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Vulnerable Populations and Colorectal Cancer

Colorectal cancer is often considered “the most preventable yet least prevented cancer”[1]

In a retrospective analysis of patients in the Kaiser Permanente Northern and Southern California systems, 76% of patients who died of colorectal cancer between 2006 and 2012, were not up-to-date with screening[2]

1. Itzkowitz SH. *J Natl Cancer Inst.* 2009;101(18):1225-1227. 2. Doubeni KA, et al. *Gastroenterol.* 2019;156:63-74.

March 2025 / MED-CG-2300038 (3.0)

Definitions

Health equity: "…means that everyone has a **fair and just opportunity** to be as healthy as possible. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care."[1]

Health disparity: Differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among **specific population groups** in the United States[2]

Health*care* disparity: Differences as they relate to **healthcare systems**, such as through coverage, access, or quality of care[2]

Vulnerable populations: Populations experiencing conditions such as **poverty, disability, and housing insecurity**– factors that can have a negative effect on health[3]

1. Braveman P, et al. What Is Health Equity? And What Difference Does a Definition Make? May 2017. Princeton, NJ: Robert Wood Johnson Foundation. 2. The Henry J. Kaiser Family Foundation, Policy challenges and opportunities in closing the racial/ethnic divide in health care. Race, ethnicity, and health care issue brief. 2005, The Henry J. Kaiser Family Foundation: Washington, D.C.** National Institutes of Health (US). NIH strategic research plan to reduce and ultimately eliminate health disparities; October 6, 2020. 3. Agency for Toxic Substances and Disease Registry. CDC/ATSDR Social vulnerability index (SVI). Last Reviewed June 14, 2024. Accessed November 7, 2024. https://www.atsdr.cdc.gov/placeandhealth/svi/index.html

What Health Equity Looks Like in a Real-world Setting

	Equality	Equity
	A food pantry provides a **three pounds** of fresh produce per household, regardless of household size.	A food pantry provides an amount of produce **commensurate with household size**.
	A healthcare clinic charges all patients **$120 per office** visit with a primary care provider.	A healthcare clinic offers an **income-based sliding scale** for patients seeing a primary care provider.
	The hospital's switchboard operator **speaks only English**, despite serving a community where 62% of people speak Spanish as a first language.	The hospital's switchboard operator **is bilingual**, speaking both English and Spanish.
	A specific zip code has a high concentration of people with Type 2 Diabetes who rely on public transit. From the most central bus stop in the zip code, **It takes three bus transfers and a .75-mile walk** to the nearest endocrinology office.	The endocrinology office offers **door-to-door travel vouchers** to patients living in a specific zip code. This reduces travel time to about 30 minutes and eliminates the need to walk, which may be difficult for people with disabilities.

Examples of Vulnerable Groups

- Individuals facing financial insecurity
- People without access to transportation
- Members of certain racial and ethnic groups
- Individuals without insurance, or those who are underinsured
- People experiencing homelessness or living in unsafe or crowded housing
- Rural residents, who often encounter barriers to accessing healthcare services
- Elderly individuals
- People with other chronic health conditions, including serious mental illness
- Members of the LGBTQ+ community

Social Determinants of Health

Conditions in the environments in which people are born, live, learn, work, play, worship, and age. These factors influence health, functioning, and quality-of-life outcomes.

- Economic Stability
- Education Access and Quality
- Social and Community Context
- Health Care Access and Quality
- Neighborhood and Built Environment

- Discrimination
- Racism
- Concentrated poverty
- Lack of internet access
- Exposure to crime
- Lack of safe housing
- Food deserts
- Poor economic opportunity
- Residential segregation
- Low literacy
- Community violence
- Social disorder
- Distrust of the government
- Poor sanitation
- Poor social support
- Limited access to healthcare

Office of Disease Prevention and Health Promotion. Social Determinants of Health. Accessed February 14, 2025. https://health.gov/healthypeople/priority-areas/social-determinants-health

Health Equity or *Inequity* Reflects Social Vulnerabilities and Inequalities Where People Live, Work, Play, and Worship

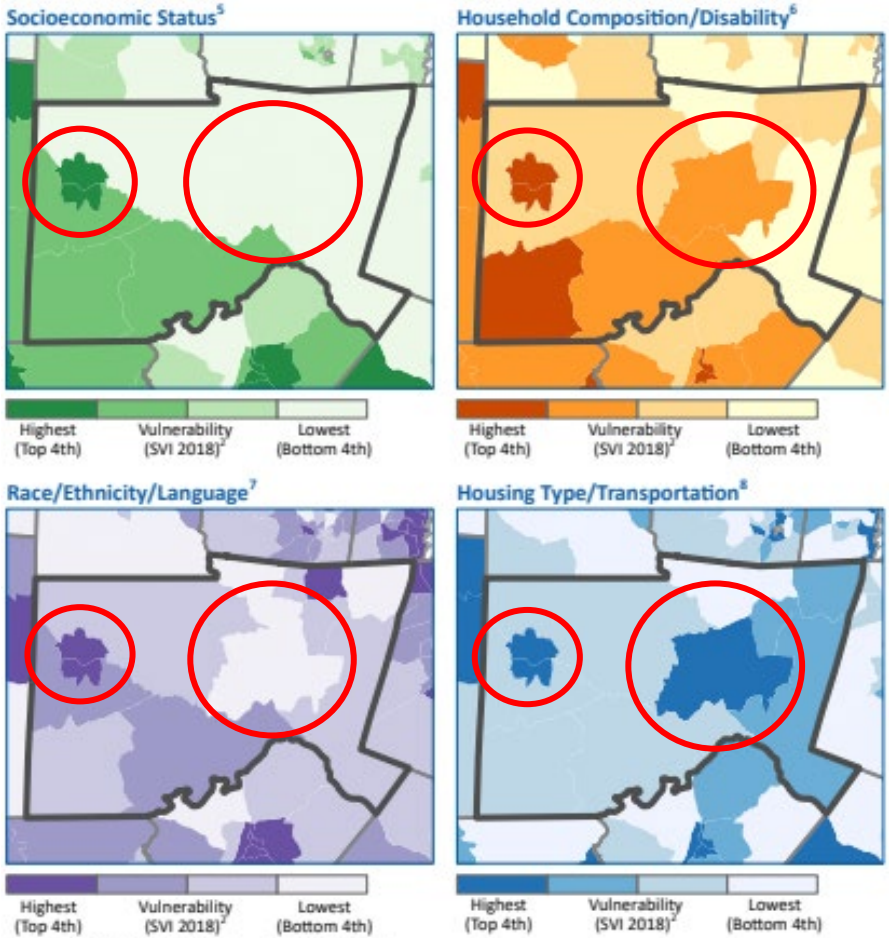
#1 Predictor of Life Expectancy is the County in Which a Person Lives

Average Life Expectancy of a Child born in 2014		
United States	**Adair County, OK**	**Chatham County, NC**
79.1 years	56.3 years	97.5 years
When evaluating life expectancy across states and counties, census tract information accounted for up to nearly **77%** of the variation in life expectancy.		

Boing AF, et al. *Proc Natl Acad Sci U S A*. 2020;117(30):17688-17694.

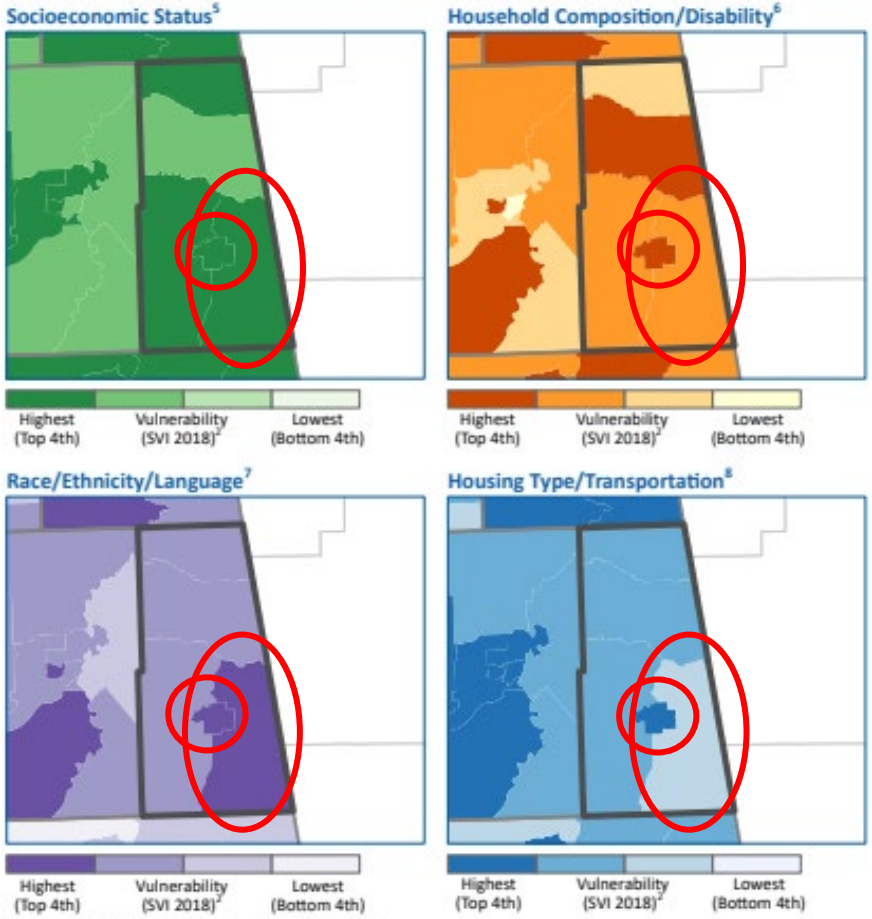
Chatham County, NC

Average Life Expectancy: **97.5 years**



Adair County, OK

Average Life Expectancy: **56.3 years**



***Data based on the most recently available data presented in the QuickFacts report**

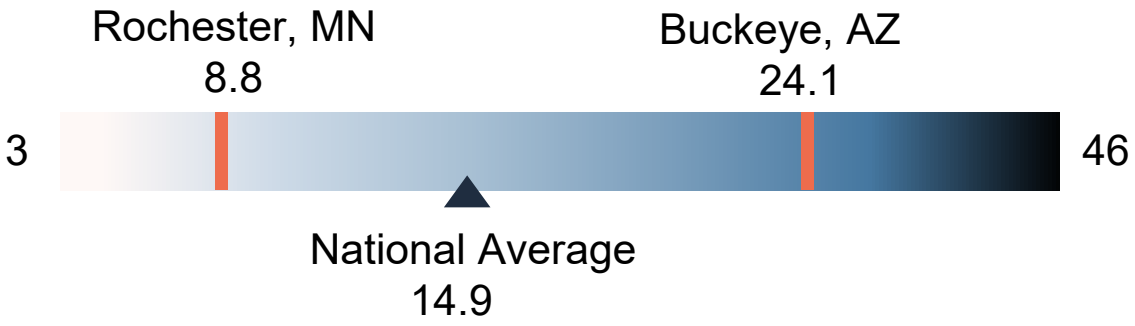
Image credit: Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Services

Boing AF, et al. *Proc Natl Acad Sci U S A*. 2020;117(30):17688-17694.

Social Vulnerability on Colorectal Cancer

Colorectal cancer deaths in 2020 by City[1]

(per 100,000 people)



Population Characteristics

Rochester, MN vs Buckeye, AZ[2*]

	Rochester, MN	Buckeye, AZ
Total population	121,878	105,567
White (not Hispanic or Latino)	**76.3%**	64.7%
Black (alone)	**9.2%**	5.7%
Hispanic or Latino	5.9%	**44.6%**
Speak language other than English at home (>5y)	17.8%	**26.4%**
Persons living in poverty	**9.1%**	7.9%
Persons per square mile	**2187.5**	232.8
Persons with a disability (<65y)	6.3%	**9.1%**
Lack health insurance (<65y)	4.8%	**8.9%**

*Data based on the most recently available data presented in the QuickFacts report

1. NYU Langone Health. City Health Dashboard. Accessed February 14, 2025. https://www.cityhealthdashboard.com/MN/Rochester/compare-cities?metricId=30&dataPeriod=2020&comparisonCity=0407940 2. US Census Bureau. Quick Facts: Columbia city, South Carolina; Manchester city, New Hampshire; United States. Accessed February 14, 2025. https://www.census.gov/quickfacts/fact/table/buckeyecityarizona,rochestercityminnesota,US/PST040223

Colorectal Cancer Epidemiology and Screening Adherence

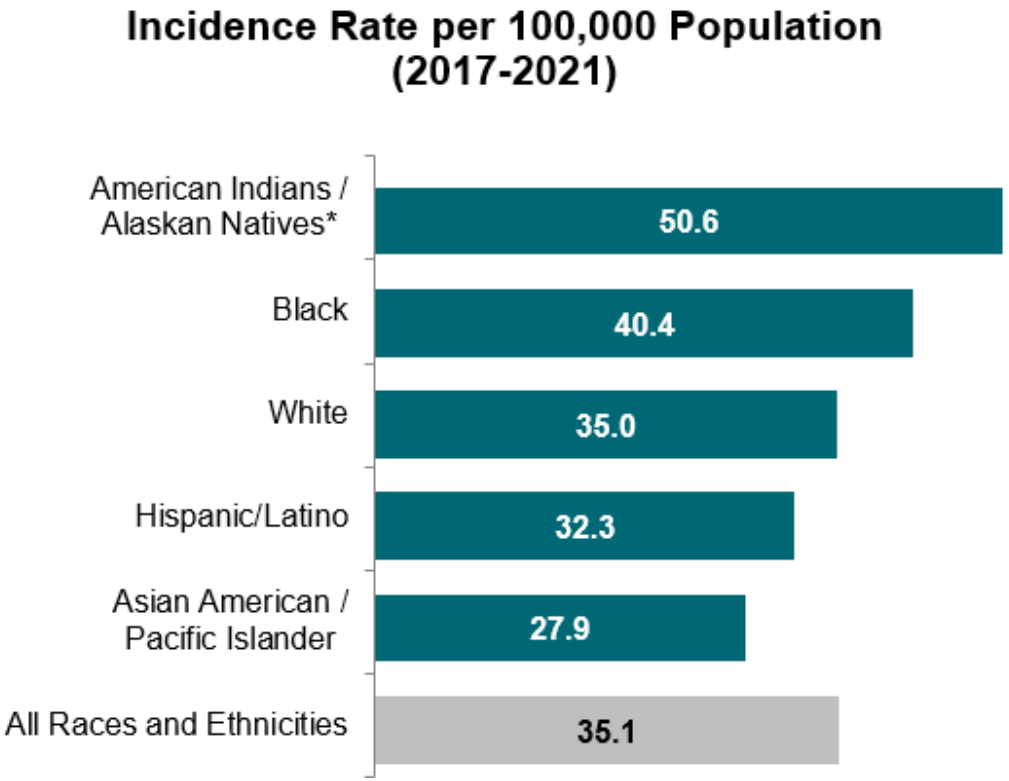
Impact of inequitable care on CRC outcomes and mortality

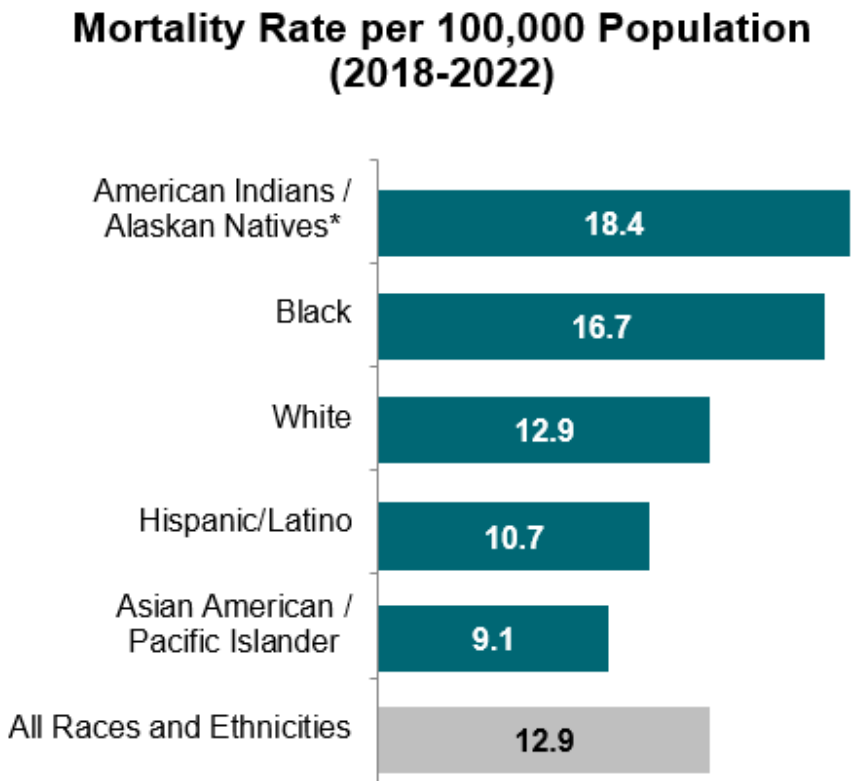
Nearly half of premature CRC deaths nationwide are related to racial/ethnic, socioeconomic, and geographic inequalities

Jemal A, et al. *J Clin Oncol*. 2015;33(8):829-835.

Colorectal Cancer Incidence and Mortality Vary Widely Across Populations

These differences vary by sociodemographic characteristics, which are influenced and perpetuated by social determinants of health.





Rates are per 100,000 population and age adjusted to the 2000 US standard population. Incidence data are adjusted for delays in reporting. All race groups are exclusive of Hispanic origin.
*To reduce racial misclassification, incidence rates are limited to Purchased/Referred Care Delivery Area counties and mortality rates are (for the entire United States) is adjusted using factors from the National Center for Health Statistics.
Siegel RL, et al. *CA Cancer J Clin.* 2025;75:10-45.

Colorectal Cancer Incidence Varies Widely Across Populations

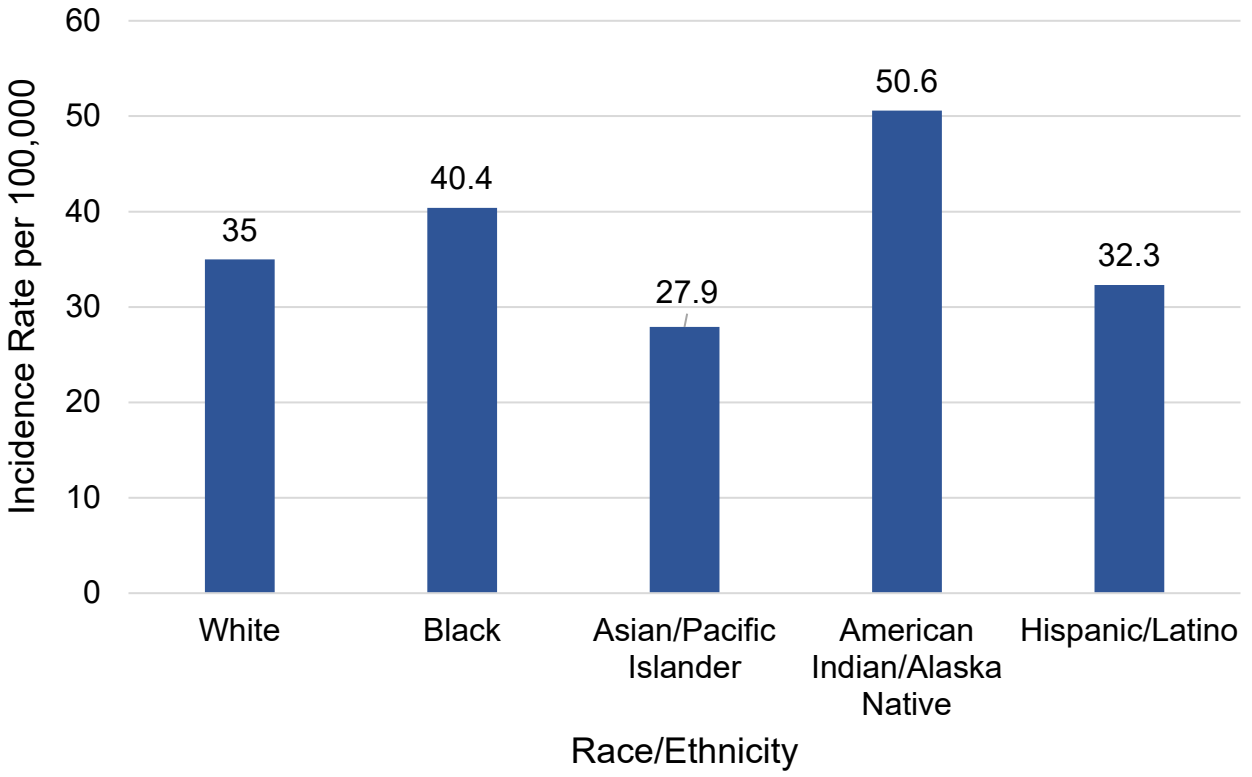
- Colorectal cancer is the **fourth most common** type of newly-diagnosed cancer in United States
- It is estimated that there will be **154,270 new cases** of colorectal cancer diagnosed in 2025
- The risk of being diagnosed with colorectal cancer varies by a person's race and ethnicity
- **American Indian/Alaskan Native people** and **Black individuals** have the highest incidence of colorectal cancer

Overall lifetime risk of developing colorectal cancer:

4.1% for males (about 1 in 24)

3.8% for females (about 1 in 26)

Incidence of Colorectal Cancer by Race and Ethnicity in the US, 2017-2021 (per 100,000 people)



Rates are per 100,000 population and age adjusted to the 2000 US standard population. Incidence data are adjusted for delays in reporting. All race groups are exclusive of Hispanic origin.
*To reduce racial misclassification, incidence rates are limited to Purchased/Referred Care Delivery Area counties and mortality rates are (for the entire United States) is adjusted using factors from the National Center for Health Statistics.
Siegel RL, et al. *CA Cancer J Clin.* 2025;75:10-45.

Colorectal Cancer Mortality

Rural

Compared to people with colorectal cancer living in urban areas, those living in rural areas had a **24% higher risk** of colorectal cancer mortality.[1]

Black and African American

Black and African American individuals have up to a **23% increased risk** of mortality from colorectal cancer than White individuals.[2]

Native Populations

American Indian/ Alaska Native populations have the highest rate of **mortality** compared to individuals of all other races and ethnicities.[2]

Financially Insecure

Medicaid expansion has been associated with decreased incidence of late-stage colorectal cancer diagnoses.[3] Patients diagnoses at later stages have a **greater risk** of mortality.[4]

1. CDC. An Update on Cancer Deaths in the United States. [updated February 28, 2022, Accessed February 14, 2025. https://stacks.cdc.gov/view/cdc/119728 2. Siegel RL, et al. *CA Cancer J Clin.* 2025;75:10-45. 3. Xu MR, et al. *Am J Prev Med.* 2020;58(4):596-603. 4. Primm KM, et al. *Am J Prev Med.* 2022;63(6):915-925.

Colorectal Cancer Screening Adherence

Rural

Compared to people living in urban areas, those living in rural areas were **60%** less likely to undergo any colorectal cancer screening[1]

Black and African American

In 2021, **57%** of Black adults aged ≥45 years were up-to-date on colorectal cancer screening[2]

Hispanic

Colorectal cancer screening prevalence among adults aged ≥45 years was lower among Hispanic adults (**49%**) than among Non-Hispanic White adults (**58%**)[3]

Asian Americans

Among foreign-born Asian Americans, CRC screening is lower than the general population and as low as **30%**[4]

Refugees

In two different studies, **62%-87%** of refugees were not adherent to colorectal cancer screening[5,6]

Marketplace Insured

Among those with Medicaid, **50.8%** were up-to-date with CRC screening vs those without Medicaid (**68.4%**)[7,*]

*Note: Data based on a study of 12,189 patients receiving care in Connecticut; the study included patients aged 50-75 years, and therefore does not represent the full screening eligible population of people ≥45

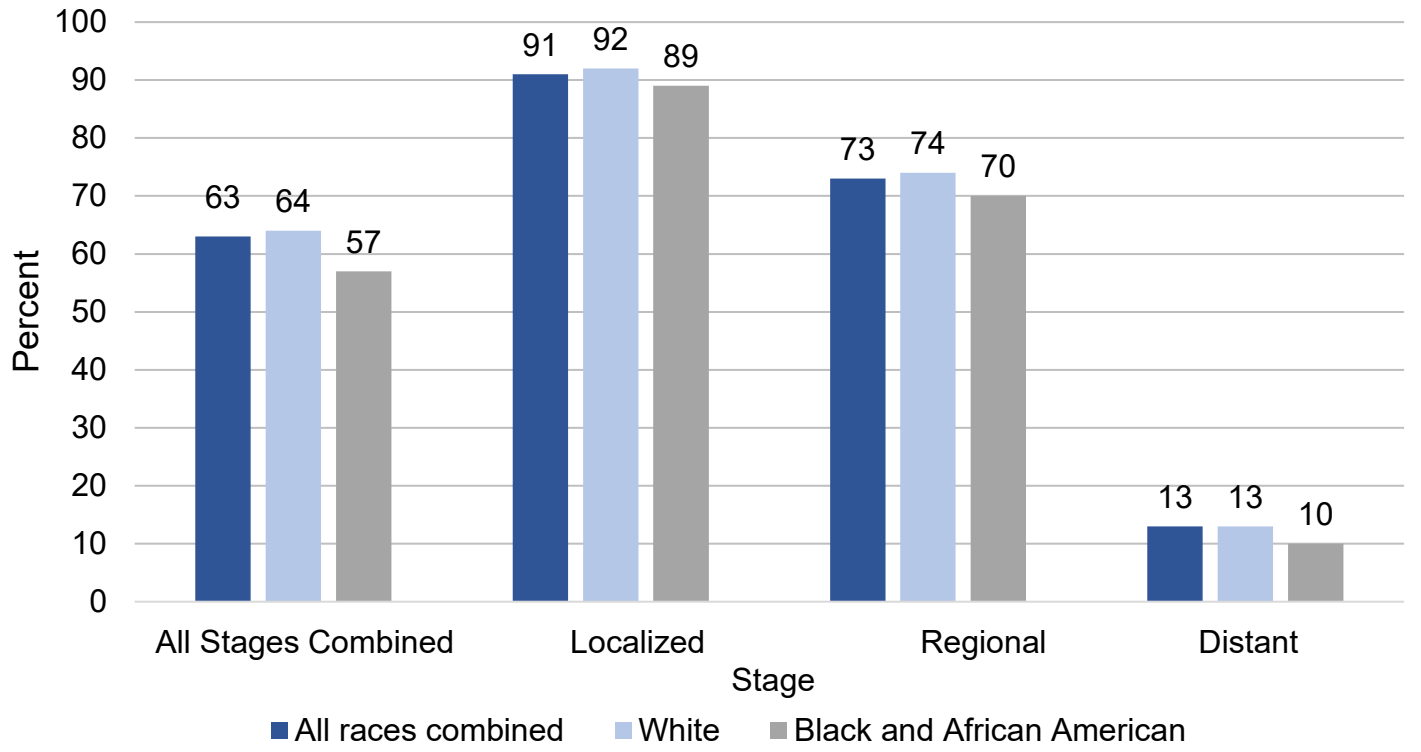
1. Alyabsi M, et al. *Front Public Health*. 2020;8:532950. 2. ACS. Colorectal cancer facts & figures 2023-2025. Atlanta: American Cancer Society. 2023. 3. ACS. Cancer facts & figures for Hispanics/Latinos 2021-2023. Atlanta: American Cancer Society. 2021. 4. Kim K, et al. *J Racial Ethn Health Disparities*. 2015;2(4):473-480. 5. Milenkov A, et al. *PLoS One*. 2020;15(3):e0230675. 6. Siddiq H, et al. *J Immigr Minor Health*. 2020;22(5):1067-1093. 7. Gangcuangco LMA, et al. *Intern Emerg Med*. 2022;17:2229-2235.

Black/African American Populations

- Black **individuals have the second highest rate of** colorectal cancer mortality compared to all other races and ethnicities[1]
- 5-year survival among all people diagnosed at distant stages is **13% vs 91%** when diagnosed at stages I or II[1]
- Black patients were **6.8% more likely** to experience a treatment delay of 60 days or more from the time of diagnosis[2]
- Black patients were **2.3% more likely** to be diagnosed with colorectal cancer after their cancer had already metastasized, relative to White patients[2]

Five-year Survival Among Black/African American Individuals Compared to White Individuals and All Races Combined[1]

United States, 2014-2020. All patients followed through 2021.



1. Siegel RL, et al. *CA Cancer J Clin.* 2025;75:10-45. 2. Ameen K, et al. For Black Americans with colorectal cancer, late diagnosis and delayed treatment worsen outcomes and mortality rates. March 2022. Accessed February 14, 2025. https://www.komodohealth.com/hubfs/_RESEARCH_BRIEFS/Komodo%20x%20BLKHLTH%20Research%20Brief_0225.pdf?hsCtaTracking=4114af81-be7f-47c9-9e57-a51b48a5f5b6%7Ccda30014-4387-4ec5-9ce1-c8e3d6602f74sed

Native Populations

American Indian/Alaska Native people have the highest incidence of colorectal cancer than any other race or ethnicity and are more likely to die from colorectal cancer than Hispanic, Asian/Pacific Island, and White individuals*

Northern Plains

- 4th leading cause of cancer among men*
- Men have a **78% greater risk** of developing CRC*†
- 6th leading cause of cancer among women*
- Women have **a 55% greater risk** of developing CRC*‡

Alaska

- 2nd leading cause of cancer among men*
- Men have a 2.4x greater risk of developing CRC*†
- Women have a **2.96x greater risk** of developing CRC*‡
- CRC is more common among AI/AN women than men.

Southwest

- 5th leading cause of cancer among men*
- Men have a **14% greater risk** of developing CRC*†
- **Incident CRC is increasing among men***

Southern Plains

- 5th leading cause of cancer among men*
- Men have a **62% greater risk** of developing CRC*†
- 6th leading cause of cancer among women*
- Women have a **58% greater risk** of developing CRC*‡

Pacific Coast

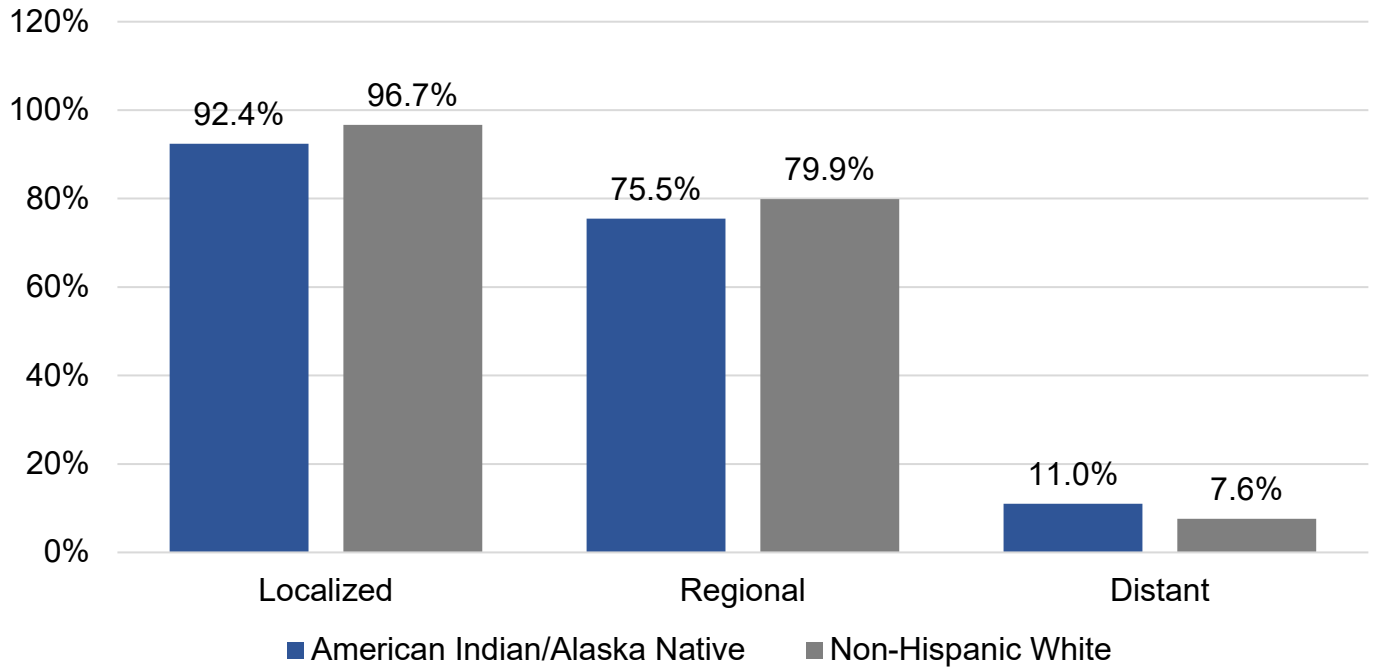
- 4th leading cause of cancer among men*
- Men have a **16% greater risk** of developing CRC*†
- 5th leading cause of cancer among women*
- Women have a **35% greater risk** of developing CRC*‡

CRC: Colorectal cancer
*Note that the AI/AN population has the highest racial misclassification in health data of any racial or ethnic group in the U.S., likely contributing to an underestimation of the burden of cancer among members of this group
† Compared to White men
‡ Compared to White women
Melkonian SC, et al. *Am J Epidemiol*. 2021;190(4):528-538.

Native Populations

Among American Indian/Alaska Native individuals, from 1992-2019, the survival probability after a colorectal cancer diagnosis declined with advancing stage of diagnosis.

Cause-specific Survival Probability at Five-Year Follow-Up Among American Indian/Alaska Native Individuals



Pankratz VS, et al. *Cancer Epidemiol*. 2022;80:102229.

Hispanic/Latino Populations

Recent data estimates ~17,000 new cases and 5000 deaths related to colorectal cancer in 2021

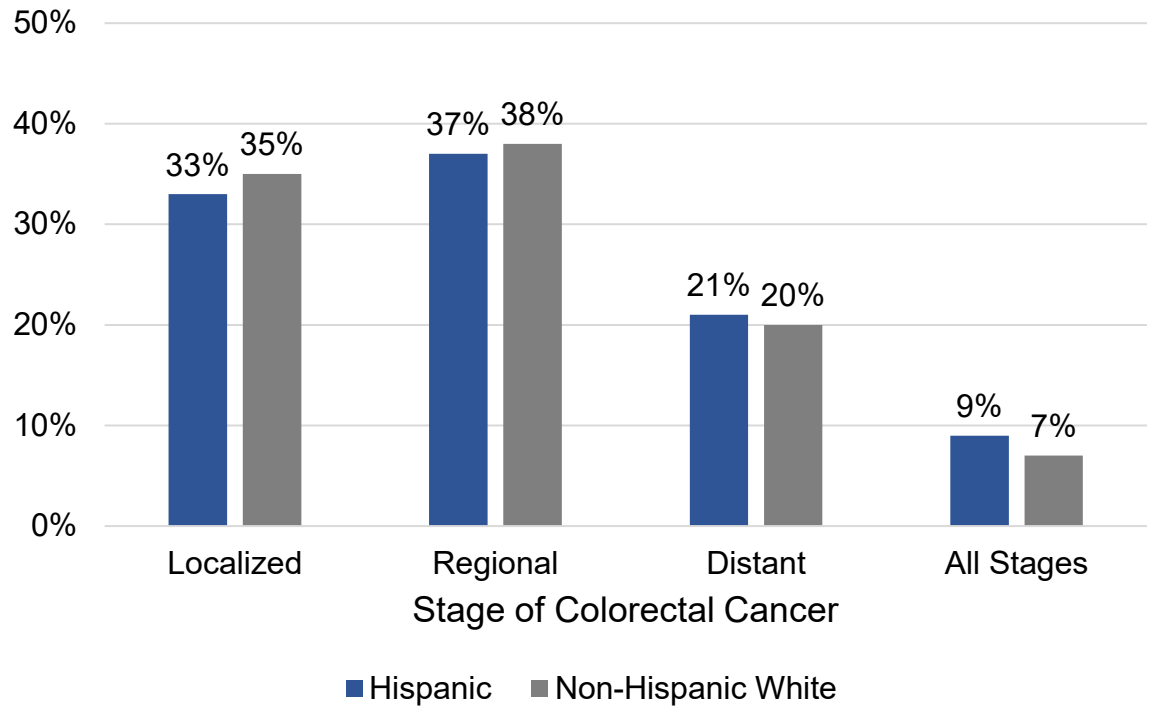
- Colorectal cancer is the second leading cause of new cancers in Hispanic males and the third leading cause of cancer in Hispanic females
- Prevalence among adults aged ≥45 years was **17% lower** in Hispanic versus Non-Hispanic White adults
- Hispanics have slightly **higher rates** of colorectal cancer in **distant stages and all stages** compared to Non-Hispanic Whites
- About 1 in 56 (1.8%) Hispanic males and 1 in 66 (1.5%) Hispanic females will die from the disease

Overall lifetime risk of developing colorectal cancer:

4.5% for Hispanic males (about 1 in 22)

3.8% for Hispanic females (about 1 in 26)

Stage Distribution for Colorectal Cancer in Hispanic and Non-Hispanic White Individuals (%)



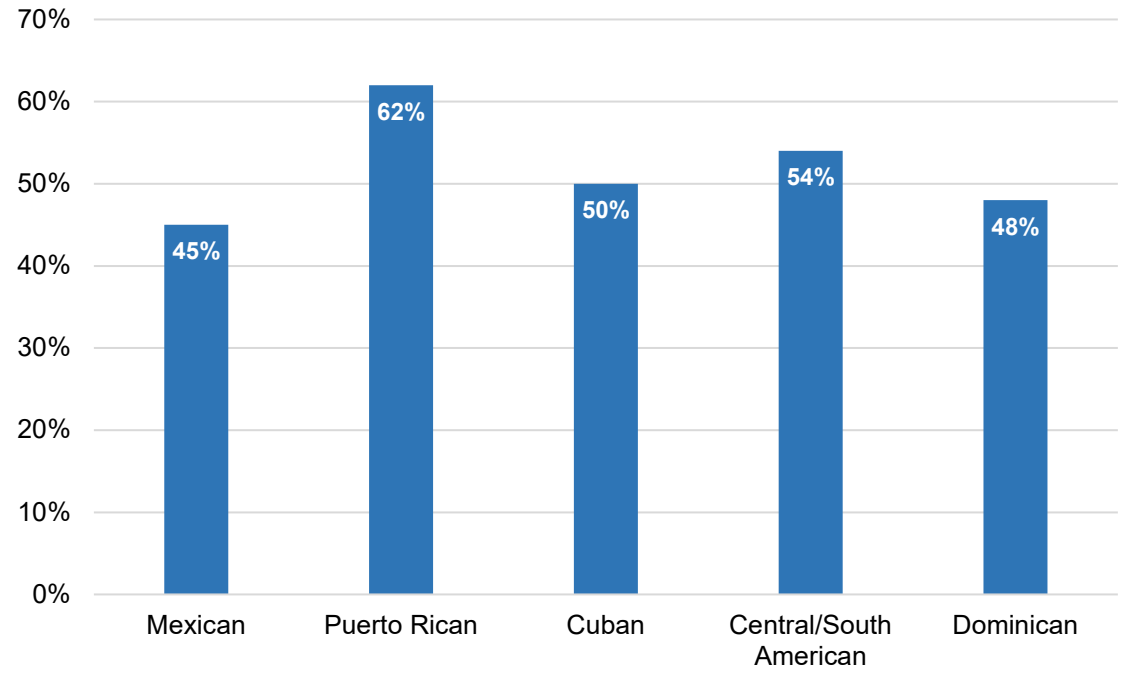
ACS. Cancer facts & figures for Hispanics/Latinos 2021-2023. Atlanta: American Cancer Society. 2021.

Hispanic/Latino Populations

Screening Uptake Varies Widely by Geographic Origin

In adults 50 years and older, uptake ranged from 55% among adults of Mexican descent to 76% among Puerto Rican adults.

Hispanic and Latino Individuals in the US Screened for Colorectal Cancer by Country or Region of Origin (aged ≥45 years)



ACS. Cancer facts & figures for Hispanics/Latinos 2021-2023. Atlanta: American Cancer Society. 2021.

Barriers to and Facilitators of Colorectal Cancer Screening

CRC is often considered "**the most preventable yet least prevented cancer**"[1]

In a retrospective analysis of patients in the Kaiser Permanente Northern and Southern California systems, 76% of patients who died of CRC between 2006 and 2012, were not up-to-date with screening[2]

*Results based on a retrospective cohort study in the Midwest, US, evaluating whether the return rate of mt-sDNA kits was associated with English language proficiency. Patients were aged >50 years and had an mt-sDNA test ordered from 2015-2018. There were 103 patients in the limited English language proficiency group. There were 309 patients in the English language proficient group.

1. Itzkowitz SH. *J Natl Cancer Inst*. 2009;101(18):1225-1227.
2. Doubeni KA, et al. *Gastroenterol*. 2019;156:63-74.

People Living in Rural Areas Have a 23% Higher Risk of Colorectal Cancer Mortality Than Those Living in Urban Areas

CDC. An update on cancer deaths in the United States. February 28, 2022. February 14, 2025. https://stacks.cdc.gov/view/cdc/119728

Rural Dwelling

Lifestyle Beliefs and Behaviors

- **58%** consider themselves healthy
- **56%** are doctor averse
- **50%** exercise regularly
- **43%** talk to friends and/or family about colorectal cancer screening
- **39%** visit doctors for checkups, screening, and wellness care
- **34%** talk to doctors about screening

Likely to have a bachelor's degree or higher

Likely to be employed

National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019.

Rural Dwelling

#1 Barrier to Screening Adherence

Procrastination

Primary Barriers[1,2]

- Procrastination
- Too busy
- Worried about the bowel preparation process
- Lack of family history
- Lack of symptoms
- Inability to afford test
- Lack of time
- Uncomfortable nature of conversations regarding CRC screening
- Fear of diagnosis
- Religious beliefs

1. National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 2. Wolbert T, et al. *South Med J*. 2021;114(5):293-298.

Rural Dwelling:

Screening Motivators[1,2]

- Having a primary care physician
- Recent doctor visit
- Discussing screening with their physician
- Increased awareness of the need for colorectal cancer screening
- Conversations about the availability of alternatives to colonoscopy
- **Provider recommendation**

Increasing Screening[2]

#1 Preferred Message

"A colonoscopy isn't the only option for colorectal cancer screening. There are simple, affordable options, including tests that can be done at home. Talk to your doctor about which option is right for you. Ask which tests are covered by your health insurance."

6.1% **Increase in likelihood of screening***

Why? At home tests may be less embarrassing.

*This message increased intention to participate in colorectal cancer screening within six months

1. Wolbert T, Barry R, Gress T, Arrington A, Thompson E. Assessing Colorectal Cancer Screening Barriers in Rural Appalachia. *South Med J*. 2021;114(5):293-298.. 2. National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019.

Despite Having Insurance, People Insured via the Marketplace* Most Often Report **Cost as a Barrier** to Colorectal Cancer Screening[1]

* Marketplace Insured: individuals purchasing medical insurance through the marketplace created by the Affordable Care Act/ Source: DHHS. Marketplace. Accessed February 14, 2025. https://www.healthcare.gov/glossary/marketplace/

1. NCCRT. Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019.

Marketplace Insured

Lifestyle Beliefs and Behaviors

- **62%** consider themselves healthy
- **64%** are doctor averse
- **60%** exercise regularly
- **50%** talk to friends and/or family about colorectal cancer screening
- **33%** visit doctors for checkups, screening, and wellness care
- **39%** talk to doctors about screening

- Likely to have a high deductible health plan
- Likely to be employed part-time
- Likely to have a household income of ≥$60,000

Market research conducted with focus groups of key informants and unscreened White, Black, and Hispanic participants aged 45-65 years from FL, GA, and NY. Participant responses may have been influenced by the COVID-19 pandemic.
National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019.

Marketplace Insured

Screening Barriers[1]*

- Inability to afford out-of-pocket costs
- Procrastination
- Inability to afford cancer treatment

Increasing Screening[1]

#1 Preferred Message

"A colonoscopy isn't the only option for colorectal cancer screening. There are simple, affordable options, including tests that can be done at home. Talk to your doctor about which option is right for you. Ask which tests are covered by your health insurance."

7.5%

Increase in likelihood of screening†

Why? Alternatives give patients the ability to bypass expensive and invasive testing while gaining assurance.[1] Up to ~62% of patients with public insurance reported a preference for stool-based testing over colonoscopy.[2‡]

* Market research conducted with focus groups of key informants and unscreened White, Black, and Hispanic participants aged 45-65 years from FL, GA, and NY. Participant responses may have been influenced by the COVID-19 pandemic.
†This message increased intention to participate in colorectal cancer screening within six months
‡ Results from a cross-sectional study of 1,595 people
1. National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 2. Zhu X, et al. *Cancer Prev Res (Phila).* 2021;14(5):603-614.

Compared to White individuals, Black and African American individuals have up to about a 15% higher risk of diagnosis and up to a **23% higher risk of mortality** from colorectal cancer

Siegel RL, et al. *CA Cancer J Clin.* 2025;75:10-45.

African American Population

Health Perceptions

- **87%** say they care a great deal about their health
- **75%** say they know what they need to do to stay healthy
- **62%** consider themselves healthy

Insurance Status and Medical Home

- **84%** have health insurance
- **90%** of insured people have a primary care physician
- **57%** communicate with their healthcare provider via a health portal

Seeking Medical Care

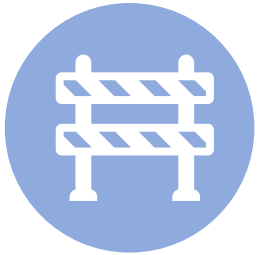
- **Up to 65%** get regular wellness checkups or annual physicals
- **37%** only see a doctor when they are ill
- **33%** avoid going to the doctor

What do Black and African American people think of when they think of colorectal cancer?

- It causes unbearable suffering
- It results in death
- Screening is physically and mentally uncomfortable
- Screening is important for those with a family history of colorectal cancer
- It's common among men, but women may also be diagnosed

Market research conducted with focus groups and surveys of unscreened Black individuals aged ≥45 years. Participant responses may have been influenced by the COVID-19 pandemic due to the timing of the survey (2021).
National Colorectal Cancer Roundtable. 2022 Messaging Guidebook for Black and African American People: Messages to Motivate for Colorectal Cancer Screening. 2022

African American Population



Primary Barriers

- Deferment or delay
- Lack of symptoms or family history
- Lack of physician recommendation

People who are Impervious

- Deferment or delay
- Lack of family history
- Lack of symptoms

People who are Fearful

- Deferment
- Concerns about prep
- Embarrassed about the test
- Fear of results

People with Cost Concerns

- Lack of insurance
- Fear of screening and treatment costs
- Lack of stable employment

People who are Busy

- Prioritize the health concerns of others
- Prioritize their other health concerns
- Day-to-day obligations take precedent

Market research conducted with focus groups and surveys of unscreened Black individuals aged ≥45 years. Participant responses may have been influenced by the COVID-19 pandemic due to the timing of the survey (2021).
National Colorectal Cancer Roundtable. 2022 Messaging Guidebook for Black and African American People: Messages to Motivate for Colorectal Cancer Screening. 2022.

African American Population

Additional Barriers Specific to African American Individuals[1*-4]

- Masculinity, being strong, and masculine role norms
- Medical mistrust, particularly among White and women physicians
- Negative attitudes toward medical professionals
- Lack of a provider recommendation
- No family history of colorectal cancer
- Unsure if they should be screened
- May feel racism in the health system negatively affects their relationships with providers
- Medical infallibility
- Feel doctors treat rather than prevent disease
- Dread the testing process

Note than much of the data are derived from studies evaluating barriers to colorectal cancer screening among men
*Market research conducted with unscreened Black participants aged 45-65 years from. The research was conducted in 2021, so participant responses may have been influenced by the COVID-19 pandemic.
1. Zebra Strategies. Black/Hispanic CRC Research. Attitudes & Awareness Among Blacks & Hispanics About Colorectal Cancer. 2020. (Market Research). 2. Rogers CR, et al. *Ethn Health*. 2022;27(5):1103-1122. 3. Earl V, et al. *Dig Dis Sci*. 2022;67(2):463-472. 4. Rogers CR, et al. *Int J Environ Res Public Health.* 2022;19(5):3071.

African American Population

Screening Motivators[1*]

- Message: Prevalence of colorectal cancer among African Americans
- Message: Screening can save lives
- Message: Symptoms don't often appear until later stages
- Men: family history of colorectal cancer
- Women: stronger physician relationships
- Women: being proactive about preventive healthcare
- Women: duty and responsibility to family
- **Provider recommendation**

Increasing Screening[2]

#1 Preferred Message

"Did you know that colorectal cancer is the third-leading cause of cancer death in both Black men and women in the United States? Colorectal cancer can be caught early or even prevented through regular screening. Most people should begin screening at age 45."

15.6%

Increase in likelihood of screening†

Why? This message is relatable and conveys a widely unknown statistic.

Market research conducted with focus groups and surveys of unscreened Black individuals aged ≥ years. Participant responses may have been influenced by the COVID-19 pandemic due to the timing of the survey (2021).
* Participants' intent to screen was measured at baseline and after message testing.
1. Zebra Strategies. Black/Hispanic CRC Research. Attitudes & Awareness Among Blacks & Hispanics About Colorectal Cancer. 2020. (Market Research). 2. National Colorectal Cancer Roundtable. 2022 Messaging Guidebook for Black and African American People: Messages to Motivate for Colorectal Cancer Screening. 2022.

American Indian/Alaska Native Patients have the **Highest Incidence of Colorectal Cancer** Compared to all Other Races and Ethnicities

Siegel RL, et al. *CA Cancer J Clin.* 2025;75:10-45.

Native Populations

- 21% have a bachelor's degree or higher
- Median household income of $51,238
- >20% living at the Federal poverty level
- 27% speak a language other than English at home

Focus on Social Determinants of Health

American Indian/Alaska Natives frequently encounter issues that limit access to quality medical care:

- Cultural barriers
- Geographic isolation
- Low income
- Inadequate sanitation services

HHS. Profile: American Indian/Alaska Native. 2023. February 17, 2024. https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvlid=62

Native Populations

Insurance Status[1]

- Lack of health insurance is 2.4x more common in this populations than in White individuals
- In 2019, 15% of American Indian/ Alaska Native people lacked health insurance.

Primary Barriers[2,3]

- Lack of access to health facilities
- Mistrust of Western healthcare systems
- Limited knowledge of colorectal cancer
- Embarrassment, particularly around the invasive nature of colonoscopy
- Privacy concerns
- Disgust associated with stool-based testing
- Fear of screening test
- Fear of test results
- Lack of insurance and cost concerns

1. HHS Office of Minority Health. Profile: American Indian/Alaska Native. 2022. February 17, 2024. https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvlid=62. 2 Filippi MK, et al. *J Prim Care Community Health*. 2013;4(3):160-166. 3. Redvers N, et al. *BMC Cancer*. 2022;22(1):158.

Native Populations

Screening Motivators[1-4]

- Education and awareness via social support systems[4]
- Leverage intergenerational relationships[4]
- Culturally-relevant and tailored interventions[2,3]
- **Provider recommendation[1]**

Native Populations Feel Connected to their Community and Culture

- ✓ Tailor messages to Native people[2,3]
- ✓ Leverage the power of intergenerational relationships[4]
- ✓ Build trust by embracing a culture of storytelling[1]
- ✓ Encourage conversations with family and friends[4]

1. Redvers N, et al. *BMC Cancer*. 2022;22(1):158. 2. James AS, et al. *Prev Chronic Dis*. 2013;10:E170. 3. Frerichs L, et al. *Health Equity.* 2020;4(1):91-98. 4. Filippi MK, et al. *J Prim Care Community Health*. 2013;4(3):160-166.

In 2020, Hispanic Individuals were **Less Likely to be Up-to-Date** with Colorectal Cancer Screening than White Individuals.

Kaiser Family Foundation. Racial Disparities in Cancer Outcomes, Screening, and Treatment. February 3, 2022. November 7, 2024. https://www.kff.org/racial-equity-and-health-policy/issue-brief/racial-disparities-in-cancer-outcomes-screening-and-treatment/

Hispanic and Latino Populations

Health Perceptions and Behaviors[1]

- **55%** consider themselves healthy
- **43%** are doctor averse
- **51%** visit doctors for checkups, screening, and wellness care
- **52%** exercise regularly
- **36%** talk to family and/or friends about screening
- **36%** talk to doctors about screening

- ~15% of Hispanic and Latino individuals living in the United States speak English “not well” or “not at all”[2]
- Less likely to be retired[1*]
- More likely to have children aged <18 years[1*]

*Compared to other participants

1. National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 2. US Census Bureau. 2022. March 28.2024. https://data.census.gov/table/ACSDT5Y2022.B16006?q=Hispanic%20or%20Latino%20and%20language&t=Language%20Spoken%20at%20Home

Hispanic and Latino Populations: Barriers to and Facilitators of Screening

Primary Barriers[1-3]

- Lack of family history
- Procrastination
- Lack of symptoms
- Cost
- Fear of screening procedure
- Prioritization of other health issues
- Lack of physician recommendation
- Language and cultural discordance

Barriers Specific to Hispanic and Latino Women[4*]

- Fear the procedure and/or the results
- Dread the bowel preparation

Barriers Specific to Hispanic and Latino Men[4*]

- Mistrust: many feel that health care providers are interested in making money from seeing patients
- Medical appointments reserved for responding to medical issues
- Less proactive about seeking healthcare
- Associate screening appointments with lost wages
- Insecure insurance coverage
- Anxiety over high medical bills
- Machismo

* Market research conducted with focus groups of key informants and unscreened White, Black, and Hispanic participants aged 45-65 years from FL, GA, and NY. Participant responses may have been influenced by the COVID-19 pandemic.

1. National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 2. Winkler CS, et al. *Cancer*. 2022;128(9):1820-1825. 3. Gonzalez JJ, et al. *J Racial Ethn Health Disparities*. 2020;7(1):137-143. 4. Zebra Strategies. Black/Hispanic CRC Research. Attitudes & Awareness Among Blacks & Hispanics About Colorectal Cancer. 2020. (Market Research).

Hispanic and Latino: What's the Influence of English Language Proficiency on Colorectal Cancer Screening Adherence?

~28%

Hispanic and Latino individuals living in the United States speak English "less than very well"[1]

- In a retrospective cohort study of individuals aged 50-75 years, limited English language proficiency was associated with fewer primary care visits, lower lifetime rate of screening colonoscopies, less physician recommendation for a colonoscopy, fewer polyps removed in the previous three years, and **fewer stool-based screening tests**.[2*]
- In a retrospective matched cohort study, limited English language proficiency was associated with increased odds of not returning a stool-based colorectal cancer screening kit.† Among those who did return kits, those with limited English language proficiency took **>62 days to return their kit** versus 33 days among those who were proficient in the English language.[3]

*The stool-based test measured was FOBT
†The stool-based test measured was an mt-sDNA kit
1. US Census Bureau. American Community Survey 2022. Nativity by language spoken at home by ability to speak English for the population 5 years and over 5 (Hispanic of Latino). Accessed November 7, 2024. https://data.census.gov/table/ACSDT1Y2022.B16005I?q=B16005I:%20Nativity%20by%20Language%20Spoken%20at%20Home%20by%20Ability%20to%20Speak%20English%20for%20the%20Population%205%20Years%20and%20Over%20(Hispanic%20or%20Latino) 2. Cataneo JL, et al. *Am Surg*. 2022;31348221105596. 3. Hill JC, et al. *J Immigr Minor Health*. 2022;24(2):556-559.

Hispanic and Latino Populations

Screening Motivators[1]*

- Message: delaying screening can be life threatening
- Message: mortality statistics specific to Hispanic community
- Men: responsibility to family as head of household
- Women: stronger physician relationships
- Women: being proactive about preventive healthcare
- Women: responsibility as family caretaker
- **Provider recommendation**

Increasing Screening[2]

#1 Preferred Message

"A colonoscopy isn't the only option for colorectal cancer screening. There are simple, affordable options, including tests that can be done at home. Talk to your doctor about which option is right for you. Ask which tests are covered by your health insurance."

12.1%

Increase in likelihood of screening†

Why? At-home tests may be less embarrassing and easier to use, and colonoscopy may be seen as overwhelming and time-intensive.

*Market research conducted with focus groups of key informants and unscreened White, Black, and Hispanic participants aged 45-65 years from FL, GA, and NY. Participant responses may have been influenced by the COVID-19 pandemic.
†This message increased intention to participate in colorectal cancer screening within six months
1. Zebra Strategies. Black/Hispanic CRC Research. Attitudes & Awareness Among Blacks & Hispanics About Colorectal Cancer. 2020. (Market Research). 2. National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019.

In one study of Asian American individuals born outside of the United States, colorectal cancer **screening adherence** was as low as **27%**[1]

The data are derived from the Chicago Asian Community Survey of Chinese, Cambodian, and Vietnamese subgroups.
Note: The survey evaluated adherence among those aged 50-75 years according to USPSTF guidelines that have since been superseded.
Kim K, et al. *J Racial Ethn Health Disparities*. 2015;2(4):473-480.

Asian American Population

Lifestyle Beliefs and Behaviors

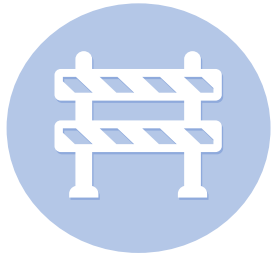
- **66%** consider themselves healthy
- **54%** are doctor averse
- **71%** exercise regularly
- **44%** talk to friends and/or family about screening
- **39%** visit doctors for checkups, screening, and wellness care
- **17%** talk to doctors about screening

- More likely to be unemployed*
- More likely to have a bachelor's degree or higher*
- More likely to have a household income of ≥$100,000*

* Compared to other participants

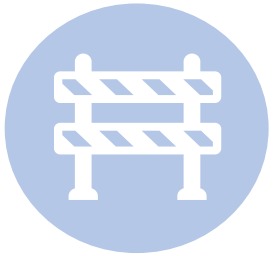
National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019.

Asian American Population



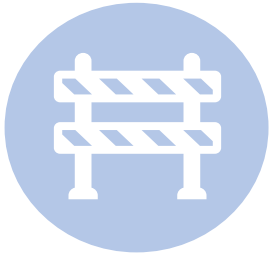
General Barriers[1]

- Lack of symptoms (#1 barrier*)
- Procrastination
- Lack of physician recommendation
- Lack of family history



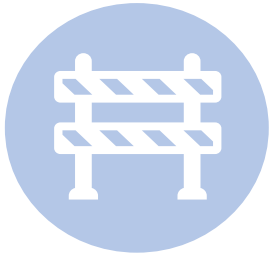
Korean[2,3]

- Low susceptibility
- Cancer is normal among people of older age
- Low benefit of screening
- Cost
- Lack of health insurance
- Risk of test
- Embarrassment
- Fatalism



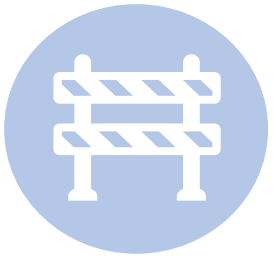
Vietnamese[4†]

- Lack of health issues
- Comorbidities take priority
- Concerns about colonoscopy
- Low health literacy



Japanese[5‡]

- Fear of pain
- Embarrassment
- Lack of health problems



Chinese[6§]

- Lack of physician recommendation
- Only visiting doctors when symptoms appear
- Perception of low risk
- Cost

*According to NCCRT research
† Results based on focus groups of 19 individuals in Seattle, Washington
‡ Results based on a study based on California Health Interview Survey data of 619 individuals in California
§ Results based on a 2-arm cluster trial of 479 individuals in the metropolitan Washington, DC area, Philadelphia, and NYC

1. NCCRT. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 2. Oh KM, et al. *J Cancer Educ*. 2021;36(2):261-270. 3. Jin SW, et al. *Soc Work Health Care*. 2020;59(9-10):668-680. 4. Kimura A, et al. *J Cancer Educ*. 2014;29(4):728-734. 5. Maxwell AE, et al. *BMC Cancer*. 2010;10:214. 6. Wang JH, et al. *Am J Health Behav*. 2018;42(1):13-26.

Asian American Population: Barriers to and Facilitators of Screening

41%

Asian individuals who were born outside the United States speak English “less than very well”[1]

What’s the influence of English language proficiency on colorectal cancer screening adherence?

- In a retrospective cohort study of individuals aged 50-75 years, limited English language proficiency was associated with fewer primary care visits, lower lifetime rate of screening colonoscopies, less physician recommendation for a colonoscopy, fewer polyps removed in the previous three years, and fewer stool-based screening tests.[2*]
- In a retrospective matched cohort study, limited English language proficiency was associated with increased odds of not returning a stool-based colorectal cancer screening kit.[†] Among those who did return kits, those with limited English language proficiency took >62 days to return their kit versus 33 days among those who were proficient in the English language.[3]
- Asian Americans with limited English proficiency were more than **50% less likely** to be up-to-date with breast, cervical, or colorectal cancer screening compared to those proficient in English.[4]
- Among South Asian individuals, those who did not speak English in the home had **2.8x greater odds** of not being up-to-date with colorectal cancer screening.[5]
- Among South Asians those who spent ≤40% of their life in the United States had **3x greater odds** of not being up-to-date with colorectal cancer screening.[5]

* The stool-based test measured was FOBT
† The stool-based test measured was an mt-sDNA kit
1. US Census Bureau. American Community Survey 2021. Nativity by language spoken at home by ability to speak English for the population 5 years and over 5 (Asian alone). March 28, 2024. https://data.census.gov/table?q=Asian%20and%20language&t=Language%20Spoken%20at%20Home 2. Cataneo JL, et al. *Am Surg*. 2022;31348221105596. 3. Hill JC, et al. *J Immigr Minor Health*. 2022;24(2):556-559. 4. Xie Z, et al. *J Racial Ethn Health Disparities*. 2022;10. 5. Mukherjea A, et al. *J Asian Health*. 2022;10(e202202):1-12.

Asian American Population: Barriers to and Facilitators of Screening

Screening Motivators[1,2]

- Cultural sensitivity
- Religiously-tailored messages (among Muslim individuals)
- Discuss disease susceptibility
- Emphasize that screening can prevent cancer
- Address test-related anxieties and feelings of embarrassment
- Improve clinical communication
- **Provider recommendation**

Increasing Screening[1]

#1 Preferred Message

"A colonoscopy isn't the only option for colorectal cancer screening. There are simple, affordable options, including tests that can be done at home. Talk to your doctor about which option is right for you. Ask which tests are covered by your health insurance."

6.2%

Increase in likelihood of screening*

Why? At-home testing may be more convenient, if it is indicated and the patient understands that they will still need a colonoscopy if the test comes back positive.

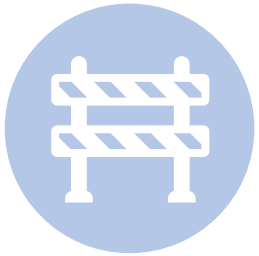
*This message increased intention to participate in colorectal cancer screening within six months

1. National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 2. Kazi E, et al. *J Cancer Educ*. 2021;36(4):865-873.

Sexual and gender minorities are disproportionately affected by colorectal cancer primarily due to **elevated risk factors**, including social behaviors associated with stress reduction[1-3]

1. Boehmer U, et al. *Prev Med*. 2009;48(4):357-361. 2. Haggar FA, et al. *Clin Colon Rectal Surg*. 2009;22(4):191-197. 3. Lee M, et al. *Cancer Causes Control*. 2020;31(10):951-964.

LGBTQIA+ Community



Primary Barriers[1-4]

- Denial of care by a physician due to gender identity
- Higher rates of victimization
- Emotional distress
- Difficulty with transportation
- Lack of provider knowledge and expertise
- Discrimination and bias in healthcare settings
- Feeling blamed or guilty about the size or shape of their body

Primary Facilitators[2]

- Ability to engage in care
- Strong provider communication skills
- Positive relationship with clinician

1. Lombardo J, et al. *Cancer Causes Control*. 2022;33(4):559-582. 2. Apaydin KZ, et al. *Sex Health*. 2018;15(5):431-440. 3. Newman PA, et al. *J Gay Lesbian Soc Serv*. 2008;20(4):328-353. 4. Clark MA, et al. *Women Health*. 2003;38(2):19-33.

In one study evaluating cancer screening adherence among a refugee population, **87%** of individuals had **never been screened** for colorectal cancer*,†

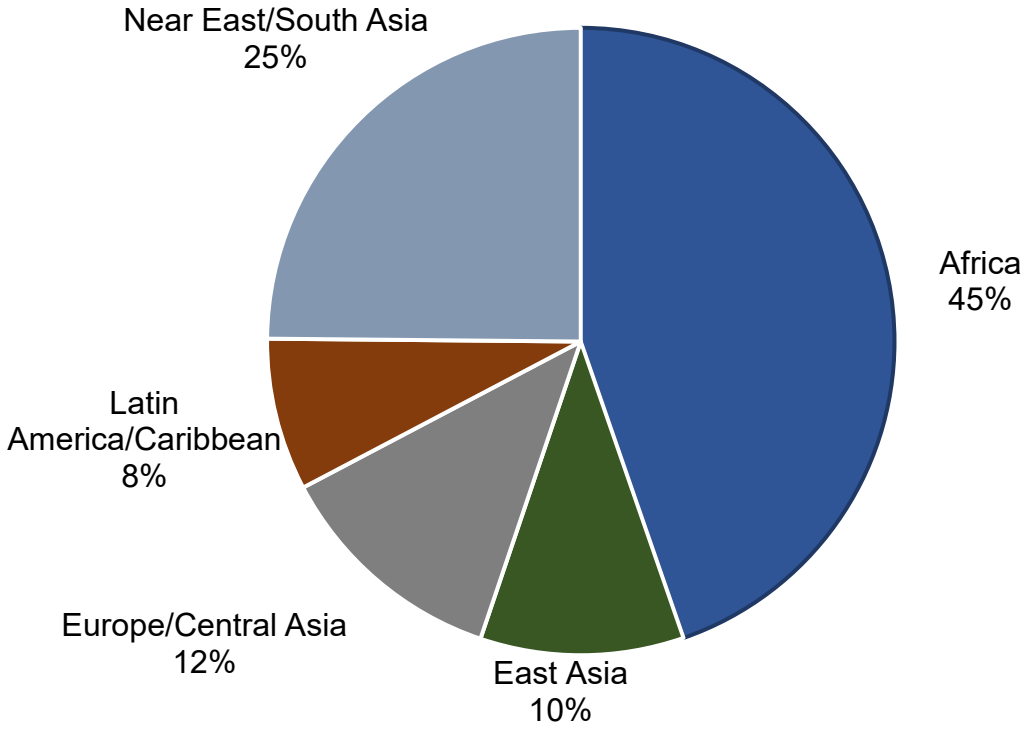
*The population comprised 874 refugees primarily from Myanmar, Central Africa, Somalia, and Sudan. Sixty-eight participants were eligible for colon cancer screening at the time of the survey

† 81% of participants were female

Milenkov A, et al. *PLoS One*. 2020;15(3):e0230675.

Refugee Populations

Geographic Origin of Refugees and Asylum Seekers 2020-2022 (all ages)[1,*]



- >6500 refugees and asylum seekers were aged **≥45 years†**
- >6200 refugees and asylum seekers were aged **35-44 years†**

*Fiscal Year = October 1, 2020- September 30, 2022

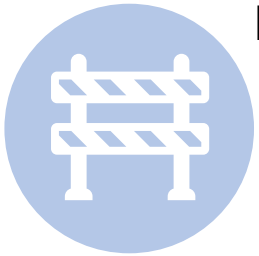
US Department of Homeland Security. Office of Immigration Statistics, Fiscal Year 2022 Refugees and Asylees Annual Flow Report: 2022.

Refugee Populations

We can anecdotally expect refugee populations to:

- Lack familiarity and comfort with the US healthcare system
- Have low health insurance literacy
- Lack familiarity with US colorectal cancer screening guidelines

We must consider these factors in the context of other subgroup characteristics.



Barriers Among Refugees from the Middle East[1-3]

- Culture of modesty
- Fear and stigma of cancer
- Fatalism
- Lack of emphasis on preventive health care
- Pre-migration experiences
- Provider gender discordance
- Lack of symptoms
- Limited knowledge of colorectal cancer
- Limited English language proficiency
- Lack of physician recommendation

1. Kazi E, et al. *J Cancer Educ*. 2021;36(4):865-873. 2. Siddiq H, et al. *J Cancer Educ.* 2022;37(2):352-361. 3. Siddiq H, et al. *J Immigr Minor Health.* 2020;22(5):1067-1093.

Refugee Populations: Barriers to and Facilitators of Screening

Screening Motivators[1,2]

- Cultural sensitivity
- Religiously-tailored messages (among Muslim individuals)
- Colorectal cancer education, including that it is often an asymptomatic disease
- Screening reminders
- **Provider recommendation**

Mitigating Post-Screening Distress and Encouraging Re-Screening[3]

- Among refugee women from Afghanistan, a delay in receiving screening test results caused distress.
- Supportive and prompt communication by healthcare providers also empowered some women to repeat screening.

1. Kazi E, et al. *J Cancer Educ*. 2021;36(4):865-873. 2. Siddiq H, et al. *J Cancer Educ.* 2022;37(2):352-361. 3. Siddiq H, et al. *J Immigr Minor Health.* 2020;22(5):1067-1093.

Colorectal cancer-related **mortality** is **17.7% higher** in areas of persistent poverty vs areas not in persistent poverty*

*Areas of persistent poverty are defined as those with ≥20% of the population living in poverty since 1980. Note that the article was published in 2020).
Moss JL, et al. *Cancer Epidemiol Biomarkers Prev.* 2020;29(10):1949-1954.

Financially Insecure

Lifestyle Beliefs and Behaviors

- **48%** consider themselves healthy
- **53%** are doctor averse
- **53%** exercise regularly
- **36%** talk to friends and/or family about screening
- **36%** care a great deal about maintaining their health
- **27%** talk to doctors about screening

- More likely to lack health insurance or to be underinsured*
- More likely to have a high school diploma or less*
- Has a household income of <$40,000*
- Often underemployed, disabled, or retired*

*Compared to other participants

National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019.

Financially Insecure

Primary Barriers

- Procrastination due to cost and being busy
- Lack of insurance
- Lack of symptoms
- Inability to afford out-of-pocket costs

Increasing Screening[1]

#1 Preferred Message

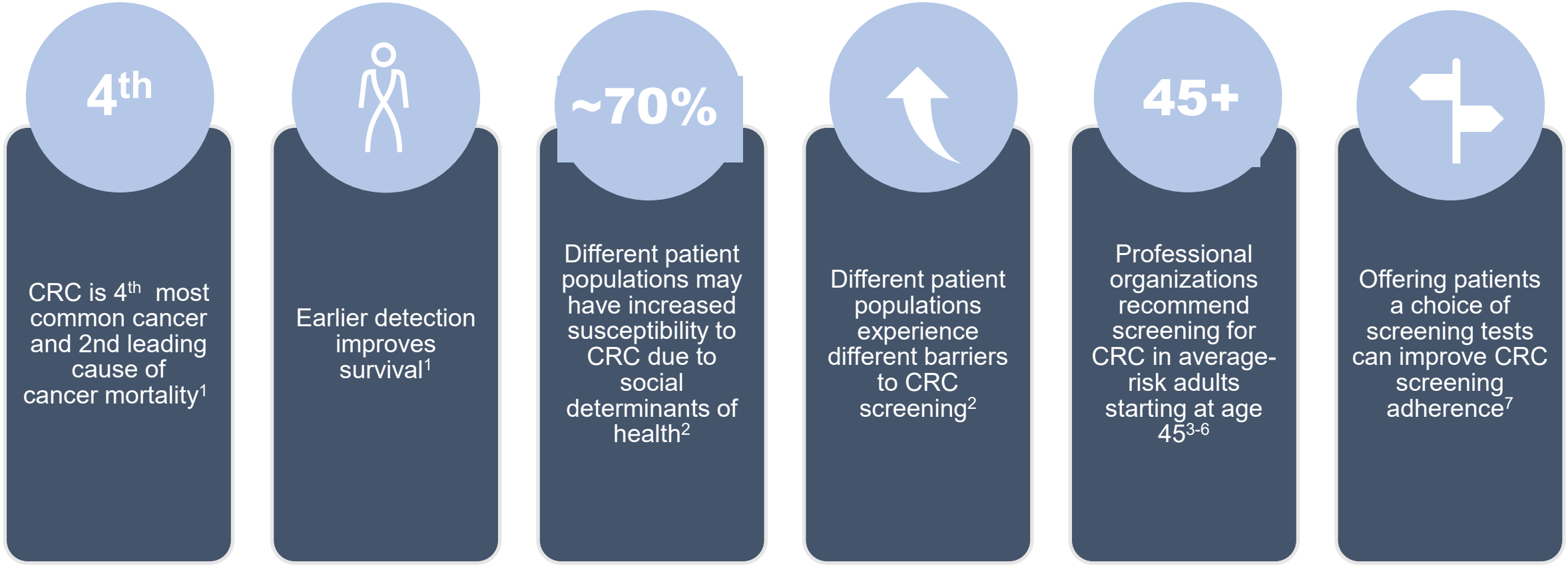
“A colonoscopy isn’t the only option for colorectal cancer screening. There are simple, affordable options, including tests that can be done at home. Talk to your doctor about which option is right for you. Ask which tests are covered by your health insurance.”

6.9% **Increase in likelihood of screening***

Why? Alternatives may be more affordable and reduce feelings of squeamishness.[1] ~83% of patients without insurance reported a preference for stool-based tests over colonoscopy.[2,†]

*This message increased intention to participate in colorectal cancer screening within six months
†Results from a cross-sectional survey study
1. National Colorectal Cancer Roundtable. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 2. Zhu X, et al. *Cancer Prev Res (Phila).* 2021;14(5):603-614..

Summary



CRC: colorectal cancer, **ACS:** American Cancer Society.

1. Siegel RL, et al. *CA Cancer J Clin.* 2025;75:10-45. 2. AACR. AACR Cancer Disparities Progress Report 2022. American Association for Cancer Research: Philadelphia. https://cancerprogressreport.aacr.org/wp-content/uploads/sites/2/2022/06/AACR_CDPR_2022.pdf. 3. Davidson KW, et al. *JAMA.* 2021;325(19):1965-1977. 4. Wolf AMD, et al. *CA Cancer J Clin.* 2018;68(4):250-281. 5. Shaukat A, et al. *Am J Gastroenterol.* 2021;116:458-479. 6. Patel SG, et al. *Gastroenterol*. 2022;162(1):285-299. 7. Inadomi JM, et al. *Arch Intern Med.* 2012;172(7):575-582.

Next Steps

Taking Action

Recognize factors that increase your patients' social vulnerability

- Reminder: vulnerability may not look the way you might expect
  - Examples of vulnerable populations include individuals facing financial insecurity; people without access to transportation; members of certain racial and ethnic groups; individuals without insurance, or those who are underinsured; people who are unhoused or living in unsafe or crowded housing; people living in rural areas; people with other chronic health conditions; and gender and sexual minorities
- Implement an organizational SDOH screening program at regular intervals[1]
  - Create a favorable environment for screening
    - Consider self-administered assessments, short-form assessments, long-form assessments
  - Screen at regular intervals which provides opportunity to evaluate and respond to changing SDOH factors in a patient's life
  - Have available a list of community resources for clinical team members making referrals
- Navigate the social vulnerability index
  - Search by zip code to understand the overall vulnerability in a given community[2]
  - View prepared county maps to understand the specific factors that increase patients' vulnerability[3]

SDOH: social determinants of health.

1. ACS health systems can address patients' needs by screening for social determinants of health. Accessed November 7, 2024. https://hscb.acs4ccc.org/wp-content/uploads/2022/03/Screening-for-Social-Determinants-of-Health-Guide.pdf
2. ATSDR. CDC's Social Vulnerability Index (SVI). SVI interactive map. 2020. Accessed November 7, 2024. https://svi.cdc.gov/map.html 3. ATSDR. CDC's Social Vulnerability Index (SVI). Prepared county maps. 2020. Accessed November 7, 2024. https://www.atsdr.cdc.gov/placeandhealth/svi/interactive_map.html

Taking Action

Consider your patients' barriers to colorectal cancer screening

- Barriers differ by race, ethnicity, geographic location, financial status, culture, and lived experiences.[1-23]
  - Get to know your patients. Consider their background the factors that influence their social vulnerability. Those factors may inform their barriers.
  - Note that barriers may differ among members of different subgroups (e.g., males and females, Chinese and Korean individuals, self-employed Black individuals versus Black individuals and Black individuals who are busy)
  - Review the National Colorectal Cancer Roundtable Messaging Guidebooks to learn more about the barriers faced by specific populations, including people of different races and ethnicities, financial and insurance statuses, and geographic location
  - Explore the peer-reviewed literature to learn more about specific populations
- Reminder: A barrier to colorectal cancer screening is lack of a physician recommendation[1-2]

1. NCCRT. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 2. NCCRT. 2022 Messaging Guidebook for Black and African American People: Messages to Motivate for Colorectal Cancer Screening. 2022. 3. Wolbert T, et al. *South Med J*. 2021;114(5):293-298. 4. Zebra Strategies. Black/Hispanic CRC Research. Attitudes & Awareness Among Blacks & Hispanics About Colorectal Cancer. 2020. (Market Research). 5. Rogers CR, et al. *Ethn Health*. 2020;1-20. 6. Earl V, et al. *Dig Dis Sci*. 2022;67(2):463-472. 7. Rogers CR, et al. *Int J Environ Res Public Health*. 2022;19(5):3071. 8. Filippi MK, et al. *J Prim Care Community Health*. 2013;4(3):160-166. 9. Redvers N, et al. *BMC Cancer*. 2022;22(1):158. 10. Winkler CS, et al. *Cancer*. 2022;128(9):1820-1825. 11. Gonzalez JJ, et al. *J Racial Ethn Health Disparities*. 2020;7(1):137-143. 12. Oh KM, et al. *J Cancer Educ*. 2021;36(2):261-270. 13. Jin SW, et al. *Soc Work Health Care*. 2020;59(9-10):668-680. 14. Kimura A, et al. *J Cancer Educ*. 2014;29(4):728-734. 15. Kim SB. et al. *J Racial Ethn Health Disparities*. 2018;5(4):683-699. 16. Huei-Yu Wang J, et al. *Am J Health Behav*. 2018;42(1):13-26. 17. Lombardo J, et al. *Cancer Causes Control*. 2022;33(4):559-582. 18. Apaydin KZ, et al. *Sex Health*. 2018;15(5):431-440. 19. Newman PA, et al. *J Gay Lesbian Soc Serv*. 2008;20(4):328-353. 20. Clark MA, et al. *Women Health*. 2003;38(2):19-33. 21. Kazi E, et al. *J Cancer Educ*. 2021;36(4):865-873. 22. Siddiq H, et al. *J Cancer Educ*. 2022;37(2):352-361. 23. Siddiq H, et al. *J Immigr Minor Health*. 2020;22(5):1067-1093.

Taking Action

Understand What Motivates Individuals to be Screened

- Identify factors that motivate patients to be screened
  - Individuals are typically motivated by their personal experiences[1,2]
  - People of different background may respond to different motivators, such as wanting to be healthy enough to provide for their family and to maintain their position as the head of the household[3,*]

* Market research conducted with focus groups and surveys of unscreened Black individuals aged 45-65 years. Participant responses may have been influenced by the COVID-19 pandemic due to the timing of the survey (2021).

1. NCCRT. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 2 NCCRT. 2022 Messaging Guidebook for Black and African American People: Messages to Motivate for Colorectal Cancer Screening. 2022. 3. Zebra Strategies. Black/Hispanic CRC Research. Attitudes & Awareness Among Blacks & Hispanics About Colorectal Cancer. 2020. (Market Research).

Taking Action

Deliver the message

- Recommend screening to all average-risk individuals starting at age 45
  - Major guideline bodies, including the American Cancer Society (ACS) and the United States Preventive Services Task Force (USPSTF) recommend screening to all average-risk individuals starting at age 45[1,2]
- Patients trust and wish to discuss screening with health care providers
  - Compared to other sources of information (e.g., websites, health portals), patients prefer to receive information about colorectal screening from their doctor (~60%)[3,4]
- Engage patients in shared decision-making.
  - Major guideline bodies, including the American Cancer Society (ACS) and the United States Preventive Services Task Force (USPSTF) recommend engaging patients in shared decision making[1,2]
  - These conversations may influence patients' experience with the process and whether they adhere to screening recommendations and select a test they feel comfortable with.[5-7] Patients may be more motivated to be screened if they know there are alternatives to colonoscopy[3,4,7]
  - In one survey study, up to 60% of patients wished to collaborate on colorectal cancer screening decisions[5]
  - In one survey study, when presented with a choice, patients often preferred stool-based screening options over colonoscopy. When asked to choose between FIT and mt-sDNA, patients expressed preference for mt-sDNA[6]

1. Davidson KW, Barry MJ, et al. *JAMA*. 2021;325(19):1965-1977. 2. Wolf AMD, et al. *CA Cancer J Clin*. 2018;68(4):250-281. 3. NCCRT. 2019 Colorectal Cancer Screening Messaging Guidebook: Recommended Messages To Reach The Unscreened. 2019. 4. NCCRT. 2022 Messaging Guidebook for Black and African American People: Messages to Motivate for Colorectal Cancer Screening. 2022. 5. Zhu X, et al. *Patient Educ Couns*. 2022;105(4):1034-1040. 6. Makaroff KE, et al. *Clin Gastroenterol Hepatol*. 2023;21(2):520-531.e10. 7. Inadomi JM, et al. *Arch Intern Med*. 2012;172(7):575-582.

Appendix

Effect of COVID-19

The COVID-19 pandemic influenced colorectal cancer screening, and we have not yet recovered.

- **80.8%** of participating facilities (n=104/129) reported a colorectal cancer **screening deficit** during the pandemic compared to the pre-pandemic period[1*]
- Compared to the period before the pandemic, there was an overall **17.7% decrease** in the volume of colorectal cancer **screening tests** ordered during the pandemic[1*]
- Screening deficits were significantly associated with Integrated Network facilities and facilities without a minimum caseload requirement or those offering a limited range of diagnostic and treatment services available[1]

COVID-19 disproportionately affected vulnerable populations[2†‡]

- Vulnerable Patients Presented for Screening Colonoscopies Less During than Before the Pandemic
- Among all patients at average risk of developing colorectal cancer, colonoscopy adherence declined by 45% among patients from high social vulnerability communities during versus before the pandemic.

*Pre-pandemic period is defined as September 2019- January 2021; the pandemic period is defined as September 2020- January 2021.
†Data from a single-center cohort study in Albany County, NY.
‡The pre-pandemic period is defined as July1, 2019- December 31, 2019; during the pandemic is defined as July 1, 2020- June 31, 2021.
1. Joung RH, et al. *Cancer*. 2022;128(11):2119-2125.. 2 Randle HJ, et al. *Cancer Epidemiol.* 2022;80:102212.

Stool-based Screening Tests

Screening Test	Test Time Interval	Benefits	Limitations
Fecal Immunochemical test (FIT)	Annual	• No bowel cleansing or sedation • Performed at home • Low cost • Noninvasive	• Requires multiple stool samples • Will miss most polyps • May produce false-positive test results • Slightly more effective when combined with a flexible sigmoidoscopy every five years • Colonoscopy necessary if positive
High-sensitivity guaiac-based fecal occult blood test (gFOBT)	Annual	• No bowel cleansing or sedation • Performed at home • Low cost • Noninvasive	• Requires multiple stool samples • Will miss most polyps • May produce false-positive test results • Pre-test dietary limitations • Slightly more effective when combined with a flexible sigmoidoscopy every five years • Colonoscopy necessary if positive
Multi-target stool DNA test (Cologuard®)	3 years	• No bowel cleansing or sedation • Performed at home • Requires only a single stool sample • Noninvasive	• Will miss most polyps • More false-positive results than other tests • Higher cost than gFOBT and FIT • Colonoscopy necessary if positive

ACS. Colorectal cancer facts & figures 2023-2025. Atlanta: American Cancer Society; 2023.

Visual Screening Tests

Screening Test	Test Time Interval	Benefits	Limitations
Colonoscopy	10 years*	• Examines entire colon • Can biopsy and remove polyps • Can diagnose other diseases • Required for abnormal results from all other tests	• Full bowel cleansing • Can be expensive • Sedation usually needed, necessitating a chaperone to return home • Patient may miss a day of work • Highest risk of bowel tears or infections compared with other tests
Computed tomographic colonography (CTC)	5 years	• Examines entire colon • Fairly quick • Few complications • No sedation needed • Noninvasive	• Full bowel cleansing • Cannot remove polyps or perform biopsies • Exposure to low-dose radiation • Colonoscopy necessary if positive • Not covered by all insurance plans
Flexible Sigmoidoscopy (FS)	5 years	• Fairly quick • Few complications • Minimal bowel preparation • Does not require sedation or a specialist	• Partial bowel cleansing • Views only one-third of colon • Cannot remove large polyps • Small risk of infection or bowel tear • Slightly more effective when combined with annual fecal occult blood testing • Colonoscopy necessary if positive • Limited availability

*For average-risk individuals, e.g., does not apply to those who have a history of adenoma.

ACS. Colorectal cancer facts & figures 2023-2025. Atlanta: American Cancer Society; 2023.

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