

Public Health Perspectives on Colorectal Cancer Screening

Ranjani R. Starr MPH; Florinda V. Taflinger MS, RD; and Christina M. Teel MBA

Insights in Public Health is a monthly solicited column from the public health community and is coordinated by HJMPH Associate Editors Jay Maddock PhD from the Office of Public Health Studies at John A Burns School of Medicine and Donald Hayes MD, MPH from the Hawai'i Department of Health in collaboration with HJMPH Manuscript Editors Tonya Lowery St. John MPH and Ranjani Starr MPH from the Hawai'i Department of Health.

Introduction

Colorectal cancer (CRC) is currently the third leading cause of cancer death in both men and women in the United States.¹ Reports estimate that 136,830 people will be diagnosed with, and 50,310 people will die from, CRC in 2014. Approximately 1 in 20 Americans will be diagnosed with CRC in their lifetimes.² Much of the improvement in CRC mortality rates has been attributed to improvements in treatment (12%), decreases in risk factors for CRC (35%) and improvements in screening rates (53%).¹ Early detection is key with studies showing an approximately 90% 5-year survival rate among individuals whose CRC was found early and treated appropriately.³

This article will describe the national and state CRC burden; provide a brief overview of nationally-recommended screening options; inform the reader about national and local screening rates for CRC, emphasizing disparities in screening; and discuss the current national and local public health initiatives to reduce the burden of CRC.

CRC Incidence and Mortality Rates

CRC incidence in the United States increased from 1975 to the mid-1980s, but has declined since, with rates decreasing by 3.4% each year since 2001.¹ In 2011, the American Cancer Society (ACS) estimated approximately 141,210 new cases and 49,380 deaths due to CRC in the United States.³ This translated to a national age-adjusted annual incidence rate of 43.7 cases per 100,000 and age-adjusted mortality rate of 16.4 per 100,000 population.⁴ Nationally, incidence rates are 20% higher and mortality rates 45% higher among Blacks.³ Also, incidence rates are approximately 30-40% higher in men. National studies report the lowest incidence rates of CRC in Asian and Pacific Islander populations, potentially masking substantial disparities within this heterogeneous grouping.¹

In Hawai'i, 669 deaths due to CRC occurred between 2010 and 2012, yielding an age-adjusted mortality rate of 13.4 deaths per 100,000, which was below the Healthy People 2020 (HP2020) target of 14.5 deaths per 100,000 persons.^{5,6} This rate represented a decrease from 17.0 deaths per 100,000 in Hawai'i between 2001 and 2003. However, disparities in mortality rates exist within Hawai'i by geography, sex, and race-ethnicity. By county, the highest rate of CRC deaths occurred in Kaua'i

whereas Honolulu had the lowest rate. Males in Hawai'i had higher death rates from CRC than females.⁵ The most serious disparities in mortality due to CRC in Hawai'i are attributable to race-ethnicity; between 2010 and 2012, the CRC death rate in Native Hawaiian and Other Pacific Islanders was nearly four times the rate among Whites. In comparison, deaths among Asian and Blacks in Hawai'i were only slightly higher than in Whites (Table 1).⁵

Efficacy of Screening for CRC

Although among the most frequently detected and fatal cancers in the United States, colorectal cancers are also very preventable and treatable.⁷ As a disease with a protracted course, early detection of pre-cancerous polyps or lesions is key to reducing rates of mortality. Screening is highly recommended, and full implementation of screening would save an estimated 18,800 lives in the United States per year.⁸

Category	Mortality Rate (deaths per 100,000)
Overall	13.4
County	
Honolulu	12.9
Maui	15.4
Kaua'i	17.5
Hawai'i	13.7
Sex	
Male	16.4
Female	11.1
Race-Ethnicity	
White	11.6
Native-Hawaiian and Other Pacific Islander	40.5
Asian	13.2
Black or African-American	17.1

Source: Hawai'i Health Data Warehouse: Hawai'i State Department of Health, Office of Health Status Monitoring Hawai'i Vital Statistics, 2010-2012.
^aRates are age-adjusted to the 2000 US standard population.

Recent data has shown that screening is the most important contributor to the decline in CRC incidence and mortality at the national level.⁹ Randomized controlled trials have demonstrated that eliminating healthcare disparities in CRC screening and treatment can eliminate disparities in outcomes between race groups.⁹ A recent study suggested that as much as 42% of the racial disparity in colorectal cancer incidence, and 19% of the disparity in colorectal cancer mortality between Whites and Blacks in the United States could be attributed to differences in screening between the two groups. Additional disparities in mortality were attributable to differences in treatment between race groups. Together, disparities in screening and treatment explained over 50% of the differences in CRC mortality between Whites and Blacks.⁹

Notably, the State of Delaware eliminated racial disparities in CRC mortality by offering universal screening and treatment for CRC.¹ Given the effectiveness of screening, increasing the proportion of adults receiving CRC screening based on the most recent US Preventive Services Task Force (USPSTF) guidelines is recognized as a Leading Health Indicator by the US Department of Health and Human Services.¹⁰

From a public health perspective, improving screening levels in the population is critically needed in order to eliminate disparities in CRC mortality, and reduce the overall disease burden on society.

Screening Recommendations for CRC

The national screening recommendations for CRC have undergone several revisions; in 2008, two slightly different guidelines strongly urging screening were issued by the USPSTF and by a joint task force comprised of the ACS, US Multi Society Task Force (MSTF) on CRC, and the American College of Radiology (ACR) (ACS-MSTF-ACR) (Table 2).^{8,11} Of these, the USPSTF guidelines for CRC were adopted by the Centers for Disease Control and Prevention (CDC) and were included in the Affordable Care Act (ACA). The reader is referred to the ACS-MSTF-ACR guidelines for further information on screenings that are either not recommended or not addressed by USPSTF.¹¹

The USPSTF guidelines recommend routine screening for average-risk adults aged 50-75, screening as needed for adults aged 76 to 85 years, and no screening in adults older than 85 years.⁸ Recommended screening tests include stool based tests (high-sensitivity fecal occult blood tests [FOBT] and fecal immunochemical test [FIT]), and visual inspection of the colon using flexible sigmoidoscopy (FSIG) and colonoscopy. For screening recommendations for adults of all ages at increased risk for CRC based on family or personal history, the reader is directed to three excellent reviews.¹²⁻¹⁴

Stool-based tests have low up-front cost, do not require bowel preparation, and do not have safety concerns.¹⁵ Both guaiac

CRC Screening Option	CRC Screening Recommendations		Covered Preventive Services in Hawai'i		
	US Preventive Services Task Force (USPSTF)	ACS-MSTF-ACR ^{a,b}	Medicare ^c	Hawaii Revised Statute (§ 431:10A-122)	Affordable Care Act
Colonoscopy	Every 10 years	Every 10 years	Covered every 10 years or 4 years after a sigmoidoscopy. No age restrictions.	Covered according to USPSTF recommendations	Covered according to USPSTF recommendations
Flexible Sigmoidoscopy	Every 5 years, combined with high sensitivity FOBT every 3 years	Every 5 years	Covered every 4 years or 10 years after a colonoscopy for routine screening with. Restricted to individuals 50 years or older.		
High Sensitivity Fecal Occult Blood Test	Every year	Every year	Covered every year. Restricted to individuals 50 years or older.		
Fecal Immunochemical Test	Every year	Every year	Covered every year. Restricted to individuals 50 years or older.		
Double Contrast Barium Enema	Not addressed	Every 5 years	Covered ever 4 years with co-pay. Restricted to once every 4 years for individuals 50 years or older.	Not covered	Not covered
Computed Tomographic Colonography	Not recommended	Every 5 years	Not covered	Not covered	Not covered
Stool DNA Test	Not recommended	Recommended, frequency not determined	Not covered	Not covered	Not covered

^aGuidelines developed by the American Cancer Society, Multi-Society Task Force on CRC, and the American College of Radiology

^bApplies to all adults 50 years and older

^cSource: Colorectal cancer screenings. Medicare.gov

FOBT (gFOBT) and FIT can detect small quantities of blood in stool, but are limited in sensitivity for CRC detection because bleeding is often intermittent, and is a symptom only of larger polyps and cancerous tumors.¹¹ gFOBT tests require dietary restrictions prior to testing (such as avoidance of foods rich in vitamin C to minimize false-negatives), and the collection of multiple consecutive stool specimens. Reported sensitivities of gFOBT tests range from 37% to 79%; recently developed tests such as the Hemocult SENA have higher sensitivities, but at the cost of specificity.¹¹ Both USPSTF and ACS-MSTF-ACR guidelines note that stool testing is efficacious only if performed annually: fewer than 1 in 2 cases of cancer are successfully detected with one-time testing.^{8,11} The ACS-MSTF-ACR further cautions the need to adhere to the recommended test protocol, given the loss in sensitivity that results from improper testing in patients undergoing fecal screening tests.¹¹ Both guidelines emphasize that positive tests must be followed up with colonoscopies.^{8,11} Stool DNA (sDNA) tests are recommended by ACS-MSTF-ACR guidelines, but not by USPSTF at this time due to insufficient evidence.^{8,11}

Screening tests that are able to detect adenomatous polyps and CRC involve structural examination of the colon through direct visual inspection using sigmoidoscopy or colonoscopy, and indirect imaging using Double-Contrast Barium Enema (DCBE) and Computed Tomographic Colonography (CTC). These tests are generally more expensive and require bowel preparation; they have variable sensitivities largely attributed to differences in the quality of the examination performed.^{3,11,15} DCBE and CTC are recommended by ACS-MSTF-ACR guidelines, but either not addressed (DCBE) or not recommended (CTC) by USPSTF at this time due to insufficient evidence.^{8,11}

Flexible sigmoidoscopy (FSIG) visually examines the lower half of the colon; sedation is not required, allowing the procedure to be performed on an outpatient basis. However, the lack of sedation is associated with more discomfort and reluctance to re-test among patients. FSIGs have been associated with a 60-80% reduction in CRC mortality for the portions of the colon that are screened.^{3,11} Nevertheless, up to 30% of cases with advanced neoplasia are not detected, since sigmoidoscopies do not inspect the proximal colon where up to 42% of all CRC tumors are located.^{1,15} Disparities in detection may be more pronounced among women, certain race-ethnicity groups and persons of advanced age, in whom proximal colon neoplasia is more common.^{11,15} Serious complications occur in 3.4 per 10,000 procedures. Positive tests require follow-up with colonoscopy.⁸ A 5-year interval for FSIG is recommended by both the USPSTF and ACS-MSTF-ACR.^{8,11}

Colonoscopy enables full, direct, visual inspection of the entire colon, and is among the most commonly performed medical procedures in the United States.^{3,11} Because sedation is offered, patients who undergo sedated colonoscopies are twice as willing as those who undergo unsedated FSIGs to return for follow-up screening. An important benefit is the potential for simultaneous polypectomies, eliminating the need for additional procedures.¹¹ Although considered the gold standard for

CRC screening, colonoscopies miss between 6-12% of large adenomas, and 5% of cancer. A cohort study revealed a 72% decrease in 10-year incidence of CRC among patients receiving colonoscopies, with detection failures accounting for the majority of incident cases.^{11,15} The procedure is associated with a higher rate of serious complications such as perforations and hemorrhage, at approximately 25 per 10,000 procedures.⁸ A 10-year screening interval is recommended by both the USPSTF and ACS-MSTF-ACR.^{8,11} The ACS-MSTF-ACR additionally recommends DCBE and CTC, but at this time, these tests are not recommended by the USPSTF; nevertheless, DCBE is covered by Medicare.^{8,11,16}

Because of the availability of several comparably efficacious screening techniques, each with its own risks and benefits, the USPSTF recommends patient engagement in the selection of an acceptable form of screening for CRC.⁸ This is an important consideration given that fear and concerns about the bowel preparation are the most cited reasons among patients for not getting screened for CRC.¹⁷ Accordingly, the HP2020 indicator for CRC screening is defined as the number of persons aged 50 to 75 years who have had a blood stool test in the past year, a sigmoidoscopy in the past 5 years and blood stool test in the past 3 years, or a colonoscopy in the past 10 years.¹⁸

CRC Screening Rates

Nationally, 59.2% (National Health Interview Survey, 2010) of adults aged 50-75 years old received CRC screening based on the most recent USPSTF guidelines, a rate lower than the HP2020 target for this indicator, 70.5%.¹⁹ Moreover, disparities in cancer screening by age, sex, race-ethnicity, educational level, household income, and health insurance status have been documented at the national level.²⁰

In 2012, Hawai'i's self-reported screening prevalence was 61.1% (Behavior Risk Factor Surveillance System, 2012) among those 50-75 years of age receiving CRC screening based on the most recent USPSTF guidelines, a rate comparable to the national average, but still substantially behind the HP2020 national target.²¹ Disparities in screening exist in Hawai'i, with lower rates among Native Hawaiians and Filipino populations, and among those with lower educational or higher poverty statuses (Table 3).²¹

National Public Health Efforts in CRC Prevention

Over the past two decades, the CDC has collaborated with state, tribal, and territorial health departments and various organizations to reduce morbidity, mortality, and health disparities associated with CRC. CDC's efforts to address the national cancer burden focus on conducting cancer surveillance, increasing access to screening, improving health outcomes for people living with cancer, and providing the evidence for and evaluation of policy and environmental approaches to reducing cancer.²²

The CDC's early public health efforts in cancer prevention and control focused on tobacco, surveillance, and the prevention and early detection of breast and cervical cancers.²³ In

Table 3. Colorectal Cancer Screening Rates in Hawai'i Among Adults Aged 50-75 years, 2012	
Category	Screening Rates ^a % (95% C.I.)
Overall	61.1 (58.6-63.7)
County	
Honolulu	63.3 (59.9-66.8)
Maui	56.5 (50.1-62.9)
Kaua'i	57.9 (51.2-64.7)
Hawai'i	57.6 (52.4-62.9)
Sex	
Male	60.8 (57.2-64.4)
Female	61.5 (57.8-65.1)
Race-Ethnicity	
Caucasian	64.2 (61.0-67.5)
Native Hawaiian	55.8 (48.7-62.9)
Filipino	53.6 (44.3-62.9)
Japanese	68.9 (64.1-73.6)
Highest Educational Level	
High school	55.4 (50.2-60.6)
Some college	64.2 (59.8-68.7)
College degree or more	68.7 (65.4-72.0)
Federal Poverty Level (FPL)	
0-130% FPL	50.4 (41.4-59.3)
131-185% FPL	59.4 (50.2-68.7)
186+% FPL	68.9 (65.6-72.3)

^aProportion of adults between 50-75 years old who reported receiving CRC screenings that met the USPSTF guidelines in 2012. (Source: Hawai'i Health Data Warehouse: Hawai'i Behavioral Risk Factor Survey, 2012)

Note: Risk status of adults is not assessed as part of the survey.

2009, the CDC initiated the Colorectal Cancer Control Program (CRCCP). Hawai'i was not among the 29 grantees (states and tribal organizations) who received CRCCP funding to screen uninsured and underinsured adults and promote CRC screening at the population level. The goal of the CRCCP is to increase population-level screening rates to 80%.²⁴

In addition to the CDC-funded programs such as the CRCCP, other campaigns and efforts spearheaded by national public health and cancer agencies also strive to reduce CRC incidence and mortality.²⁵ Organizations such as the ACS support the National Colorectal Cancer Roundtable (Roundtable), a national coalition of public, private, and voluntary organizations whose mission is to advance CRC control efforts by improving communication, coordination, and collaboration among health agencies, medical professional organizations, and the public.²⁶ The ultimate goal of the Roundtable is to increase the use of proven CRC screening tests among the entire population for whom screening is appropriate and spearhead a national effort to ensure screening of 80% of at-risk individuals for CRC by 2018.²⁷

State Public Health Efforts in Colorectal Cancer Prevention

In Hawai'i, many organizations have collaborated to improve colorectal cancer screening efforts. With support from the Department of Health's Hawai'i Comprehensive Cancer Control Program (HCCCP), a statewide group of over 200 dedicated health organizations, key stakeholders and individuals have worked as part of the Hawai'i Comprehensive Cancer Control Coalition (coalition) to develop a coordinated and comprehensive approach to cancer control in Hawai'i.²⁸

As a result of the coalition's efforts, the Hawai'i Cancer Plan (2010-2015) recognizes the early detection of colorectal cancer as a priority.²⁹ In addition, coalition member organizations have implemented multiple awareness and education initiatives; used multi-media campaigns and educational materials to promote colorectal cancer screening to the public, community health centers, policy makers and physicians; developed and implemented the Hawai'i Colorectal Cancer Screening Education and Outreach Resource Guide; and supported and advocated for CRC legislation.³⁰⁻³² A goal of the coalition has been to advocate for legislative efforts that support the development and implementation of a Colorectal Cancer Screening Awareness Pilot Program.

A 2012 survey conducted by the National Colorectal Cancer Research Alliance found that 31 states and the District of Columbia have laws requiring health insurance coverage for CRC screening.³³ Through the efforts of the coalition, Hawai'i joined these states in 2010 by passing legislation requiring health insurers to provide screening coverage for colorectal cancer.³⁴ Subsequently, Hawai'i received an "A" in the CRC Report Card for its exceptional CRC legislation requiring insurance providers to cover preventive CRC screenings for all policyholders over the age of 50, as well as those under 50 at high risk for CRC.³³ Universal insurance coverage in Hawai'i for CRC screening now includes colonoscopy every 10 years; FSIG every 5 years; and annual FOBT. The legislation references the USPSTF recommendations, enabling revisions as needed to include coverage of future evidence-based advances in screening methods.³⁴

ACA implementation further impacts screening for a variety of chronic conditions, including CRC. The law requires new private health plans to eliminate cost-sharing (co-payment, co-insurance, or deductibles) for evidence-based preventive measures.³⁵ The ACA is expected to be instrumental in ensuring access to evidence-based cancer screenings among disparate populations, although its impact remains unclear at this time.

Conclusion

Despite dramatic decreases in CRC incidence and mortality nationally and in Hawai'i over the past decade, disparities by geography, sex, race-ethnicity, educational and socioeconomic status remain. Multiple CRC screening options are available each with their own benefits and limitations, enabling patient engagement in choosing an acceptable screening option and

schedule. Substantial changes in legislation, both at the state- and national-levels, have increased coverage for recommended screening options. Nevertheless, much work remains to reduce the burden of CRC in Hawai'i.

State public health efforts are focused on advocating for funding for CRC screening programs; increasing awareness of screening guidelines among health care providers; educating the public on the risks of CRC and benefits of screening; and implementing policy, systems and environmental approaches to achieving sustainable changes in CRC screening. Statewide efforts are also underway to implement health system changes that ensure timely and appropriate referrals for CRC screening, so that the public can access and optimally receive screenings for which they have insurance coverage. These activities will only be successful through the collaborative and coordinated effort of multiple partners including public health officials, physicians, health professionals, health plans, community health centers, non-profit agencies, and policy makers.

Ultimately, reductions in the burden of CRC in Hawai'i will require comprehensive implementation of evidence-based cancer control interventions, both in screening and treatment, with an emphasis on reaching out to underserved populations that historically have the lowest screening and highest CRC mortality rates.

For more information about the Hawai'i Comprehensive Cancer Control Coalition or to become a member, call (808) 692-7480.

Authors' Affiliation:
Hawai'i State Department of Health, Honolulu, HI

References

- Siegel R, DeSantis C, Jemal A. Colorectal cancer statistics. *CA: A Cancer Journal for Clinicians*. March/April 2014;64(2):104-117.
- National Cancer Institute. Colorectal Cancer Screening (PDQ). *Colorectal Cancer Screening for Health Professionals*. April 08, 2014. Available at: <http://www.cancer.gov/cancertopics/pdq/screening/colorectal/HealthProfessional/page2>.
- American Cancer Society. *Colorectal Cancer Facts & Figures: 2011-2013*. Atlanta, Georgia: American Cancer Society; 2011.
- National Cancer Institute. Surveillance, Epidemiology and End Results Program. *SEER Stat Fact Sheets: Colon and Rectum Cancer*. 2011. Available at: <http://seer.cancer.gov/statfacts/html/colorect.html>. Accessed May 21, 2014.
- Hawaii Health Data Warehouse. Aggregated Resident Deaths by Specific Cause of Death. *Deaths in Hawaii Due to Colon Cancer*. March 31, 2014. Available at: http://www.hhdw.org/cms/uploads/Data%20Source_%20Vitals/AAMR_Colon_Cancer_3AGG.pdf. Accessed May 21, 2014.
- Hawaii Health Data Warehouse. *Cancer. C-5 Reduce the colorectal cancer death rate*. Available at: <http://www.hhdw.org/cms/index.php?page=C-5-Colorectal-cancer-deaths>. Accessed May 21, 2014.
- Brooks D. American Cancer Society. *Expert Voices: Timely insight on cancer topics from experts of the American Cancer Society*. March 09, 2011. Available at: <http://www.cancer.org/cancer/news/expertvoices/category/colon-cancer.aspx>. Accessed May 21, 2014.
- U.S. Preventive Services Task Force. Screening for Colorectal Cancer. *Recommendation Statement*. October 2008. Available at: <http://www.uspreventiveservicestaskforce.org/uspstf08/colocancer/colors.htm>. Accessed May 21, 2014.
- Lansdorp-Vogelaar I, Kuntz K, Knudsen A, van Ballegooijen M, Zauber A, Jemal A. Contribution of screening and survival differences to racial disparities in colorectal cancer rates. *Cancer Epidemiology Biomarkers & Prevention*. May 2012;21(15):728-736.
- U.S. Department of Health and Human Services. *HealthyPeople.gov. 2020 Leading Health Indicator Topics: Clinical Preventive Services*. May 21, 2014. Available at: <http://healthypeople.gov/2020/LHI/clinicalPreventive.aspx>. Accessed May 21, 2014.
- Levin B, Liberman D, McFarland B, Smith R, Brooks D, Andrews K. Screening and surveillance for the early detection of colorectal cancer and adenomatous polyps, 2008: A joint guideline from the American Cancer Society, the US Multi-Society Task Force on Colorectal Cancer, and the American College of Radiology. *CA: A Cancer Journal for Clinicians*. 2008;58:130-160.
- American Society for Gastrointestinal Endoscopy. ASGE guideline: colorectal cancer screening and surveillance. *Gastrointestinal Endoscopy*. 2006;63(4):546-557.
- Winawer S, Zauber A, Fletcher R, et al. Guidelines for colonoscopy surveillance after polypectomy: A consensus update by the US Multi-Society Task Force on Colorectal Cancer and the American Cancer Society. *CA: A Cancer Journal for Clinicians*. May/June 2006;56(3):143-159.
- Rex D, Kahu C, Levin B, Smith R, Bond JBD, et al. Guidelines for colonoscopy surveillance after cancer resection: A consensus update by the American Cancer Society and US Multi-Society Task Force on colorectal cancer. *CA: A Cancer Journal for Clinicians*. May/June 2006;56(3):160-167.
- Liberman D. Colon cancer screening and surveillance controversies. *Current Opinion in Gastroenterology*. 2009;25:422-27.
- American Cancer Society. Colorectal cancer screening – state and federal coverage laws. *American Cancer Society*. January 31, 2014. Available at: <http://www.cancer.org/cancer/colorectal-cancer/moreinformation/colorectal-cancer-earlydetection/colorectal-cancer-early-detection-screening-coverage-laws>. Accessed June 02, 2014.
- Jones R, Devers K, Kuzel A, Wolf S. Patient-reported barriers to colorectal cancer screening: A mixed methods analysis. *American Journal of Preventive Medicine*. May 2010;38(5):508-516.
- U.S. Department of Health and Human Services. *HealthyPeople.gov. Cancer Data Details: C-16*. May 24, 2014. Available at: <http://www.healthypeople.gov/2020/topicsobjectives2020/DataDetails.aspx?hp2020id=C-16&topicid=5>.
- U.S. Department of Health and Human Services. *HealthyPeople.gov. 2020 Topics & Objectives: Cancer*. August 28, 2013. Available at: <http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=5>. Accessed May 21, 2014.
- Rim S, Joseph D, Steele C, Thompson T, Seeff L. Colorectal Cancer Screening - United States, 2002, 2004, 2006, and 2008. *MMWR*. January 2011;60(Supplement):42-46.
- Hawaii Health Data Warehouse. *Colorectal screening (50-75), for the State of Hawaii, for the Years - 2011, 2012*. Honolulu, Hawaii: Hawaii Health Data Warehouse; 2014.
- Centers for Disease Control and Prevention. Chronic Disease Prevention and Health Promotion. *Addressing the cancer burden at a glance*. October 21, 2013. Available at: <http://www.cdc.gov/chronicdisease/resources/publications/aag/dpcp.htm>. Accessed May 15, 2014.
- Centers for Disease Control and Prevention. National Comprehensive Cancer Control Program (NCCCP). *About the Program*. September 2013. Available at: <http://www.cdc.gov/cancer/ncccp/about.htm>. Accessed May 14, 2014.
- Centers for Disease Control and Prevention. Colorectal Cancer Control Program (CRCCP). *About the Program*. August 2013. Available at: <http://www.cdc.gov/cancer/crccp/about.htm>. Accessed May 14, 2014.
- Centers for Disease Control and Prevention. Colorectal (Colon) Cancer. *What CDC Is Doing About Colorectal Cancer*. February 2014. Available at: http://www.cdc.gov/cancer/colorectal/what_cdc_is_doing/. Accessed May 15, 2014.
- National Colorectal Cancer Roundtable. Organizations working together to advance colorectal cancer control efforts. *How we work*. 2014. Available at: <http://nccrt.org/how-we-work/>. Accessed May 15, 2014.
- National Colorectal Cancer Roundtable. *Eighty by 2018. About 80% by 2018*. March 2014. Available at: <http://nccrt.org/wp-content/uploads/80-by-2018-FACT-SHEET.pdf>. Accessed May 15, 2014.
- State of Hawaii, Department of Health. Cancer - Chronic Disease Prevention & Health Promotion Division. *Comprehensive Cancer Control Coalition*. 2014. Available at: <http://health.hawaii.gov/cancer/home/coalition/>. Accessed May 17, 2015.
- Hawaii Comprehensive Cancer Control. *Hawaii State Cancer Plan, 2010-2015*. October 2010. <http://health.hawaii.gov/cancer/files/2013/06/CancerPlan2010-2015.pdf>. Accessed May 17, 2014.
- 'Imi Hale Native Hawaiian Cancer Network. Newsletter. *Colorectal Cancer Campaign*. January 2010. Available at: <http://www.imihale.org/pdfs/newsletter/ImiHaleJan2011Newsletter.pdf>. Accessed June 02, 2014.
- 'Imi Hale Native Hawaiian Cancer Network. Newsletter. *Colorectal Cancer In-Service*. September 2013. Available at: <http://www.imihale.org/pdfs/newsletter/September%20Newsletter2%202013%20Pau.pdf>. Accessed June 02, 2014.
- 'Imi Hale Native Hawaiian Cancer Network. Newsletter. *Collaborating with Hawai'i's Community Health Centers to Increase Colorectal Cancer Screening Rates*. March 2014. Available at: <http://www.imihale.org/pdfs/newsletters/ImiHale%20Malaki2014%20Newsletter.pdf>. Accessed June 02, 2014.
- National Colorectal Cancer Research Alliance. *Does your state make the grade?* Los Angeles, CA: Entertainment Industry Foundation; 2012.
- Mandatory Health Insurance Coverage; Hawaii Revised Statutes § 431:10A-122.
- Kaiser Family Foundation; American Cancer Society; National Colorectal Cancer Roundtable. *Coverage of Colonoscopies under the Affordable Care Act's prevention benefit*. Menlo Park, CA; Atlanta, GA; Washington, DC: Kaiser Family Foundation; American Cancer Society; National Colorectal Cancer Roundtable; 2012. 8351.