9 · Colorectal Cancer

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COLORECTAL CANCER

Cancer of the colon and rectum, called colorectal cancer (CRC), is the second leading cause of cancer deaths and the third most common cancer in both men and women in Maryland and in the US. CRC incidence and mortality rates have decreased over the past eight years in Maryland and CRC screening has increased.

Significant progress has been made due in part to local, state, and national efforts. These include:

- Promotion of CRC screening.
- Assuring health insurance coverage for CRC screening.
- Providing coverage for CRC screening for Marylanders with low income and without insurance coverage with linkage to, or payment for, CRC treatment. (See Progress Report: www.marylandcancerplan.org.)

The Disease

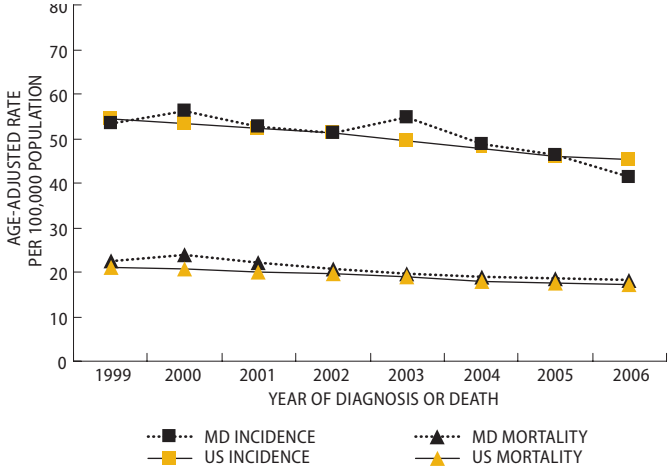
CRC IS CAUSED by a complex interaction of inherited susceptibility and environmental factors.[1] Within the large intestine, genetic changes alter the growth of normal cells to form adenomas (benign tumors). Adenomas are common; they are found in approximately 25% of people by age 50 years and the prevalence increases with age.[2] Seventy to 90% of CRC is believed to arise from these adenomas.[3] Overall, about 10% of adenomas will progress to CRC; however, the rate of progression depends on the size and the type of adenoma: 50% of large adenomas (over two centimeters) will progress to cancer; adenomas with villous features are more likely to progress to cancer than tubular adenomas. (An estimated 20% of villous adenomas

TABLE 9.1 CRC Incidence and Mortality by Race and Gender in Maryland and the US, 2006

INCIDENCE 2006	TOTAL	MALES	FEMALES	WHITES	BLACKS	OTHER
New Cases (#)	2,322	1,161	1,156	1,640	568	95
Incidence Rate	41.3	48.1	36.2	40.2	42.7	37.5
US SEER Rate	45.9	52.8	40.5	45.3	56.2	38.0
MORTALITY 2006	**TOTAL**	**MALES**	**FEMALES**	**WHITES**	**BLACKS**	**OTHER**
MD Deaths (#)	1,015	495	520	719	274	22
MD Mortality Rate	18.4	21.8	16.1	17.6	22.7	9.5
US Mortality Rate	17.1	20.4	14.6	16.6	24.1	10.9

Rates are per 100,000 and are age-adjusted to the 2000 US standard population.
Sources: Maryland Cancer Registry, 2006.
NCI SEER*Stat (US SEER 17 rates).
NCHS compressed Mortality File in CDC WONDER, 2006.

FIGURE 9.1 Colorectal Cancer Incidence and Mortality Rates by Year of Diagnosis or Death, Maryland and US, 1999-2006



Rates are per 100,000 and age-adjusted to 2000 US standard population.
Sources: Maryland Cancer Registry, 1999-2006.
NCI SEER*Stat (US SEER 13 rates).
NCHS Compressed Mortality File in CDC WONDER.

FAST FACT The typical time between the development of an adenoma and its progression to CRC is estimated to be 10 to 15 years in people who are at average risk.

and 4% of tubular adenomas will progress.) Adenomas with "high grade dysplasia" are at high risk of progression to CRC. Adenomas that are sessile, flat, or depressed lesions may be at high risk for progression to CRC and are more difficult to detect or to remove than elevated/polyp-like adenomas. The average time between the development of an adenoma and its progression to CRC is estimated to be 10 to 15 years in people who are at average risk.[4]

Hyperplastic polyps are another type of growth in the colon and rectum. Most hyperplastic polyps are thought to be relatively benign and not to confer increased risk of CRC. A very small number of people develop a condition called hyperplastic polyposis (that is, large and multiple hyperplastic polyps distributed in various parts of the colon) and are at increased risk of developing CRC.[5,6]

A small number of hyperplastic polyps may undergo genetic changes to become adenomatous lesions which are at higher risk for becoming a carcinoma. Serrated adenomas, sessile serrated adenomas, or sessile serrated polyps are found much less frequently in the colon than either hyperplastic polyps or tubular adenomas.

Ninety-five percent of CRC is carcinoma, and 95% of the carcinomas are adenocarcinoma.[7] Other malignant tumors of the colon and rectum include carcinoid tumors, lymphomas, gastrointestinal stromal tumors, adenosquamous cancer, squamous cancer, and melanomas. The extent of the tumor at the time of diagnosis, or stage, is the most important factor in predicting survival. For cases diagnosed between 1999 and 2006, survival rates for CRC at five years after diagnosis are 90.4% for tumors diagnosed at local stage, 69.5% for regional, and 11.6% for distant stage. Therefore, earlier diagnosis means longer survival.[8] For all CRC stages combined, the five-year survival rate for whites (67.9%)

exceeded the rate for blacks or African Americans (56.7%) during the same time period.[9]

Risk Factors

Certain risk factors increase the chance of developing CRC, including the following.

Age

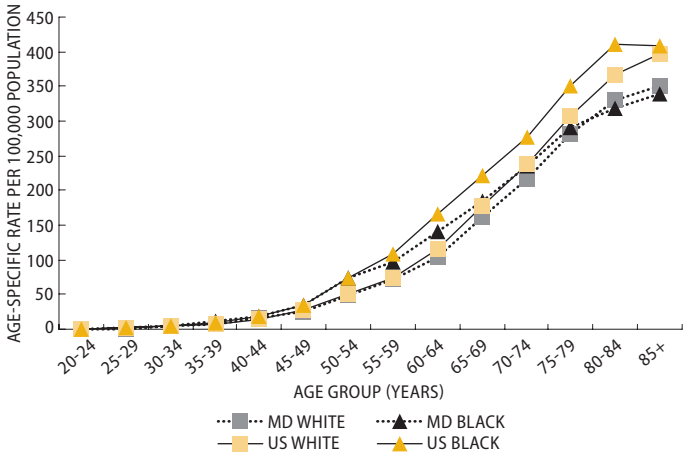
AGE IS THE BIGGEST RISK FACTOR for CRC. Of the 2,322 cases of CRC diagnosed in Maryland in 2006, 88.3% were diagnosed in people ages 50 years or older.

Family History

FAMILY HISTORY OF CRC or adenomas increases a person's risk of CRC.[10] People with familial adenomatous polyposis (FAP) have a mutation in the APC tumor-suppressor gene and their risk of CRC is almost 100%.[11] Those with hereditary non-polyposis colon cancer (HNPCC), or Lynch syndrome, have mutations of human mismatch repair genes and have an 80% or higher risk of CRC by age 70 as well as increased risk of cancer of the endometrium, stomach, ovary, brain, kidney, biliary tract, and gallbladder.[12]

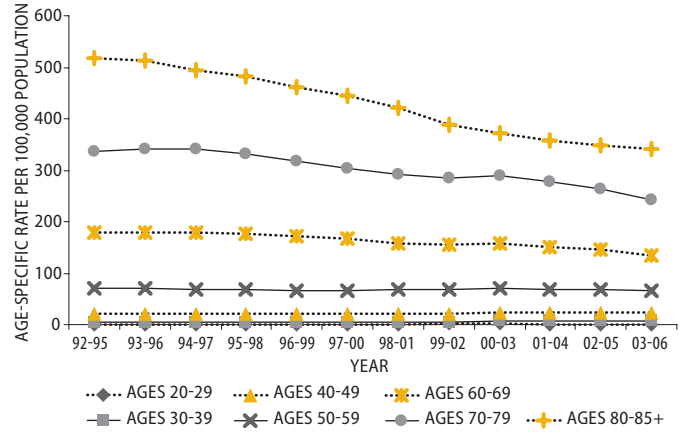
People with two or more first-degree relatives of any age or one first-degree relative diagnosed with CRC at less than 50 years of age have three to four times the risk of CRC than people without first-degree relatives with CRC. Those with one first-degree relative diagnosed with CRC at 60 years or older have almost twice the risk of those without a close family history of CRC.[13, 14] It is estimated that 1% of all CRC occurs in people with FAP, 4-7% with HNPCC, 15-20% with other family history, 1% in other uncommon conditions (e.g., inflammatory bowel disease or Peutz-Jeghers syndrome), and approximately 75% are "sporadic" cases occurring in people with no family or personal history of CRC or adenomas and no personal history of inflammatory bowel disease (IBD).[15,16]

FIGURE 9.2 Colorectal Cancer Age-Specific Incidence Rates by Race, Maryland and US, 2002-2006



Sources: Maryland Cancer Registry, 2002-2006.
NCI SEER*Stat (US SEER 17 rates).

FIGURE 9.3 Colorectal Cancer Age-Specific Rates, All Races, Maryland, 1992-2006



Source: Maryland Cancer Registry, 1992–2006.

Personal History

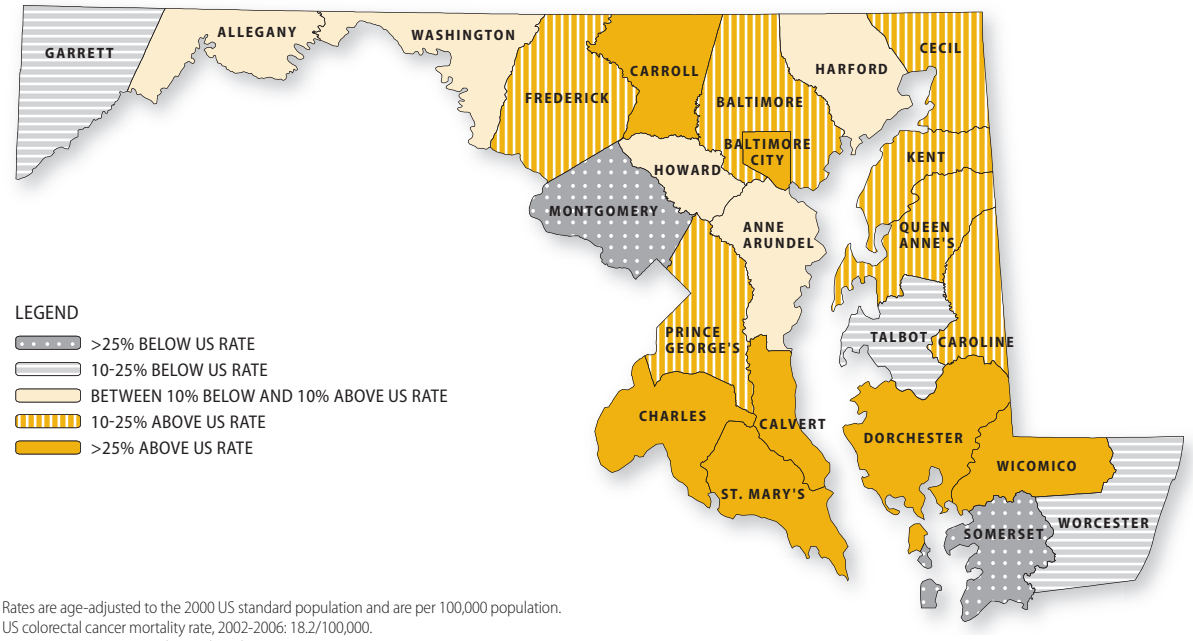
THE FOLLOWING PEOPLE are at increased risk of CRC: those with a history of CRC, FAP, HNPCC, adenomas, hyperplastic polyposis, inflammatory bowel disease (ulcerative colitis or Crohn's colitis), or women with prior ovarian or endometrial cancer before age 50. The risk of CRC in people with a history of IBD is approximately 30% after ten years of diagnosis of IBD.

Other Lifestyle Risks

OTHER RISK FACTORS that increase the risk of CRC include: diets high in total fat and meat, sedentary

FIGURE **9.4**

Maryland Colorectal Cancer Mortality Rates by Geographical Area: Comparison to US Rate, 2002-2006



Rates are age-adjusted to the 2000 US standard population and are per 100,000 population.
US colorectal cancer mortality rate, 2002-2006: 18.2/100,000.
Source: NCHS Compressed Mortality File in CDC WONDER.

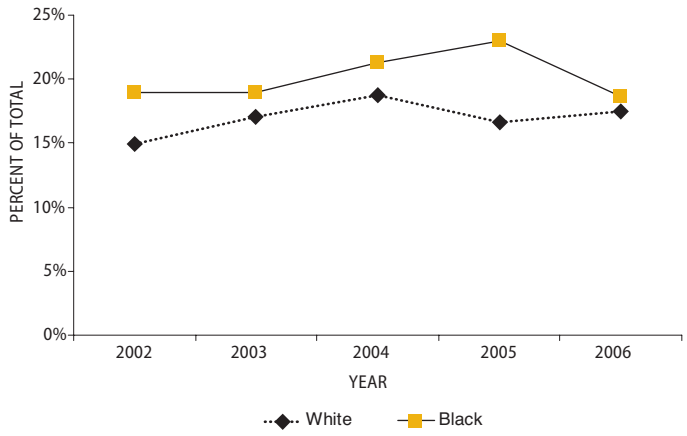
lifestyle, and physical inactivity (some studies). Cigarette smoking is associated with an increased tendency to form adenomas and to develop CRC. Obesity is associated with a two-fold risk increase in CRC in premenopausal women. There is inadequate evidence to suggest that a diet low in fat and high in fiber, fruits, and vegetables decreases the risk of CRC; however, there are no known harms from dietary modification. A lower risk of CRC has been seen in women using postmenopausal hormones and people who use aspirin, but the harms of these may outweigh the benefits of lowered CRC risk.[17]

Burden of CRC in Maryland

CRC is the second leading cause of cancer deaths among men and women in Maryland (following lung cancer) and the third leading cause of new cancer cases (following lung cancer, breast cancer in women, and prostate cancer in men, and excluding non-melanoma skin cancer).[18]

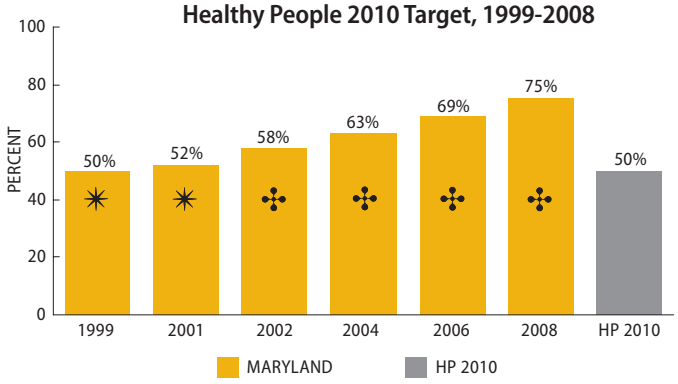
In 2006, 2,322 Marylanders were diagnosed with CRC and 1,105 persons died of CRC (Table 9.1). Figure 9.1 shows the declining trends in age-adjusted incidence and mortality rates from 1999 through 2006 compared to US rates. From 2002 to 2006, Maryland had an average annual 5.8% decrease in incidence and 2.8% decrease in mortality.[19] Incidence and mortality rates are higher among men than women, and higher among blacks or African Americans than whites or those of other races (Table 9.1). However, incidence rates have declined among men and women of both races in Maryland. (See data at www.marylandcancerplan.org.) Black or African American men had the highest CRC mortality rates in 2006, almost twice the rate among white women (27.8 per 100,000 in 2006 vs. 15.4

FIGURE 9.5 Colorectal Cancer, Percentage Distant Stage by Race, Maryland, 2002-2006



Source: Maryland Cancer Registry, 2002-2006.

FIGURE 9.6 Percentage of Maryland Adults Age 50 Years and Older Ever Having a Sigmoidoscopy or Colonoscopy Screening, Compared to Healthy People 2010 Target, 1999-2008



Sources: ✶ Maryland BRFSS, 1999, 2001.
✣ Maryland Cancer Survey, 2002, 2004, 2006, and 2008.
Healthy People 2010, US Department of Health and Human Services, 2000.

per 100,000, respectively). (See data at www.marylandcancerplan.org.)

CRC incidence rates increase markedly with age (Figure 9.2), essentially doubling every decade after the age of 50 years. For those ages 50 to 79 years, blacks or African Americans had a higher incidence rate than whites in Maryland from 2002 to 2006. Between 1992 and 2006, the greatest decrease in CRC incidence in Maryland occurred among those 80 years and older, followed by those 70 to 79 years of age (Figure 9.3). Figure 9.4 shows a map of CRC mortality rates from 2002 to 2006 in Maryland's 24 jurisdictions: four jurisdictions had rates 10% or more below the US rate and 14 jurisdictions had rates 10% or more above the US rate.

In 2006, 36.9% of CRC cases in Maryland were reported as local stage at the time of diagnosis, 34.2% were regional stage, 17.4% were distant stage, and 11.5% were unstaged. There is a suggestion from the data from 2002 to 2006 that localized CRC has increased and regional stage CRC has decreased among both blacks or African Americans and whites. (See data at www.marylandcancerplan.org.) Longer time intervals are needed to evaluate this suggested trend. Blacks or African Americans had a higher percentage of their tumors diagnosed in distant stage than did whites over the period (Figure 9.5).

Primary Prevention

Primary prevention of CRC requires adopting behaviors that are believed to lower the risk of CRC.

CERTAIN RISK FACTORS FOR CRC are not modifiable (age, family history, and personal history) while other factors can be modified (e.g., diet, physical inactivity, weight, and smoking). Additionally, having a colonoscopy with removal of adenomas is primary prevention for CRC because it takes away the early growth that may develop into CRC. (Rates of screening by colonoscopy are described in Figure 9.6.)

The current prevalence of CRC lifestyle risk factors in Maryland, including overweight and obesity, inadequate intake of fruits and vegetables, and physical inactivity, are shown in Chapter 6 on Nutrition, Physical Activity, and Healthy Weight. Recommendations for primary prevention for CRC parallel those recommended for prevention of other cancers, cardiovascular disease, diabetes, and other chronic diseases. These include not smoking; being physically active; eating vegetables and fruits; limiting intake of fats, meat, and alcohol; and achieving and maintaining a healthy weight.[20]

FAST FACT Maryland has made great progress in CRC screening in the past ten years. The percentage of Marylanders age 50 years and older who report having ever had a sigmoidoscopy or colonoscopy has increased from 58% in 2002 to 75% in 2008.

Screening and Surveillance (Secondary Prevention)

Currently, screening to detect CRC consists of either visualizing the inside of the colon or testing for blood in the stool.

THE COLON can be viewed directly with either a colonoscope (a fiber-optic, lighted instrument that views the entire colon) or a flexible sigmoidoscope (a similar, shorter instrument that views the last third of the colon), or visualized by computerized tomography (CT) or a double-contrast barium enema (DCBE) x-ray exam. During a colonoscopy or sigmoidoscopy, any polyp or other suspicious area can be removed entirely or biopsied and sent to the laboratory for diagnosis. Another type of testing is the fecal occult blood test (FOBT) that identifies hidden blood in feces. For CRC screening, the FOBT is done using a home test kit with stool samples taken over two to three days. Two types of FOBT kits are available: guaiac-based and fecal immunochemical tests (FIT). The two most frequently used screening tests are colonoscopy and FOBT.

The United States Preventive Services Task Force (USPSTF) recommends screening for CRC using FOBT, sigmoidoscopy, or colonoscopy in average-risk adults beginning at age 50 years and continuing until age 75 years ("A" recommendation).[21] The benefits, risks, and screening intervals depend on the type of test chosen for screening. The American Cancer Society, the US Multi-Society Task Force on CRC, the American College of Radiology,[22] and the American College of Gastroenterology have similar recommendations.[23] It is recommended that people at higher risk for developing CRC because of personal or family history undergo earlier and/or more frequent colonoscopy screening, at the direction of their medical providers.

The Maryland Department of Health and Mental Hygiene (DHMH) Medical Advisory Committee concurs and recommends either colonoscopy or FOBT with sigmoidoscopy as the two most effective means of screening people at average risk.[24] For those at increased risk of CRC, the Medical Advisory Committee recommends screening with colonoscopy. All of the above-mentioned groups agree that any form of CRC screening is preferable to no screening. Colonoscopy achieves both early detection of cancers and also primary prevention.

Two screening tests are not currently recommended for routine use by the USPSTF but are on the list of available options by the Multi-Society Task Force guidelines. These include CT of the colon, called "virtual colonoscopy," and genetic testing of feces to identify genetic changes common in adenomas and CRC.[25] Abnormalities found with either of these tests need to be followed up with colonoscopy.

Factors that influence patient and provider choice of CRC screening test include the risks associated with the test and the test's accuracy, convenience, and cost.[26]

CRC screening tests are widely available in Maryland. Medicare Part B pays for screening by FOBT, flexible sigmoidoscopy, DCBE, and colonoscopy for those at average risk. Maryland Medical Assistance also covers the cost of screening when ordered by a provider. Maryland law (effective June 30, 2001) mandates that healthcare plans include coverage for CRC screening according to American Cancer Society guidelines.

Maryland has made great progress in CRC screening in the past ten years. Figure 9.6 shows the change in the percentage of Marylanders age 50 years and older who report having ever had a sigmoidoscopy or colonoscopy. The rate has increased from 58% in 2002 to 75% in 2008.[27] While all races increased in their screening rates, the lower rates among blacks or African Americans and other races compared to whites (70%, 70%, and 76%, respectively) persisted in 2008. (See data at www.marylandcancerplan.org.) Those never tested for CRC decreased from 26% to 18% in the same period. In 2008, of the 18% of people who reported never having been screened for CRC, 80% reported having had a physical

examination in a provider's office within the preceding two years. Therefore, CRC screening opportunities are still being missed.

Disparities

Disease Disparities

RACIAL DISPARITIES in CRC incidence, mortality, and stage are highlighted above: blacks or African Americans have a higher rate of disease, higher mortality, and a higher percentage of their tumors reported in late stage and a shorter five-year survival rate after diagnosis than do whites. Other disparities that need investigation but may be more difficult to quantify include differences due to socioeconomic status, geographic region of the state, and access to healthcare.

Screening Disparities

ALTHOUGH MARYLAND CRC SCREENING RATES are high, one of the major differences is whether the person had healthcare insurance and had a healthcare provider. The Maryland Cancer Survey has found that Marylanders who are ages 50 to 64 years and those with low income, less education, or without health insurance are less likely to be up-to-date with CRC screening by any method. (See data at www.marylandcancerplan.org.)

Ideal Model for CRC Control

The Ideal Model for CRC Control, detailing primary, secondary, and tertiary prevention, is available at www.marylandcancerplan.org.

CENTRAL TO THIS MODEL is screening those who are ages 50 years and older and those of any age who are at increased risk. Health education and promotion, community-based participatory research, basic CRC research, availability of screening, payment for outreach, and payment for healthcare must be combined to promote and support CRC screening. Primary care providers (internists, family physicians, and gynecologists) play a key role in the Ideal Model by recommending and referring patients for screening and by helping to change patient attitudes and behaviors in a culturally sensitive manner. Recently passed national healthcare legislation may improve access to care.

New to the Model since the last Comprehensive Cancer Control Plan is the importance of every endoscopist meeting reporting standards for colonoscopy (Colonoscopy Reporting and Data System or CO-RADS[28]) and setting appropriate intervals for recall colonoscopy based on the preparation of the bowel, the cecum being reached, and the findings.[29] (If the interval is set inappropriately long, an interval cancer may develop. If the interval is too short, the patient is put at additional risk and expense, and the capacity of endoscopists to perform colonoscopy on others needing the procedure will be limited.)

Barriers to CRC Screening

Many of the barriers to screening for CRC may be overcome through evidence-based strategies that have been demonstrated as effective.

THE RISE IN SCREENING RATES over the last decade is an illustration of how useful these strategies can be to address barriers. There are several categories of barriers: patient barriers, clinician barriers, and system-wide barriers that may confront patients and/or providers. A detailed discussion of barriers to screening and possible strategies is included online (www.marylandcancerplan.org). Listed below are some of the major barriers to screening.

Patient Issues

- Lack of knowledge about CRC risk factors and screening recommendations.
- No source of routine medical care (lack of a "medical home").
- Failure of a healthcare provider to recommend CRC screening.
- Cost of screening for the uninsured or cost of co-pays and deductibles for those with insurance.
- Inability to take time off from work or lack of transportation.
- Fear of the procedure or fear of knowing the screening results.
- Misconception that cancer is a uniformly fatal diagnosis and that screening is therefore not useful.

Physician/Healthcare Provider Issues

- Lack of consistent message by provider about the screening recommendations and follow-up.
- Lack of provider knowledge about best-practices of CRC screening, for example:
  - Digital rectal exam (DRE) is no longer recommended as a screening method for CRC.
  - A single in-office FOBT following a DRE is not recommended as a screening method for CRC.
  - A positive test for fecal occult blood is an indication for colonoscopy and should NOT be followed up with another FOBT.
- Insufficient number of providers for sigmoidoscopy or colonoscopy in some areas of Maryland.
- Language and cultural barriers in some provider offices.
- Limited number of providers who accept uninsured patients or patients who have Medical Assistance or Medicare.

Healthcare System Issues

- Lack of access to medical care.
  - Not having sufficient numbers of primary care providers.
  - Not having universal health insurance.
  - Having high co-pays or deductibles for those with insurance.
- Insufficient funding to pay for diagnosis and treatment for all people with CRC who do not have health insurance coverage.
- Limited availability of endoscopists in underserved areas.

Great efforts have been made in Maryland to address barriers to CRC screening at the state and local levels through mandated insurance coverage, patient and provider education, and access to CRC screening for low-income uninsured patients through the Cigarette Restitution Fund (CRF), the Centers for Disease Control and Prevention funding, and the Maryland Cancer Fund public health programs.

Current/Ongoing Efforts

In 1998, as part of Maryland's portion of the multi-state Master Settlement Agreement with the tobacco industry, the Cigarette Restitution Fund Program (CRFP) was created by the Maryland General Assembly and signed into law by the Governor.

UNDER THIS FUNDING, 23 of Maryland's 24 jurisdictions developed CRC education programs and screening programs for people with low income who were uninsured or underinsured for CRC screening. Baltimore City and its Community Health Coalition (CHC), on the other hand, elected to focus on prostate, oral, breast, and cervical cancer screening rather than CRC.

In fiscal year 2001, locally controlled programs, designed in conjunction with their local community health coalition, began outreach and education for all residents and started CRC screening for those who met local income and insurance eligibility guidelines.

In the absence of funding for a public health CRC screening program in Baltimore City, the CRC Committee of the Baltimore City CHC focused on CRC education. The CRC Committee was led by a representative of the American Cancer Society, and representatives of the state and Baltimore City health departments and major Baltimore City hospitals were part of the "collaborative." City CRC Committee representatives served on the CRC Chapter Committee of the Maryland Comprehensive Cancer Plan 2004-2008 and added to the plan an objective stating: "Increase funding for CRC screening among uninsured, low- income Maryland residents, especially in Baltimore City."

The DHMH and the City CRC Collaborative had the support of the Comprehensive Cancer Plan coordinator for their application to the Centers for Disease Control and Prevention for the CRC Screening Demonstration Program (SDP) grant in April 2005. The successful Maryland application built on the strength and experiences of its CRFP CRC screening program and brought additional funds to the state health department. The SDP contracted with five Baltimore City hospitals for CRC screening services, case management, data entry, and bill paying.

Between 2001 and December 31, 2009, local programs and CRC SDP hospitals hired staff and partnered with numerous community-based and faith-based organizations for outreach and with providers for colonoscopy services. Collectively, these programs in Maryland have provided CRC education or outreach to nearly 497,000 members of the public, more than 30,000 healthcare providers, and nearly 4,400 trainers. Additionally, Marylanders were informed about CRC and screening through CRF-funded television, radio, newspapers, public service announcements, distribution of printed materials, billboards, and health fairs, and through other national campaigns (American Cancer Society, CDC Screen for Life, Katie Couric, etc.).

By December 31, 2009, the public health screening programs had screened 8,345 people with fecal occult blood tests (7% were positive). For low-income, uninsured, or underinsured residents, the programs contracted with providers and paid for 163 sigmoidoscopies and 16,244 colonoscopies. Forty-eight percent of those screened were racial and/or ethnic minorities. Adenomatous polyps were found on 3,599 (22%) of these colonoscopies, and 174 cases of CRC and 64 high-grade dysplasia cases were identified.

Maryland recognized the need for additional funding for its cancer programs. In 2004, the Maryland General Assembly established the Maryland Cancer Fund (MCF) within the DHMH. The MCF funds—donated through an income tax check-off on the Maryland annual tax return or through other direct donations—are targeted for cancer prevention, screening, treatment, and research in Maryland. Additional CRC screening in Maryland has been made available through grants funded by the Maryland Cancer Fund; MCF funds have been used to pay for treatment for patients found to have CRC in the Maryland screening programs.

The successes of the Maryland CRC education, outreach, and screening programs have been documented through population-based surveys. The Maryland Cancer Survey showed that CRC screening with endoscopy (ever having had a sigmoidoscopy or colonoscopy) of Marylanders ages 50 years and older has risen from 58% in 2002 to 75% in 2008. Disparities in screening rates between blacks or African Americans and whites have also narrowed in this time period. In 2009, the successes of the ongoing CRFP and the CRC SDP led to Maryland's new funding under the federal CRC Control Program, an initiative that focuses more on population-based strategies, including policy changes, to increase screening.

GOALS • OBJECTIVES • STRATEGIES

GOAL 1

Reduce colorectal cancer incidence and mortality.

TARGETS (2015)

INCIDENCE **29.4 per 100,000 (2006 Baseline: 41.3 per 100,000)**
Source: Maryland Cancer Registry.

MORTALITY **11.0 per 100,000 (2006 Baseline: 18.4 per 100,000)**
Source: CDC WONDER.

OBJECTIVE 1

By 2015, increase the percentage of Marylanders ages 50 years and older who are up-to-date with screening per ACS/Multi Society Task Force guidelines to 80%. (2008 Baseline: 73%)
Source: Maryland Cancer Registry.

STRATEGIES

1. **PROVIDE TARGETED EDUCATIONAL INFORMATION** to the public regarding CRC screening recommendations (including but not limited to primary care provider offices, pharmacies, public locations).
2. **CONVENE A "BENEFITS UTILIZATION" WORKGROUP/ SUBCOMMITTEE** to devise and oversee implementation of a plan for CRC screening benefits utilization, including encouraging insurers in Maryland to promote benefit utilization and the insured to utilize their benefits.
3. **INCREASE THE PROPORTION OF PRIMARY CARE PROVIDERS** and specialists who utilize evidence-based approaches such as physician recommendation for screening, client reminders, and chart review to identify patients appropriate for screening (recalling patients for screening and surveillance testing to increase CRC screening in their practices).
4. **REDUCE BARRIERS TO CRC SCREENING** by utilizing strategies that
   - Facilitate primary care referral to specialists for screening.
   - Facilitate screening by use of patient navigators, community health workers, or lay health advisors.
   - Encourage improved coordination between primary care providers and specialists to increase patient convenience, assure completion of endoscopy screening, and promote sharing of results with primary care practitioners.
5. **MAINTAIN PUBLIC HEALTH FUNDING** for CRC screening for low-income and uninsured Marylanders (e.g., funding from the Cigarette Restitution Fund, the Maryland Cancer Fund, and the Centers for Disease Control and Prevention).

OBJECTIVE 2

By 2015, increase the percentage of Marylanders receiving site- and stage-appropriate treatment for CRC.
Source: Maryland Cancer Registry.

STRATEGIES

1. **EDUCATE PRIMARY CARE PROVIDERS** to refer patients initially diagnosed with CRC to high-volume surgeons and centers that have multidisciplinary cancer treatment teams, when possible.
2. **DECREASE THE NUMBER OF UNSTAGED CRC CANCER REPORTED** to the Maryland Cancer Registry (MCR).
3. **DEVELOP METHODS** to measure "site- and stage-appropriate treatment."
4. **ANALYZE EXISTING MCR DATA** and present findings to the DHMH CRC Medical Advisory Committee to arrive at a consensus definition of "site- and stage-appropriate treatment."
5. **MEASURE THE PERCENTAGE** of all CRC patients reported to the MCR who are reported from hospitals with multidisciplinary teams.

OBJECTIVE 3

By 2015, improve provider adherence to the following recommendations:

- **Colonoscopists: Follow national guidelines for colonoscopy CRC screening intervals.**
- **Colonoscopists: Report colonoscopy results using Colonoscopy Reporting and Data Standards (CoRADS).**
- **Pathologists: Report colon/rectum pathology results (including high-grade dysplasia, serrated lesions, number of nodes, and positive nodes on resection specimens) according to national guidelines.**

STRATEGIES

1. **DEVELOP METHODS** to measure adherence to standards and national guidelines.
2. **EDUCATE ENDOSCOPISTS** through nurse managers at endoscopy centers/units on national guidelines for CRC screening/surveillance colonoscopy intervals and on the use of the Colonoscopy Reporting and Data System (CoRADS).

3. **EDUCATE PRIMARY CARE PROVIDERS** (PCPs) about CoRADS so that PCPs expect to receive colonoscopy reports on their patients that follow CoRADS.
4. **ENCOURAGE QUALITY ASSURANCE MONITORING** of colonoscopy by hospitals and ambulatory surgical centers.
5. **EDUCATE PATHOLOGISTS** on national guidelines and consensus standards for identifying lymph nodes in CRC surgical specimens and for reading neoplastic lesions in the colon and rectum.

OBJECTIVE 4

By 2015, among those 18 years and older in Maryland, decrease the prevalence of risk factors for cancer, including CRC, such as smoking, obesity, low physical activity, and diets low in vegetables and fruits.

See the Nutrition, Physical Activity, and Healthy Weight, Tobacco-Use Prevention/Cessation, and Lung Cancer chapters for specific objectives and strategies.

GOAL 2

Reduce disparities in the incidence and mortality of CRC.

INCIDENCE TARGETS (2015)

WHITE	**29.5 per 100,000 (2006 Baseline: 40.2 per 100,000)**
BLACK	**32.0 per 100,000 (2006 Baseline: 42.7 per 100,000)**
MALE	**31.2 per 100,000 (2006 Baseline: 48.1 per 100,000)**
FEMALE	**28.2 per 100,000 (2006 Baseline: 36.2 per 100,000)**

Source: Maryland Cancer Registry.

MORTALITY TARGETS (2015)

WHITE	**11.1 per 100,000 (2006 Baseline: 17.6 per 100,000)**
BLACK	**13.5 per 100,000 (2006 Baseline: 22.7 per 100,000)**
MALE	**13.8 per 100,000 (2006 Baseline: 21.8 per 100,000**
FEMALE	**9.0 per 100,000 (2006 Baseline: 16.1 per 100,000)**

Source: CDC WONDER.

OBJECTIVE 1

By 2015, increase the rates of up-to-date CRC screening for the following groups age 50 and older:

BLACK OR AFRICAN AMERICAN FEMALE	**80% or higher* (2008 Baseline: 75%)**
WHITE FEMALE	**80% or higher* (2008 Baseline: 73%)**
BLACK OR AFRICAN AMERICAN MALE	**80% or higher* (2008 Baseline: 68%)**
WHITE MALE	**80% or higher* (2008 Baseline: 76%)**

Source: MD BRFSS.

* *Target of 80% was determined based on the overall goal of 80% CRC screening rates in the CDC Colorectal Cancer Control Program.*

STRATEGIES

1. **ENCOURAGE HEALTHCARE PROVIDERS** and health departments to present and distribute targeted age/literacy/culturally appropriate information regarding CRC screening recommendations.
2. **LINK POPULATIONS** without primary care providers to sources of preventative care.
3. **SUPPORT UNIVERSAL HEALTH CARE COVERAGE** that includes the benefit of CRC screening.
4. **EDUCATE TARGET POPULATIONS** by working through primary care providers that serve the uninsured, emergency departments, as well as faith-based, community, and civic/social/service organizations (e.g., sororities, fraternities, Rotary Club).
5. **UTILIZE NONTRADITIONAL METHODS** such as navigators, community health workers, and lay health advisors to educate target populations.
6. **ENCOURAGE PRIMARY CARE PROVIDERS** to refer insured patients for screening and to refer uninsured patients to publicly funded CRC screening programs.

OBJECTIVE 2

By 2015, produce an epidemiology report of CRC data highlighting CRC disparities including differences in histology, site in the colon, stage at diagnosis, and treatment by race, gender, and age.

STRATEGIES

1. **OUTLINE THE CONTENT** of the report and the sources of data.
2. **PRODUCE AND DISTRIBUTE** the report.

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