CHAPTER 3

CANCER DISPARITIES

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CANCER DISPARITIES

Despite dramatic improvements in health in the United States over the last century, at no time in the history of the United States has the overall health status of racial/ethnic minority populations such as African Americans, Native Americans, Hispanics, and several Asian subgroups equaled that of white Americans.[1] Disparities in health are receiving increased national attention, and several major federal and local initiatives have been set up to define and reduce or eliminate disparities in health. While advances in health and medical care have produced improvements in longevity and health outcomes, there remain disproportionate disease burden and poorer health outcomes, or "health disparities" in the United States.[2,3]

The term health disparities has been defined in several ways.[4] For the purposes of this chapter, the committee developed the following definition, which is used throughout the chapter: "Health disparities are differences in the incidence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in Maryland."

While racial/ethnic disparities in health are the largest category of disparities for which supportive data exist, disparities in other categories exist such as geography (urban vs. rural), gender (male vs. female), socioeconomic status (poor vs. non-poor), and age (elderly vs. non-elderly). It is important to note that racial/ethnic disparities may not be mutually exclusive of other disparity classifications. While many factors have been described as "causes" and are likely to be important in the genesis of disparities, scientifically validated evidence of definitive causal pathways and the underlying factors, such as biologic mechanisms, are poorly understood.[5,6,7]

Cancer, the second leading cause of death in the United States, has documented racial/ethnic disparities which create a disproportionate burden for minority populations.[8,9,10] The unequal burden of cancer in minority and underserved communities nationally and in Maryland is a crisis that requires intensive scientific research, community outreach, and translational activities that foster discovery and delivery of existing and new interventions to eliminate disparities. As such, the solutions to reduce and eliminate cancer disparities are complex and require intensive and multidisciplinary approaches that unite research and community outreach strategies.

Overview of Health Disparities

A substantial body of scientific literature documents racial/ethnic and low-income population differences in risk factors and exposures for behavioral, environmental, and other factors related to cancer disparities. This includes cigarette and smokeless tobacco use, alcohol consumption, diet and physical activity, and occupational and environmental exposures. (See chapters 5, 6, and 8.)

Disparities in health care access, utilization, and delivery are well established.[11] Access to, and delivery of, quality health care and differences in cancer screening and follow-up, as well as disparities in cancer treatment,[12] palliative care, and pain management[13] are all factors related to racial/ethnic and geographic disparities in cancer rates. These health care factors may result in differences in cancer prognosis, stage, survival, mortality, and recurrence for minorities and the poor.

Health care delivery disparities have resulted in important national discussions as a result of a recent Institute of Medicine report.[14] This report concludes that minorities, particularly African Americans, frequently receive lower quality of health care than whites, even when access-related factors are controlled.[15,16,17,18] The sources of these disparities are complex and likely developed within the context of historic inequities, bias, clinical uncertainty, mistrust, personal behavior, and the organization and operation of the current U.S. health care system.[19]

Disparities may occur in risk factors, exposures, and access and use of quality cancer services, which may result in higher cancer morbidity or incidence rates. Disparities in access to quality cancer and health care services may produce racial/ethnic differences in cancer outcomes, such as higher mortality or lower survival rates from certain cancers. This has been well-documented for African Americans compared to whites.[20,21,22] Data from the American Cancer Society, Centers for Disease Control and Prevention (CDC), National Cancer Institute (NCI) Surveillance Epidemiology and End Results (SEER) program, and North American Association of Central Cancer Registries document the existence of disparities in cancer incidence, mortality, and survival among different racial/ethnic groups, particularly for African Americans. Table 3.1 highlights cancer disparities among blacks and whites in incidence, mortality, and survival for select cancers in the United States.

From 1992 to 1999, African Americans were at a higher risk of developing and dying from cancer than any other racial or ethnic group.[23] During this time period, the age-adjusted cancer incidence rates for all sites combined among African Americans was 526.6 per 100,000 persons compared to rates of 480.4 for whites, 329.6 for Hispanics, 348.6 for Asian/Pacific Islanders, and 244.6 for American Indian/Alaska Natives.

Table 3.1
Black/White U.S. Cancer Incidence, Mortality, and Survival Rate Ratios

	Black/White Incidence Ratio (1995–1999)	Black/White Mortality Ratio (1995–1999)	Black/White Survival Rates (%) Ratio (1992–1999)
Breast (female)	0.88	1.32	.84
Lung	1.27	1.18	.82
Cervix	1.68	2.21	.84
Prostate	1.63	2.33	.95
Esophagus	1.78	1.80	.58
Stomach	1.96	2.23	.96
Liver	1.58	1.49	.68
Colon	1.12	1.36	.84
Oral cavity	1.19	1.71	.60

Source: Ries LAG, Eisner MP, Kosary CL, et al., editors. SEER Cancer Statistics Review, 1975–2000. Bethesda, MD: National Cancer Institute, 2003 (Accessed at http://seer.cancer.gov/csr/1975_2000).

Generally, whites have been the reference group in these epidemiological studies.[24] African-American males are the only group from any of the five racial and ethnic groups to have overall cancer incidence and mortality rates that are higher than overall cancer incidence and mortality rates for whites.

During the same time period, white females had the highest incidence of breast cancer, while African-American females had the highest mortality from breast cancer. African Americans had the highest incidence and mortality rates of all groups for colorectal, lung, and prostate cancer. The one exception to this rule were African-American females who had a slightly lower mortality rate from lung cancer than white females.

Among other racial and ethnic subpopulations, the following can be seen:

1. Cervical cancer incidence rates in Vietnamese women are five times higher than the rates among white American women (1988–1992).
2. Hispanic women had the second highest invasive cervical cancer incidence rates after Vietnamese women and twice the incidence rates of non-Hispanic white women.
3. Hawaiian women have the highest incidence and mortality from uterine cancer compared to other populations.
4. Alaska Natives have the highest incidence and mortality from colorectal cancer compared to all other populations except African-American males, whose mortality is slightly above that of Alaska Natives.[25]

The remainder of this chapter is devoted to Maryland-specific health and cancer disparities. Maryland data, where available, will be provided for African Americans, Hispanics, Asian/Pacific Islanders, Native American/Alaska Natives, and whites. Major factors contributing to cancer disparities in Maryland are discussed, including geography, insurance status, socioeconomic status, and age. The chapter concludes with a discussion of some emerging special populations in the state and provides recommendations to reduce or eliminate cancer disparities in Maryland.

Classification of Race and Ethnicity

This chapter uses the standard federal classification of race and ethnicity referred to as "OMB Directive 15." For more than 20 years, the standards in the federal Office of Management and Budget's (OMB) Statistical Policy Directive No. 15 have provided a common language to promote uniformity and comparability for data on race and ethnicity for population groups. These standards were developed to provide consistent data on race and ethnicity throughout the federal government. Development of these data standards stemmed, in large measure, from new responsibilities to enforce civil rights laws. Data were needed to monitor equal access in housing, education, employment, and other areas for populations that historically had experienced discrimination and differential treatment because of their race or ethnicity. The standards are used not only in the census (which provides the data for the "denominator" for many measures), but also in household surveys, on administrative forms (e.g., school registration and mortgage lending applications), and in medical and other research. The categories represent a social-political construct designed for collecting data on the race and ethnicity of broad population groups in this country and are not anthropologically or scientifically based.

The standards have five categories for data on race: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and white. There are two categories for data on ethnicity: "Hispanic or Latino" and "Not Hispanic or Latino." The definitions of these categories is as follows:

- **American Indian or Alaska Native:** A person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment.
- **Asian:** A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- **Black or African American:** A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American."

- **Hispanic or Latino:** A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term "Spanish origin" can be used in addition to "Hispanic or Latino."
- **Native Hawaiian or Other Pacific Islander:** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- **White:** A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.[26]

Cancer Disparities in Maryland

In Maryland, as in the United States, increasing attention is being placed on reducing and eliminating disparities in health. As on the national level, Maryland cancer disparities occur in a variety of categories including racial/ethnic, geographic, gender, age, and socioeconomic groups.[27] Disparities may exist for cancer incidence, survival, and mortality; socioeconomic status; risk factors such as occupational exposure, tobacco use, diet, nutrition and alcohol intake, physical activity, and family history; access and use of cancer prevention, screening, and early detection services; and treatment, pain management, and palliative care.[28,29,30]

While major efforts are underway to define and describe disparities, the identification of specific factors that cause disparities and how these factors are interrelated is complex and poorly understood. Interventions to reduce or eliminate disparities are even more poorly understood. The following is a list of some major factors that may explain cancer disparities:

- risk factors and exposures (e.g., tobacco, alcohol, diet and physical activity, environment, and occupation)
- socioeconomic status
- discrimination
- knowledge, attitudes, and behaviors
- access to quality care
- low participation in clinical trials
- late stage at diagnosis
- delay in seeking diagnosis or treatment
- culture and language
- cancer care related behaviors, such as cancer screening and follow-up, early detection, treatment and palliative care, and pain management.
- other emerging factors, such as biology, prognostic factors, and co-morbidity

Racial and Ethnic Cancer Disparities in Maryland

Racial and ethnic minorities and underserved communities in Maryland suffer distinct disadvantages in accessing readily available health care services for cancer prevention, screening and follow up, early detection, and treatment.[31] Historically, minorities and the poor have been underrepresented in cancer research, particularly prevention research.[32] Low representation in clinical trials and poor access to the benefits of cancer research are related to poor cancer outcomes. Racial/ethnic disparities in cancer incidence, mortality, and stage distribution in Maryland are found in Tables 3.2–3.8. Some rates are not available for Asian/Pacific Islanders, Hispanics/Latinos, and American Indians/Alaska Natives for some cancer sites due to 25 or fewer cases within the group. For the time period 1995–1999, the "other" category is used in some places as a combined indicator of smaller minority populations (American Indian, Asian, and Pacific Islander). Note that in these cases, the "other" group is not a homogenous population and contains subgroups that have different cancer rates.

Cancer Disparities in African Americans

African Americans in Maryland have the highest overall cancer incidence and mortality rates of any racial or ethnic groups (Table 3.2), as well as the highest incidence and mortality rates for many specific cancer sites, including the highest rates for colorectal, oral, and lung cancers. Cancer mortality is higher among blacks than whites for every cancer site; this is especially true for prostate and cervical cancer.

In general, African Americans are diagnosed with cancer at later stages than whites. Maryland whites have a higher proportion of localized disease at diagnosis than blacks, while blacks have higher regional and distant disease than whites (Table 3.4). Among whites, 43.3% of cancers are diagnosed in the localized stage compared to 34.8% for African Americans. There is higher localized disease in whites and higher distant disease

Table 3.2
Maryland Cancer Incidence and Mortality, All Sites Combined by Race and Ethnicity

Race/Ethnic Group	Dates	Overall Incidence	Overall Mortality
African American	1995-1999	527.6	276.9
White	1995-1999	492.9	210.3
Hispanic / Latino	1999	284.1	38.3
Asian / Pacific Islander	1998-1999	203.1	101.6
American Indian / Alaska Native	1998-1999	144.0	134.5

Rates are per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Source: Maryland Cancer Registry.

Table 3.3
Cancer Mortality Rates for Select Cancer Sites by Race in Maryland and the United States, 1995–1999

	MD Total	MD White	MD Black	U.S. Total
Lung and bronchus	62.5	61.3	72.5	57.7
Prostate	38.2	31.1	78.5	33.9
Female breast	31.2	29.8	38.3	28.8
Colorectal	24.3	22.9	31.9	21.7
Cervix	3.1	2.4	5.3	3.1

Rates are per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Source: SEER, 1995–1999.

Table 3.4
Percent Distribution of New Cancer Cases by Stage at Diagnosis and Race in Maryland, 1999

	STAGE AT DIAGNOSIS		
Race	Localized (%)	Regional (%)	Distant (%)
MD Whites	43.3	20.9	16.1
MD Blacks	34.8	22.7	19.4

Rates are per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Source: Maryland Cancer Registry, 1999.

Table 3.5
Lung Cancer Incidence and Mortality by Race in Maryland

Race/Ethnic Group	Dates	Incidence	Mortality
African American	1995–1999	82.4	72.5
White	1995–1999	77.4	61.3
Other*	1995–1999	41.3	22.0
Hispanic / Latino	1999	29.3	7.8
Asian / Pacific Islander	1998–1999	21.4	19.5
American Indian / Alaska Native	1998–1999	N/A	N/A

Rates are per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Source: Maryland Cancer Registry.
*Race reported as American Indian, Asian, and Pacific Islander are counted in the category called "Other."

Table 3.6
Colorectal Cancer Incidence and Mortality by Race in Maryland

Race/Ethnic Group	Dates	Incidence	Mortality
African American	1995–1999	66.0	31.9
White	1995–1999	57.0	22.9
Other*	1995–1999	50.0	11.7
Hispanic / Latino	1999	34.3	N/A
Asian / Pacific Islander	1998–1999	27.1	11.1
American Indian / Alaska Native	1998–1999	N/A	N/A

Rates are per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Source: Maryland Cancer Registry.
*Race reported as American Indian, Asian, and Pacific Islander are counted in the category called "Other."

Table 3.7
Female Breast Cancer Incidence and Mortality by Race in Maryland

Race/Ethnic Group	Dates	Incidence	Mortality
White	1995–1999	144.2	29.8
African American	1995–1999	128.6	38.3
Hispanic / Latino	1999	83.5	N/A
Asian / Pacific Islander	1998–1999	68.9	7.9
American Indian / Alaska Native	1998–1999	N/A	N/A

Rates are per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Source: Maryland Cancer Registry.

Table 3.8
Prostate Cancer Incidence and Mortality by Race in Maryland

Race/Ethnic Group	Dates	Incidence	Mortality
African American	1995–1999	255.0	78.5
White	1995–1999	158.4	31.1
Hispanic / Latino	1999	86.0	N/A
Asian / Pacific Islander	1998–1999	35.7	N/A
American Indian / Alaska Native	1998–1999	N/A	N/A

Rates are per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Source: Maryland Cancer Registry.

in blacks at the time of diagnosis for several types of cancer. For example, blacks with invasive cervical, breast, and prostate cancers are less likely to be diagnosed in Stages I or II than are whites.[33]

African-American females have the highest incidence and mortality rates for cervical cancer. While white females have the highest overall breast cancer incidence rates, African-American females experience higher death rates from breast cancer than any other racial or ethnic group. Additionally, only 53.8% of African-American females are diagnosed in the most treatable stage of breast cancer, the local stage, compared to 62.9% of whites who are diagnosed at the local stage.

African-American males have the highest incidence and mortality rates and late-stage diagnosis for prostate cancer. They experience a considerable disparity in both prostate cancer incidence and mortality rates. The incidence of prostate cancer in African-American males is 1.6 times higher than that in white males, and mortality rates are over 2.5 times higher in African-American males than white males. Additionally, only 67.5% of African-American males are diagnosed at the local stage of prostate cancer, compared to 71.0% for whites.

In Baltimore City, African Americans account for nearly 65% of the residents. Nearly a quarter of the population live in poverty, and the mortality rate for all cancers is the highest in the state—33% higher than the state cancer mortality rate. African Americans in Baltimore City have cancer mortality rates that are nearly 50% higher than the state cancer mortality rate.[34]

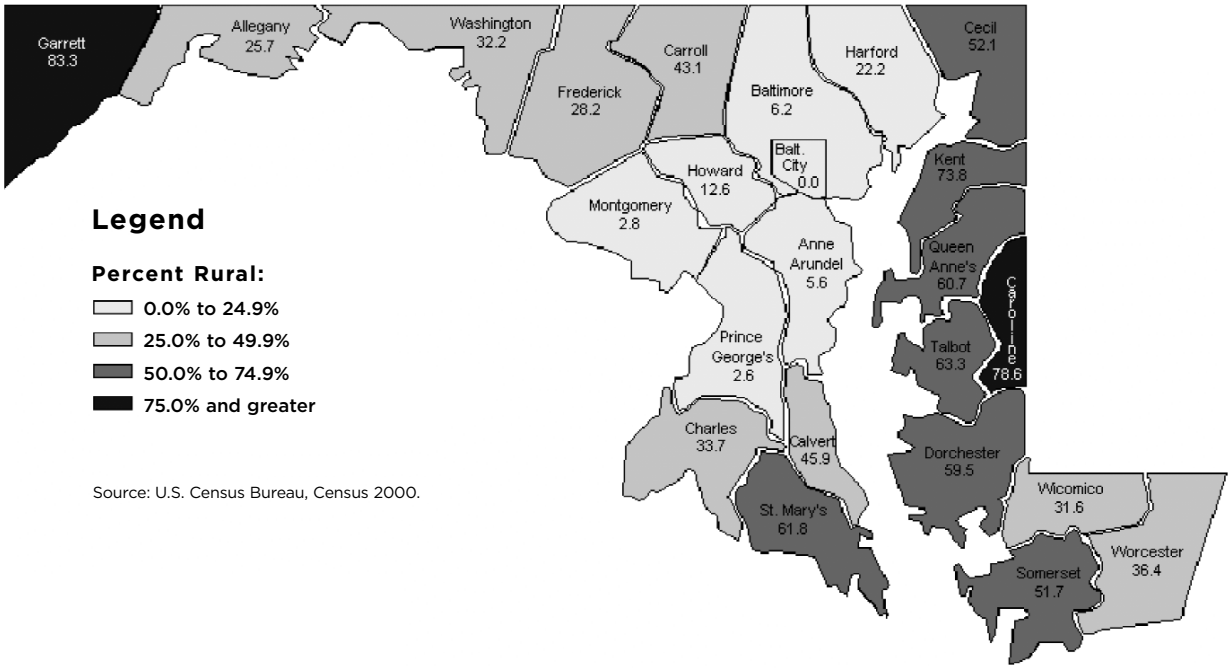
Cancer Disparities in American Indian and Alaska Natives

Maryland has approximately 28 American Indian tribes, several of which are indigenous to the state. Despite having the lowest overall cancer incidence in Maryland, American Indian/Alaska Natives experience the third highest cancer mortality rate of all races/ethnic groups in the state. This population increased nearly 20% from 1990 to 2000, so surveillance and reporting is needed to provide a description of cancer in this population at the state level.

Cancer Disparities in Asian/Pacific Islanders

Asian/Pacific Islanders in Maryland experience lower overall and site-specific cancer incidence and mortality rates (where reported and/or available) compared with other racial/ethnic groups. However, Asian/Pacific Islanders are not a homogenous population and contain subgroups that have different cancer rates. One disparity for this population is evident in the stage of diagnosis for gender-based cancers—only 56.2% of female breast cancer cases are diagnosed in the most treatable, localized stage (1997–1998) while males diagnosed with prostate cancer fared better than the state average of 65.7% with 71.4% diagnosed in the localized stage.[35] Another apparent disparity is found in national data (1996–2000) that show higher death and incidence rates for certain cancers among this population. For example, this group experiences the highest incidence rates of liver and stomach cancer for both genders. This population increased more than 50% from 1990 to 2000, so surveillance and reporting is needed to provide a description of cancer in this population at the state level.

Figure 3.1
Percent Distribution of Maryland's Rural Population within Maryland Counties, 2000



Cancer Disparities in Hispanics/Latinos

Although Hispanics/Latinos have lower cancer incidence and mortality rates overall compared with those of African Americans and whites, among minority populations they experience overall and site specific cancer incidence rates second only to African Americans. Hispanic/Latina females show disparity in the early diagnosis of breast cancer—only 50% are diagnosed in the most treatable, localized stage.[36]

Considering the rapid population growth in this particular population, specifically an increase of 82.2% over the prior decade, there is concern for escalating health disparities within this population.

Racial/Ethnic Disparities in Cancer Screening and Treatment

In addition to higher cancer incidence and mortality and poorer survival rates from a number of malignancies, documented disparities in health services, cancer screening, and treatment in Maryland include the following:

- Despite high rates of "ever" being screened with mammography and Pap smears among African Americans in Baltimore City, low follow-up rates for abnormal results contribute to late-stage diagnosis, higher mortality, and poor survival rates for African Americans with breast and cervical cancer.
- Cervical, breast, colorectal, and prostate cancers are excellent examples of disease sites in which cancer disparities exist in Maryland and nationally despite available screening methods.[37]
- Treatment differences between black and white men for prostate cancer also exist.

Geographic Cancer Disparities in Maryland

Maryland is a geographically diverse state comprised of 23 counties and Baltimore City with a total land area of nearly 10,000 square miles. The population in Census 2000 was nearly 5.3 million residents, a 10% increase since 1990. The population ranges from nearly 900,000 in Montgomery County to approximately 650,000 in Baltimore City, with 30,000 residents in rural counties.

While Maryland is predominantly urban, nine of its twenty-three counties (nearly 40%) are predominately rural (i.e. more than 50% of the population is defined as rural by the U. S. Census Bureau). Overall, the state is 86% urban and 14% rural.[38] Figure 3.1 illustrates the rural percentages for each Maryland jurisdiction.

Maryland can be divided into five distinct regions: the Baltimore Metro region, the Eastern Shore region, the National Capital region, the Northwest region, and the Southern region.

The United States Census Bureau defines as "urban" all territories, populations, and housing units located within an urbanized area (UA) or an urban cluster (UC). It defines UA and UC boundaries as areas that encompass a densely settled territory, which consist of core census block groups or blocks that have a population density of at least 1,000 people per square mile, and surrounding census blocks that have an overall density of at least 500 people per square mile. "Rural" areas consist of all territories, populations, and housing units located outside of any UA and UC.

In 1987, the federal Office of Rural Health Policy (ORHP) was established to seek solutions to rural health care problems. Since 1999, ORHP has used the term "rural" to classify areas with populations of under 2,500. In Maryland, this federal designation includes Caroline, Dorchester, Kent, Somerset, Talbot, Wicomico, Worcester, St. Mary's, and Garrett counties. The state classifies counties as rural based on their partially isolated locations, population size, and reduced access to resources and income.[39] This definition encompasses Cecil County on the Eastern Shore; Charles and Calvert counties in Southern Maryland; and Allegany and Washington counties in Western Maryland. In total, the federal or state definitions of "rural" cover all but Queen Anne's County on the Eastern Shore, Southern Maryland, and Western Maryland. This chapter defines the Eastern Shore, Southern Maryland and Western Maryland as rural regions, and each county within these regions as a rural county.

Maryland's rural population is 738,038 people, or 14% of the state's population. The Eastern Shore is the largest rural region in the state. About eight out of every ten residents in two counties, Garrett County in Western Maryland and Caroline County on the Eastern Shore, are part of Maryland's rural population.[40]

Central Maryland (i.e. the Baltimore Metro and National Capital regions) is predominantly urban and includes urban Baltimore City. Identifying populations as urban and rural are essential since geography presents unique circumstances and factors that hinder health care access, education, and policy.

The racial distribution of Maryland is 64% white, 27.9% African American, and the remainder of the population is Asian, Hispanic, and American Indian. Baltimore City has a population that is 65% African American and a poverty rate of approximately 22.9%. On the Eastern Shore, 80% of the population is white; in Southern Maryland, 77% of the population is white; and in Western Maryland, 91% of the population is white.

Populations from rural counties experience health disparities based on the partially isolated locations, reduced access to resources and income, and population size. Table 3.9 presents data on Maryland's rural and underserved populations. Nearly half (7 of 15) of the counties in rural Maryland have poverty rates exceeding 10%. Somerset County, where one out of every five persons lives in poverty, has the highest poverty level in the state. The Maryland Health Care Commission reports that 38% of Maryland residents living below the federal poverty level have no private or public health insurance. From 1996 to 2001, one out of every five individuals in Caroline, Somerset, and Garrett counties had no health insurance. Eight of the twelve remaining counties in rural Maryland had uninsured rates exceeding ten percent.[41] Of particular attention is Somerset County, the poorest county in the state, which is second only to Baltimore City in cancer mortality rates and leads the state in lung cancer mortality rates.

Barriers to cancer prevention, detection, diagnosis, and treatment exist in Maryland's rural and urban communities. Rural communities have high rates of uninsured residents and have high numbers of elderly residents, lack public transportation, and lack access to primary and specialty health care. Urban areas also have transportation barriers (especially for senior citizens), high Medicaid rates, and cultural and linguistic barriers. Some Eastern Shore counties, such as Somerset and Caroline counties, which have higher numbers of African-American and migrant seasonal workers, respectively, also have cultural and linguistic barriers.

While Maryland is a diverse state, data on geographic disparities within race/ethnicity groups have focused on the two largest racial segments of the population, African Americans and whites. Currently, the Maryland Cancer Registry (MCR) collects data for the smaller population groups, but often the numbers within various geographic regions are too small to calculate accurate cancer statistics. Thus, within the discussion of geographic disparities, cancer disparities for

Table 3.9
Rural and Underserved Populations in Maryland

County	Population (#)	RURAL (#)	Age 65+ (%)	Poverty (%)	Medical Assistance (#)	No Health Care Coverage#	MUA/P	PC HPSA	MH HPSA	Den HPSA
MARYLAND	5,296,486	737,818	11.3%	8.5%	624,942	~	~	~	~	~
Allegany	74,930	19,245	17.9%	14.8%	11,170	14.5%	Yes	Yes	NA	Yes
Calvert	74,563	34,235	13.2%	4.4%	6,373	8.5%	Yes	Yes	NA	NA
Caroline	29,722	23,403	13.5%	11.7%	5,336	20.9%	Yes	Yes	NA	Pending
Cecil	85,951	44,804	10.5%	7.2%	10,516	12.0%	NA	Yes	NA	NA
Charles	120,546	40,644	7.8%	5.5%	12,614	8.4%	Yes*	NA	NA	Yes*
Dorchester	30,674	18,262	17.7%	13.8%	6,013	14.1%	Yes	Yes	Yes	NA
Garrett	29,846	24,848	14.9%	13.3%	5,952	23.7%	Yes	Yes	Yes	Yes
Kent	19,197	14,162	19.3%	13.0%	2,497	14.3%	Pending	Yes	Yes	Pending
Queen Anne's	40,563	24,632	12.9%	6.3%	3,717	11.1%	Yes*	Yes*	NA	Pending
St. Mary's	86,211	53,238	9.1%	7.2%	9,096	9.2%	Yes	NA	NA	NA
Somerset	24,747	12,791	14.2%	20.1%	4,513	19.4%	Yes	Yes	Yes	Yes
Talbot	33,812	21,394	14.2%	8.3%	3,776	8.6%	Yes*	NA	NA	NA
Washington	131,923	42,499	14.2%	9.5%	15,567	14.1%	Yes*	Yes*	NA	NA
Wicomico	84,644	26,777	12.8%	12.8%	14,007	13.0%	Yes*	Yes*	NA	Yes*
Worcester	46,543	16,950	20.1%	9.6%	6,468	13.1%	Yes	Yes	Yes	Yes
Baltimore City	651,154	0	17.9%	22.9%	195,847	17.3%	Yes*	Yes*	Yes*	Yes*

MUA/P: Medically underserved area for primary care.
PC HPSA: Primary care health professional shortage area.
MH HPSA: Mental health professional shortage area.
Den HPSA: Dental professional shortage area.
#: Based on CDC five-year average.
~: See individual counties for MUA/P and HPSA designations.
*Only partial areas of county designated as MUA/P and primary care, mental health, and dental HPSAs.
Source: U.S. Census Bureau, Census 2000.

Table 3.10
Cancer Mortality Rates for Maryland and Select Maryland Regions for All Cancer Sites, Races, and Sexes Combined, 1995–1999

	Total	Males	Females
Maryland Total	220.3	278.1	184.3
Maryland White	210.3	261.1	179.5
Maryland Black	276.9	377.2	214.2
Southern region	229.3	283.9	191.1
Eastern Shore region	229.4	291.2	187.2
Western Maryland region	203.0	258.1	165.9
Baltimore Metro region	215.8	268.8	183.7
Baltimore City	293.8	392.8	234.3

Rates are per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Source: NCI SEER, 1995–1999.

blacks and whites are highlighted.

Table 3.10 demonstrates select Maryland cancer mortality disparities for African Americans and whites and for selected geographic regions, including rural regions, of the state. Age-adjusted mortality rates for all sites are higher in Baltimore City, the Baltimore Metro area, the Eastern Shore, and Southern Maryland than in the state as a whole.

Baltimore City leads the state in cancer mortality rates for all races combined (293.8) and for African Americans (322.3). Prince George's County follows in all cancer mortality for African Americans (297.2), with Baltimore County in third place (288.4). Collectively these three counties comprise nearly three-quarters of the African-American population in Maryland. Additionally, African-American females in the following three regions experience higher mortality rates than any other race/ethnicity reported in any Maryland county: Prince George's (44.1), Baltimore City (40.9), and Montgomery County (39.8).

The rural areas of Maryland (i.e. Western Maryland, Southern Maryland and the Eastern Shore) generally have geographic disparities resulting from a health system infrastructure characterized by fewer health resources and greater travel distances to those resources, a lack of private and public transportation, and higher percentages of poor and uninsured citizens. In some rural regions, agricultural exposures to pesticides, water environmental hazards, and other rural industries may play a role in cancer incidence and mortality. These factors require additional research to determine their role in cancer causation.

Urban geographic factors include poor air quality, in particular, the presence of Hazardous Air Pollutants (HAPs). HAPs are chemicals that can cause adverse effects to health or the environment and include chemicals that can cause cancer. Maryland ranks sixth worst in the nation for hazardous air pollutants.

Baltimore City has disparagingly high cancer rates, along with a disproportionate rate of uninsured or underinsured minority population (especially those aged 65 and older). The rural regions of Maryland have greater percentages of individuals aged 65 and older.

Insurance Status and Cancer Disparities

Health insurance status is a strong predictor of access to health care.[42,43,44,45,46,47] Persons with health insurance are almost twice as likely to seek an annual physical, including cancer prevention and screening, than persons without health insurance.[48,49,50] The number of uninsured Americans has increased from the 1980s through 2000. Current estimates of the percentage of uninsured persons under age 65 in Maryland vary from 10% to 14%, as shown in Table 3.11.[51,52]

Racial and ethnic minorities in Maryland are twice as

Table 3.11
Percent of Uninsured Persons in Maryland and the United States, 1998 and 2000

Source	Year	Uninsured in Maryland	Uninsured in United States
U.S. Census Bureau: Current Population Reports	2000	9.9%	14.0%
Behavioral Risk Factor Surveillance System	1998	13.6%	13.0%

Source: United States Census Bureau, 2000; CDC BRFSS, 1998.

likely as white, non-Hispanic residents to be uninsured. Minority groups comprise a higher percentage of the uninsured at all income levels.[53] In Baltimore City, an estimated 25% of residents do not have health insurance, and in certain segments of Baltimore City, adult males may have an uninsured rate that exceeds 50%.[54]

One study found that elderly insured persons were more than 1.5 times more likely to seek breast, cervical, and colorectal cancer screening services than the uninsured.[55] Mammography screening and adherence to recommended mammography follow-up in older women are influenced by several socioeconomic factors, including insured/uninsured status.[56,57] Analysis of data collected from more than 28,000 patients in Florida in 1994 and data from a survey in North Carolina showed that uninsured persons were more likely than insured patients to be diagnosed with later stages of colorectal, melanoma, breast, and prostate cancers .[58,59]

Socioeconomic Status and Cancer Disparities

Socioeconomic status (SES) is one of the major determinants of health.[60] According to the U.S. Department of Health and Human Service's Healthy People 2010 report,[61] higher socioeconomic groups experienced greater health gains compared to lower socioeconomic groups. Lower SES has been associated with higher cancer risk behaviors as well as poorer cancer outcomes, particularly for cancers of the breast, colon, and prostate.[62,63,64] Cancer mortality rates in the United States are significantly higher in the lower socioeconomic groups.[65] Furthermore, higher educational attainment and income among African Americans has been more positively associated with reductions in smoking among black men than white men.[66]

Contributing factors associated with lower SES may include lower educational level, culture, ethnic/cultural beliefs, and access to adequate health care.

Although overall cancer mortality showed a steady decrease from 1995 to 1999 throughout the state, ethnic and racial minorities continue to demonstrate significant cancer disparities throughout Maryland. SES as a major contributor to health status and cancer disparities must be addressed as part of a comprehensive approach to eliminate cancer disparities throughout the state.

Age and Cancer Disparities

The majority of cancers in the United States occur in people aged 65 and over.[67] Elderly cancer patients, in particular those patients who are over age 65, experience documented disparities in cancer screening and risk reduction interventions[68] and clinical trials participation.[69] Senior citizens (i.e. individuals 65 years and older) make up only 11.3% of Maryland's population; however, seven out of every ten cancer deaths are from this age group.

The Disabled and The Mentally Ill

There are several definitions of disability. The National Center for Health Statistics (NCHS) defines disability as a "limitation of activity due to chronic conditions." The World Health Organization's International Classification of Impairments, Disabilities and Handicaps (ICIDH) defines disability according to functional performance and activity measures.[70] For the purposes of this chapter, disability is defined as having a physical or mental impairment that limits function or restriction in one or more major life activities,

in accordance with the Americans with Disabilities Act.[71] In this manner, those individuals whose impairments were consequent to a mental, emotional, or physical health condition with limited to severe functional ability, mobility, and self-care are included.

Among Maryland residents, there are 86,500 developmentally disabled persons, 467,364 physically disabled persons (not inclusive of children under the age of 15), and 76,000 persons with severe mental illness.[72] The disabled population is diverse, crossing all geographic, racial/ethnic, sex, educational, and socioeconomic lines. It also consists of persons from various mental and physical chronic disease strata.

Disability is frequently listed as an indicator in health disparity definitions.[73] Yet, there is limited data to implicate physical or mental limitations solely as a cause of health disparities. Most often the vocational, economic, and educational disadvantages experienced by persons with disabilities are what leads to inequity in receiving adequate and equal health care.

Chronic diseases such as cancer, arthritis, high blood pressure, heart disease, diabetes, and substance abuse affect people with disabilities just as they do the general population, but they may have unique implications for the health of people with disabilities.[74] Cancer statistics and behavioral risk factor information for the disabled are not currently available. However, studies have indicated that women with physical disabilities reported chronic conditions more than the comparison group without disabilities and at younger ages,[75] and that people with mental illness also tend to be in worse physical health and to have more chronic conditions than those with no disorders.[76]

Data on cancer screening prevalence among persons with disabilities is also limited. A supplemental report to the National Health Interview Survey (NHIS) found that women with functional limitations are less likely to receive Pap tests and mammograms than women who are not disabled. This report further suggests that the probability of receiving screening exams decreases among older women and among women with more severe disabling conditions. While studies to correlate later stage diagnosis of breast cancer among women with disabilities are conflicting, it is known that women aged 65 or older who had three or more functional limitations were significantly less likely to have had a mammogram than non-disabled women in the same age range.[77] Research indicates that the presence of a disability may make it difficult to deliver women's cancer screening exams and may cause secondary complications that could impair functioning.[78,79] Women with a physical disability face multiple barriers in access to adequate cancer screening. Some of these barriers include refusal of treatment by health care providers because of the presence of a disability, the assumption that a disabling condition precludes sexual activity and therefore decreases the likelihood of cervical cancer, the unavailability of appropriate examination tables, and a lack of mammography facilities and mobile units that can accommodate the needs of the physically disabled.[80]

Characteristics associated with poorer health status previously mentioned in this report, such as race/ethnicity, geography, insurance coverage, and age may compound cancer disparity issues among the disabled.

Nationally, individuals with disabilities are less likely to have adequate health care coverage. Among those aged 25 to 64, persons with a severe disability are more likely to lack any form of health insurance than those with no disability. In 1997, 82.3% of non-disabled persons aged 25 to 64 were covered by private health insurance compared to 47.5% of severely disabled persons of the same age. Private insurance coverage for those persons 65 years and older with a severe disability versus no disability were 67.0% and 79.7%, respectively.[81]

In addition, the probability of having a disabling condition often increases with racial or ethnic minority status. American Indians and African Americans have the highest disability rates at 23.9% and 21.6%, respectively.[82] Of persons aged 15 to 64, 7.4% of whites have severe disabilities compared to 12.7% of African Americans and 9.1% of Hispanics/Latinos.[83]

The likelihood of having a disability increases with age. Of the physically disabled in Maryland, about 170,000 (13%) are 65 years of age or older who reportedly have some sort of mobility or self-care disability.[84]

Additionally, mental illness is very common in the United States. Millions of people experience at least one disorder at some point in their lifetime, and a significant number of people experience more than one. There is a negative stigma associated with having a mental illness, which in and of itself can be disabling. Consequently, the shame and embarrassment experienced by persons with a mental illness may keep some from seeking needed treatment.

Gay, Lesbian, Bisexual, and Transgender Populations

Cancer disparity issues for the gay, lesbian, bisexual, and transgender (GLBT) populations are poorly understood due to lack of data collection and reporting. While data are not available on disparities for these populations, empirical information suggests that disparity issues faced by the GLBT population include physician bias, unequal treatment and/or coverage for health care, and stress arising from being exposed to and confronted by homophobia within the health care system.

Data from the Mautner Project suggest that lesbians receive routine gynecological screening less frequently than their heterosexual counterparts and that they are more likely to be childless or delay childbearing until after the age of 30. Nulliparity and late age at first birth have been associated with a higher risk of female breast cancer.[85]

Previous negative encounters with the health care system, fear of disclosure of GLBT identity, and exclusion from health promotion campaigns all play a role in GLBT persons not accessing health care.[86] If GLBT people remain closeted to their health care providers, they may not be given important information that could help them remain healthy.[87] The ability to appropriately address cancer prevention and control needs for these communities requires formal, quality data collection and reporting and the training of health care professionals in GLBT cultural competency.

Cancer Disparities
Goals, Objectives and Strategies

Goal:

Reduce cancer health disparities in Maryland.

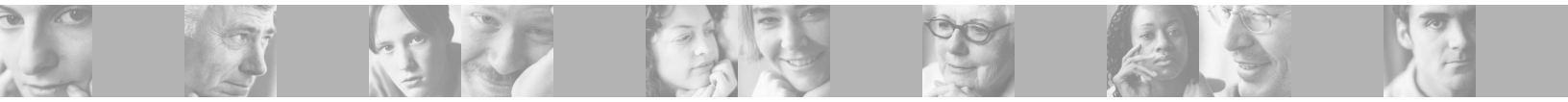
Target for Change

By 2008, develop a system to monitor and document cancer disparities in Maryland.

Objective 1:
Increase public and community awareness about cancer health disparities and cancer prevention, screening, and treatment in Maryland.

Strategies:

1. Collaborate with government agencies, academic health centers, community and faith-based organizations, and private foundations to educate the public about topics relating to health disparities and cancer, including:
   - the importance of social, economic, cultural, and environmental factors in influencing personal and community health.
   - the role of behavioral and biological factors in determining cancer risk.
   - types of current interventions that can reduce/modify risks for developing cancer or the progression of cancer.
2. Disseminate current and accurate information about cancer prevention, screening, early detection, and treatment, including complementary and alternative therapies to minority and underserved populations in Maryland.
   - Identify "Best Practices" for health communication and interventions for specific minority and underserved populations, in order to improve approaches and effectiveness of resources.
   - Utilize existing educational resources, such as the Cancer Survival Toolbox,[88] and modify as appropriate to educate community members in a variety of settings including health care, schools, social, and faith-based institutions.



Objective 2:
Develop and implement health care programs designed to reduce cancer disparities among targeted populations in Maryland.

Strategies:

1. Adapt the Community Health Worker (CHW) model for use in a variety of settings in Maryland to address barriers to access, culturally therapeutic compliance, services utilization, cancer risk management, and health education.
2. Work in partnership with local Community Health Centers and Area Health Education Centers to develop cancer prevention, screening, and treatment programs aimed at disparate populations.
3. Link U.S. military veterans with cancer prevention, screening, and treatment services within the Veterans Affairs health care system.
4. Implement in Maryland the Department of Health and Human Services standards for Culturally and Linguistically Appropriate Services (CLAS),[89] including availability of interpretation services.
5. Foster development and implementation of "National and Maryland Models that Work" to reduce and eliminate cancer disparities in targeted populations.
6. Collaborate with the Maryland Special Populations Cancer Research Network, National Cancer Institute, and NMA, to increase the number of minority and underserved health care professionals including researchers involved in cancer research.

Objective 3:
Increase cancer disparities documentation and intervention on a systematic basis in Maryland.

Strategies:

1. Support ongoing surveillance efforts and disparities research
2. Produce a status report on cancer disparities in Maryland every two years and disseminate the report to key stakeholders including communities, media, health care and social service organizations, and policy makers.
3. Expand and enforce cancer data collection and reporting on racial/ethnic minorities based on the Office of Management and Budget (OMB) categories and use sub-population groups where possible.[90] This includes a Maryland uniform method of recording race/ethnicity for all hospitals and other health care facilities that are required to report to the Maryland Cancer Registry.
4. Expand cancer data collection in the Maryland Cancer Registry to include level of education, socioeconomic status, and primary language.[91]
5. Provide technical assistance to community-based watch groups that monitor industrial and commercial environments.
6. Expand data collection regarding emerging populations of concern for cancer disparities, including the disabled and mentally ill and GLBT populations.

Objective 4:
Increase provider education and reimbursement aimed at reducing cancer disparities.

Strategies:

1. Require educational modules on cancer prevention, education, screening, and treatment for disparate populations and provide training on cultural diversity and barriers to reaching medically underserved populations for health professional students as part of their clinical rotation.
2. Collaborate with the National Cancer Institute, Maryland cancer centers, regionally recognized medical centers, and Area Health Education Centers to develop continuing education programs for health care professionals in medically underserved and rural areas on cutting edge cancer prevention, screening, and treatment methods.
3. Provide reimbursement incentives for primary care providers to increase prevention, screening, and treatment services to high-risk groups, including Medicaid incentives for primary care practitioners that refer patients for cancer prevention, screening, and treatment services.

Objective 5:
Improve access to, and utilization of, cancer screening and treatment options for underserved populations.

Strategies:

1. Advocate for lowered costs of chemotherapy and other cancer treatments for low-income and uninsured or underinsured populations.
2. Increase patient education and access to participation in high-quality clinical trials for low-income and uninsured or underinsured populations.
3. Advocate for consistency of benefits and protections for publicly funded HMO enrollees to be the same as private HMO enrollees.[92]
4. Promote the consistency and equity of care through the use of evidence-based guidelines, and structure pay systems to ensure an adequate supply of health care services to minority and underserved populations.[93]

Objective 6:
Improve the quality of cancer care received by racial/ethnic minorities.

Strategies:

1. Foster research on Maryland disparities in quality cancer care.
2. Support health professional continuing education on quality cancer care guidelines, particularly for cancers where disparities are most pronounced.
3. Disseminate cancer care guidelines to the general public via websites, portals, or other mechanisms.
4. Foster activities which improve the delivery of quality cancer care.

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