancer treatments, enabling them to eventually make an informed decision. Decision aids may hold promise toward taking the burden of fully educating patients of such matters.

Based on these studies, it is apparent that educational efforts must not be limited to the patient level. Due to the psychological and other mental effects a person diagnosed with such a disease undergoes, it is improper to assume they fully understand the benefits, harms, or treatment outcomes and how they may affect their lives. Thus, educational efforts to increase their understanding must extend beyond the patient to their social support, which may include spouses, siblings, extended family, or friends.

The literature examining the preferences of men and spouses regarding trade-offs involved in prostate cancer treatment decisions reflect similar attitudes. Volk et al. (1999) found that women opted for more radical treatment choices than did their husbands when presented with hypothetical scenarios regarding prostate cancer treatment. Women were largely motivated by their desire to prolong time together as opposed to concern regarding the degree of burden of treatment side effects. When men were presented with similar scenarios, they were more conservative in their choices and rated potential side effects as more burdensome than their wives. Thus, we see a difference in viewpoints among patients and their spouses. Educational efforts should be targeted to increase the knowledge levels of couples with the focus on beliefs. O'Rourke and Germino (1998) found beliefs about cancer and cure were identified as major influential factors in the prostate cancer treatment

decision-making process among men and their spouses. Methods of education rendered to couples and patients' other social support include videotapes, brochures/pamphlets, hypermedia programs integrating CD-ROM and Internet technology, and the desire to discuss the cancer experiences of friends and relatives and compare it to their own. While the idea of incorporating spouses and other social support in the informed decision-making process is in the developmental stages, researchers must continue to build on the present work to identify patient and spousal/partner needs to ensure an informed decision is made based upon sufficient understanding. While steady progress has been made through educational campaigns, a plethora of studies indicate that Black men are not receiving or processing the information. Further research is needed to identify culturally appropriate communication channels to more effectively reach Black men. The disparity in knowledge about different aspects of prostate cancer illustrates the need to develop targeted and tailored information based on the sociodemographic characteristics of minority populations, such as age, educational attainment, income level, employment, marital status, and theoretically tested constructs of knowledge (Myers et al. 1994, 1999, 2000). It is also imperative that our level of inquiry begin to extend beyond the individual level to incorporate institutions, community, and policy factors. These structural and systemic improvements will help to address prostate cancer disparities in health and health care comprehensively.

Prostate cancer continues to disproportionately impact Black men when compared to men of other racial and ethnic groups. While tremendous progress has been made in the context of health promotion and education, there is an imperative to address those multilevel factors that impacts individual behavior. These include the built environment, health-care system, and policy. Comprehensive and systematically addressing these factors would allow for the reduction and elimination of prostate cancer disparities.

## **6.5.5 Lung Cancer Disparities**

### **6.5.5.1 Introduction to Lung Cancer Disparities**

Lung cancer is the leading cancer killer in the USA and is considered a highly preventable disease. It has been the leading cause of cancer death among men since the early 1950s and in 1987 passed breast cancer as the leading cause of cancer deaths among women (ACS 2008).

Lung cancer is the uncontrolled growth of abnormal cells in one or both of the lungs. While normal cells reproduce and develop into healthy lung tissue, the abnormal cells reproduce at a faster rate and never grow into healthy lung tissue. These growths cause tumors and eventually interfere with the normal functioning of the lungs. The tumor can eventually spread into other systems of the body and cause other damage and eventually death (Alberg et al. 2007).

Cigarette smoking is by far the primary risk factor for lung cancer, with the risk increasing based on the number of cigarettes smoked and the years of smoking. The US Surgeon General estimates that cigarette smoking causes 80 % of lung cancer



deaths in women and 90 % of lung cancer deaths in men. Individuals who are non-smokers who are exposed to cigarette smoke have a 20–30 % greater chance of developing lung cancer (U.S. Department of Health and Human Services 2004, 2006). The survival rates for lung cancer tend to be much lower than those for other common cancers. For example, the 5-year survival rate for all patients with lung cancer is approximately 15 % compared to 64 % for colon cancer, 89 % for breast cancer, and 99 % for prostate cancer (SEER 2008). Black men have higher lung cancer incidence and mortality despite the fact that Blacks have later onset of smoking and smoke fewer cigarettes per day compared to Whites (Muscat et al. 2005). Education and awareness efforts that are culturally competent are needed to help address this issue.

### **6.5.5.2 Causes of Lung Cancer Disparities**

To date, there are no consensus guidelines for lung cancer screening, even for high-risk individuals and groups (Flenaugh and Henriques-Forsythe 2006; Smith et al. 2009). However, the causal factors that have been investigated regarding lung cancer disparities can be categorized as tobacco use, prevention/awareness, environmental exposures, and genetics.

Smoking has been well documented as the major risk factor for lung cancer among all races and ethnicities. Smoking tobacco tends to be concentrated in populations that have limited resources, low incomes, and are minorities as a coping strategy that addresses issues around stress, violence, and unemployment (Irvin Vidrine et al. 2009). Smoking tobacco is a particularly concerning issue within the Black community. Research has demonstrated that Blacks have higher serum cotinine levels per cigarette smoked, resulting in a higher intake of nicotine per cigarette smoked and slower cotinine clearance (Pérez-Stable et al. 1998). Additionally, it has been suggested that a difference in the use of menthol cigarettes may be the differences that are noted between Black and White smokers. The effects of menthol cigarettes are still not very well understood, but it is believed that these cigarettes provide higher levels of cotinine (a by-product of nicotine) in the blood, and these rates may be linked to increased levels of addiction. Menthol smokers are less likely than non-menthol smokers to feel that they can quit smoking, less likely to attempt smoking cessation, and more likely to relapse after successfully quitting (Okeuyemi et al. 2007; Gundersen et al. 2009). The higher usage of menthol cigarettes has been linked to decades of marketing that specifically target the Black community, brand choice among Blacks, and difficulty with smoking cessation. Intense marketing of cigarettes to Blacks has occurred since the 1960s. Referred to as the “African Americanization of menthol cigarettes,” the tobacco industry marketed menthol cigarettes to the Black community as “smooth,” “cool,” and “healthier” than non-menthol cigarettes. Cigarette advertising in Black magazines was ten times more likely than magazines for the general population. It was also noted that 70 % of those ads were for menthol cigarettes (Connolly 2007). The concerted marketing efforts were seemingly successful given a report from the Substance Abuse and Mental Health Services Administration (SAMHSA) which indicates that 83 % of Black



smokers aged 12 and older choose menthol cigarettes. This compares to only 32 % of Hispanic and only 24 % of White smokers choosing menthol cigarettes (SAMHSA 2009).

The Black community is disproportionately affected by lung cancer compared to other communities, where the prevalence rate of smoking in Black men is estimated to be approximately 28 % and disparities in incidence and mortality are significant. Knowledge has emerged as a potentially causal factor. Specifically, there has been a reported difference in knowledge related to tobacco utilization. Data from the National Cancer Institute's Health Information National Trends Survey (HINTS) indicates that knowledge related to lung cancer mortality was lower among women, older adults, and non-Hispanic Blacks (Finney Rutten et al. 2008). Another study found that Hispanics and Blacks were less likely to be asked about their tobacco use, less likely to be advised to quit smoking, and less likely to have used a smoking cessation program or aid in the past year (Cokkinides et al. 2008).

Environment plays an important role in one's exposure to pollutions in the air. Exposures to secondhand smoke, asbestos, certain metals, and paints are associated with increased risk of lung cancers (ACS 2012a). Race and income has an effect on one's ability to choose where they live and or work. This in turn may expose them to higher levels of pollutions that are in their communities. Blacks have historically faced higher levels of pollutants in their communities because of racial segregation, which limit choices of where they could live. According to a recent study, Black neighborhoods face an average of 1.5 times higher levels of air pollutants than any other communities. Interestingly higher levels of pollutants are found as the SES of the residents goes down (Downey and Hawkins 2008). Another key exposure to consider is occupational exposures. It is also well documented that Blacks tend to be exposed to more toxins on the job compared to other populations. Blacks tend to have jobs that require them to work closely to toxins, such as transportation jobs. Blacks also tend to be overrepresented in the service jobs area, which leads to more exposure to environmental hazards (U.S. Environmental Protection Agency 2002).

A genetic connection to lung cancer is a young but emerging area of study. Researchers continue to look for specific types of genes that may increase risk among individuals or discover whether certain racial and ethnic populations have classes of genes that increase risk. Preliminary analysis reveals there may appear to be a genetic association with nicotine dependence and an increased risk of lung cancer (Schwartz et al. 2009). Blacks are less likely to carry this particular gene but have a greater risk for lung cancer than Whites when the gene is present (Schwartz et al. 2009). Another study examining genes and the impact on lung cancer found a specific gene that is linked to cotinine levels (Hamidovic et al. 2012). Black smokers tend to have higher levels of cotinine in their blood compared to Whites. Cotinine is important because it is a by-product of nicotine that stays in the bloodstream after smoking. This higher level of cotinine may also suggest that Blacks might have higher levels of other carcinogens related to tobacco in their system. Some studies have examined how genetic differences impact how individuals respond to lung cancer drugs. Some of the newer lung cancer drugs have been designed to target

specific characteristics of lung cancer cells. A study of Blacks determined that they did not respond well to this new drug because they were missing the genetic characteristic that is targeted by one of the more common lung cancer drugs (Leidner et al. 2009). The progress in this area continues to be slow because of the low levels of Black patients who participate in clinical trials. This issue is elaborated upon in another section of this chapter.

### **6.5.5.3 Strategies to Reduce and Eliminate Lung Cancer Disparities**

There have been many advances made in addressing lung cancer rates and risk factors. There is still work to be done to close the gap in lung cancer disparities between populations. In order for this gap to be closed, special attention will need to be paid to this issue and more dedicated resources focused on lung cancer disparities. Much like the strategies for other cancers, more emphasis on education and awareness of the risk factors associated with lung cancer is essential. There are many public and private organizations and agencies that have developed effective interventions to address this issue. It will be important to identify and replicate these efforts on a more national level. Many of these interventions have focused on advocacy work that includes tobacco control efforts; healthy air legislation; increased funding for research, prevention, and treatment; and finally improving the treatments for locally advanced lung cancers. A part of that effort would be to ensure that high-risk individuals are screened and treated as early as possible. It is clear that in order to see the improvements in this area, governments, health-care providers, community advocates and leaders, and individuals must understand their role and work together.

The differences that are observed in lung cancer incidence among racial and ethnic groups tend to be influenced by genetic susceptibility to lung cancer, environmental exposures, and smoking prevalence differences. Many organizations, such as the CDC, recommend an approach that is comprehensive and takes into account the factors that increase risk of lung cancer. The approach must also be evidence-based prevention and cessation strategies. Given that smoking is the most prevalent risk factor, there must be a focus on comprehensive tobacco control. From a policy perspective, enhanced smoke-free laws may have an impact on smoking rates across populations. Finally, there must be continued surveillance of smoking prevalence and lung cancer incidence within racial and ethnic groups and between groups. This surveillance will be critical in determining the impact of evidence-based interventions.

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## **6.6 Strategies for Reducing and Eliminating Cancer Disparities**

There are multiple, interrelated factors that contribute to disparities. Therefore, strategies to reduce disparities should aim to address several of these causal factors in order for groups and/or individuals to truly benefit.

### 6.6.1 Community-Based Outreach and Education

Community-based methods provide an imperative approach for reaching high-risk groups through education, research, and access to services and allow for community involvement in an effort to reduce health disparities (Wallerstein and Duran 2006). In particular, community health workers (CHWs) are useful in increasing access to screening services, improving the quality of care, and leading to broader social contributions, such as educational opportunities for underrepresented groups (Wells et al. 2011). CHWs are lay members of the community, who usually share ethnicity, language, socioeconomic status, and life experiences with the community members in which they serve (Health Resources and Services Administration 2007). Typical roles of CHWs consist of (1) providing an effective link between vulnerable populations and the health-care system, (2) managing care for vulnerable populations, (3) ensuring cultural competence among health-care professionals, (4) delivering culturally appropriate health education, (5) advocating for underserved individuals to receive appropriate services, (6) providing informal counseling, and (7) building community capacity to address health issues (Health Resources and Services Administration 2011).

### 6.6.2 Access to Health Services

An important opportunity for eliminating cancer disparities is increasing access to care, including regular, age-appropriate cancer screening participation. Early detection, via screening, has contributed to the overall decrease in cancer mortality. Providing or expanding insurance coverage for preventive services could minimize out-of-pocket expenses, which may decrease the likelihood of deferring care due to cost (Bennett et al. 2012). Anhang Price et al. (2010) suggest that to improve cancer screening rates, strategies should include (1) limiting the number of interfaces across organizational boundaries and provide on-site, same-day screenings; (2) recruiting patients, promoting referrals, and facilitating appointment scheduling; and (3) promoting continuous patient care.

National programs to increase access to screening services have been implemented such as the CDC's National Breast and Cervical Cancer Early Detection Program (NBCCEDP) and the Screen for Life: National Colorectal Cancer Action Campaign. The NBCCEDP provides low-income, uninsured, and underserved women access to timely breast and cervical cancer screening and diagnostic services (CDC 2012a). From 2006 to 2011, over one million women were screened for breast cancer and for cervical cancer.

The Screen for Life: National Colorectal Cancer Action Campaign began in 1999 to encourage men and women 50 years of age and older to regularly be screened for colorectal cancer. This program also provided public education, outreach, diagnostic follow-up care, and means to evaluate the program's effectiveness (CDC 2012c).

### 6.6.3 Health-Care Providers

Another important strategy for reducing disparities is to consider the role of the health-care provider and the need to reduce structural barriers to individual health-seeking behaviors (Shavers et al. 2002). A report by the Institute of Medicine (IOM) concluded that, based on a large body of published research, racial and ethnic minorities, in particular Blacks, experience lower quality health services and are less likely to receive even routine medical procedures than are Whites (Smedley et al. 2003). For example, Bartlett (1999) discovered that, under the existing managed care system, many Black patients complained that their health-care providers failed to provide complete information, are hurried in providing their care, and do not spend sufficient time with them. In a study by Baldwin (1996), Black patients complained that doctors do not listen to their concerns and believed their insensitivity was the result of racial bias and discrimination.

The IOM report (Smedley et al. 2003) additionally stresses the need for health-care providers to understand cultural variations. Communication is commonly linked to culture and belief systems (Roter 1987); terminology and jargon depend primarily on the culture in which individuals are reared. Post et al. (2001) concluded that taking patient characteristics, such as race and culture, into account could enhance the benefits of physician communication. To understand the attitudes and values of their patients, health-care providers must become familiar with their socioeconomic and demographic characteristics, belief systems, and health behaviors. Once they attain sufficient knowledge, they can progress to a level of cultural competency, which is the application of cultural knowledge, behaviors, and interpersonal and clinical skills that enhances effectiveness in managing patient care. Health professionals must receive education about culturally competent care and learn the role and impact of sociocultural factors on health-seeking behaviors among racial and ethnic groups, such as Blacks, early in their formal training and education (e.g., medical school, nursing school) and frequently thereafter through continuing education (Green et al. 2006).

Additionally, an increase in the number of minority providers will help in overcoming health-care barriers. Minorities continue to be severely underrepresented in health professions schools and the health-care workforce (Smedley et al. 2003, 2004; The Sullivan Commission 2004). This shortage has been established as a causal link between unequal treatment and unequal health status. The Sullivan Commission (2004) reports that (1) diversity is critical to increasing cultural competence and thus improving health-care delivery, (2) increasing diversity in the workforce improves patient satisfaction, and (3) underrepresented minority health-care providers tend to practice in underserved areas, thus improving access for the most vulnerable. The diversity of our society demands that our health-care system reflect and respond to changing demographics.

Health-care providers also play a key role in encouraging their patients to participate in cancer screenings. While uncertainty about the effectiveness of prostate cancer screening persists, patients are encouraged to make an informed decision with their health-care provider (U.S. Preventive Services Task Force [USPSTF] 2008). The underlying assumption is that adherence will increase if the patient trusts his health-care provider and has enough knowledge about prostate cancer to make a decision reflecting his

personal values. It is further anticipated that health professionals can effectively engage in discussions with patients, providing informative, unbiased health information and delivering it in a culturally sensitive manner (Nguyen and McPhee 2003). The extent of patient interaction with the health-care provider has been established as a possible facilitator or barrier to securing health information and adequate health care among racial and ethnic groups. These structural and systemic improvements will help to address cancer disparities in health and health care comprehensively.

#### **6.6.4 Knowledge and Awareness**

Strategies to increase knowledge and awareness of cancer and cancer disparities are critical to empowering individuals to take proactive measures regarding their health. Individuals need to understand ways to help prevent cancer through healthy lifestyles and know the importance of early detection through routine cancer screenings. The interventions developed and utilized by health professionals and researchers to increase knowledge and awareness desperately need to be linguistically and culturally appropriate.

It is essential to account for culture, literacy, and communication issues among populations at higher risk for disparities when implementing message interventions (Meade et al. 2007). The effectiveness of disseminating generic cancer messages through the usual channels (e.g., health-care providers and educational materials, such as CD-ROMs and DVDs) must be further evaluated with minority populations. Targeted and tailored messages must be developed and disseminated through culturally appropriate channels to ensure reception and retention.

#### **6.6.5 Health Policy**

The inclusion of health policies as a strategy for reducing health disparities is extremely effective and necessary. Policy decisions have the ability to affect the health of individuals in the greatest numbers. In particular, policies that focus on social determinants of health can have the most profound impact on disparities because they address the social conditions that contribute to the complexity of health disparities (Carter-Pokras et al. 2012). It is of even greater importance that the effectiveness of health policies be measured by a progression toward achieving health equity (Marmot 2012).

System and policy changes, although daunting, are achievable. Increasing access to quality-improved facilities, collection and reporting of health status data, as well as federal funding and policies that support American Recovery and Reinvestment Act (ARRA)-funded comparative effectiveness programs and implementation of the health reform provisions within the Affordable Care Act, are a few of the current initiatives to impact social determinants of health at the system and policy levels. Each of these efforts helps move beyond an individual-level, medical-model approach to systems and population changes that improve overall health by more readily adopting evidence-based practices and practice-based evidence (Green and Glasgow 2006).

Additionally, the Patient Protection and Affordable Care Act addresses disparities by improving access to quality health care for all Americans, with the anticipation of assisting with the reduction of disparities. Specifically, through this landmark legislation, the following improvements in the nation's health-care system will take place:

- *Preventive care.* Medicare and some private insurance plans will cover recommended regular check-ups, cancer screenings, and immunizations at no additional cost to qualifying individuals and families. The cancer screenings include mammograms and colonoscopies (U.S. Department of Health and Human Services n.d.; Patient Protection and Affordable Care Act 2010).
- *Coordinated care.* The law calls for new investments in community health teams to manage chronic disease. This is particularly relevant for minority communities as they experience higher rates of illness and death for chronic diseases such as diabetes, kidney disease, heart disease, and cancer (U.S. Department of Health and Human Services n.d.; Patient Protection and Affordable Care Act 2010).
- *Diversity and cultural competency.* The legislation expands initiatives to increase racial and ethnic diversity in the health-care professions. It also strengthens cultural competency training for all health-care providers. Health plans will be required to use language services and community outreach in underserved communities. Improving communications between providers and patients will help address health disparities particularly in Hispanic communities, which currently have high numbers of uninsured people (U.S. Department of Health and Human Services n.d.; Patient Protection and Affordable Care Act 2010).
- *Health-care providers for underserved communities.* The law increases funding for community health centers, which provide comprehensive health care for everyone regardless of their ability to pay. It is estimated, health centers serve an estimated one in three low-income people and one in four low-income minority residents. The new resources will enable health centers to increase the number of patients they serve (U.S. Department of Health and Human Services n.d.; Patient Protection and Affordable Care Act 2010).
- *Ending insurance discrimination.* Through the legislation, insurance discrimination will be banned; thus people with preexisting conditions or who have been sick cannot be excluded from coverage or charged higher premiums. Women will no longer have to pay higher premiums because of their gender. New funding will be available to collect information on how women and racial and ethnic minorities experience the health-care system, leading to improvements that will benefit these groups (U.S. Department of Health and Human Services n.d.; Patient Protection and Affordable Care Act 2010).
- *Affordable insurance coverage.* A new health insurance marketplace will be created in 2014. These new health insurance Exchanges will offer one-stop shopping so individuals can compare prices, benefits, and health plan performance on easy-to-use websites. The Exchanges will guarantee that all people have a choice for quality, affordable health insurance even if a job loss, job switch, move, or illness occurs. The new law also provides tax credits to help more Americans pay for insurance (U.S. Department of Health and Human Services n.d.; Patient Protection and Affordable Care Act 2010).

### 6.6.6 Clinical Trials Participation

Cancer clinical trials are instrumental to developing new methods to prevent, detect, and treat cancer (NCI 2012). It is through clinical trials that researchers are able to make the determination whether new treatments are safe and effective and work better than current treatments (NCI 2012). There are several types of cancer clinical trials, including treatment trials, prevention trials, screening trials, and supportive and palliative care trials (NCI 2012). A key strategy to increasing the effectiveness of health care is the development of applicable prevention, therapeutic, and supportive care strategies for the American population, respective of their biological, social, and environmental differences. However, to achieve such participation and ensure the generalizability of research results, participation by all populations is needed in clinical trials. Racial and ethnic minority groups historically tend to be underrepresented in health research studies. Minorities' unwillingness to participate in research is believed to be a result of distrust originating from past research abuses, such as the U.S. Public Health Service Syphilis Study at Tuskegee (Shavers et al. 2001; Green et al. 2000; Thompson et al. 1996; Dennis and Neese 2000; Shavers-Hornaday et al. 1997; Gauthier and Clarke 1999; Svensson 1989; Williams et al. 2001; Shavers et al. 2002; Wendler et al. 2006). More recently, several studies have found other predictors to be more salient to minorities' participation in clinical trials. These include minority access to research participation, utilization of locales accessible to minority groups, knowledge and awareness of minorities' participation in research, cost, lack of insurance, study design eligibility criteria, cultural barriers, low literacy, and practical obstacles (Wendler et al. 2006; Stallings et al. 2000; Corbie-Smith 2004; Corbie-Smith et al. 2003; Katz et al. 2006, 2008; Green et al. 2011).

Several national initiatives have been implemented to address many of the aforementioned issues. Given the vast array of issues, only two will be discussed in this section. In response to the lack of insurance coverage for patients who participate in a clinical trial, a growing number of states have passed legislation or instituted special agreements requiring health plans to pay the cost of routine medical care participants receive in a clinical trial. While coverage varies by state, in 2014, the Patient Protection and Affordable Care Act will require health insurers to pay for routine cost of care in approved clinical trials for cancer and other life-threatening diseases (Phillips 2010). Out of concern with the lack of minority representation at all levels of biomedical research and to increase access to clinical trials through physicians, the National Medical Association developed the program Project Increase Minority Participation and Awareness of Clinical Trials (I.M.P.A.C.T.), which is purposed to increase the awareness, knowledge, and participation of Black physicians and consumers/patients in all aspects of biomedical research and clinical trials. Key activities through this initiative include the education of Black physicians and facilitation of their participation in clinical and biomedical research, development and distribution of culturally and contextually appropriate clinical trial materials, governance of a database of minority physician investigators interested in participating in clinical trials, dissemination of information regarding biomedical research involving Blacks to members of the National Medical Association, and



collaboration and partnerships with other organizations and entities to increase minority awareness and participation in biomedical research and clinical trials (Powell et al. 2008). Similar initiatives may prove successful with other racial and ethnic minority groups.

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## Conclusion

There is ample evidence to support the notion that cancer health and health-care disparities do exist in this country. These differences are consistent across the range of cancers. Disparities in cancer have a critical impact on society. Inequalities in health are simply unfair, and the notion that individuals have to suffer due to reasons primarily beyond their control is unjust (Woodward and Kawachi 2000). In a study assessing Americans' perceptions of fairness in health, those who perceived health care as an important social good believed that everyone has a right to decent health not just because health offers equal opportunities (Lynch and Gollust 2010). Health disparities affect everyone, not just the ones experiencing the inequality, resulting in a "spill over" effect (Brott et al. 2011; Woodward and Kawachi 2000). Those who are disadvantaged may lack the resources to participate in the social and economic mainstream of society, which in turn will affect the health of everyone in the community.

Healthy People 2020 established a goal of achieving health equity and thereby eliminating health disparities, in order to improve the health of all groups (U.S. Department of Health and Human Services 2012). Eliminating cancer disparities would, in essence, result in better survival rates, enhanced health-related quality of life, decreased medical costs, and perhaps in some cases the prevention of cancer altogether (NCI 2007). Promoting routine cancer screenings would result in early detection and therefore, less intensive treatment for the patient, helping to reduce the overall costs of cancer. It has been estimated that about one-third of cancer deaths can be attributed to preventable behaviors (ACS 2012a). Therefore, increasing health-promoting behaviors among individuals experiencing inequities in health can contribute to the prevention of cancer and would decrease cancer mortality rates across communities. The term "healthy community" was coined as a community that is "continuously creating and improving those physical and social environments and expanding those community resources that enable people to mutually support each other in performing all the functions of life and in developing to their maximum potential" (Duhl and Hancock 1988).

However, the realization of such a community will require interventions at multiple levels and within the complex nature in which health and health-care disparities exist. Strategies to eradicate inequities will require (a) additional research, (b) enhancements of clinical practice, and (c) system and policy changes that recognize and address past injustices and preclude future abuses. Future research must clearly articulate best practices and efficacy. Thereby, behavioral and clinical interventions can and will be more likely augmented by community-directed programs and integration of multiple professional and civic organizations in the work of improving the health of disparate populations. As well, clinical research will lead to health-care system changes and provider



practices that involve the patient, caregivers, and communities involved in finding remedies. Additionally, funding agencies will do well to tie grant and foundation funding to interventions that demonstrate both cost and practical effectiveness. Evidence-based clinical care should be the standard of care. Patients should be educated and empowered to contribute to the improvement of their clinical care experience. As well, technology and informatics should be utilized to bolster the clinical experience. Finally, institutional and insurance payer policies should be tied to evidence-based, cost-effective, improved patient health outcomes.

Eliminating cancer health disparities will not only benefit individual's health but will essentially create healthier communities. Understanding the unfortunate burden cancer health disparities causes on individuals and society, implementing effective strategies for research, policy and practice, and having hope for a better tomorrow may be the driving force for a national commitment to eliminating cancer disparities.

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