ALASKA NATIVE MEDICAL CENTER

Colorectal Cancer Screening Guidelines

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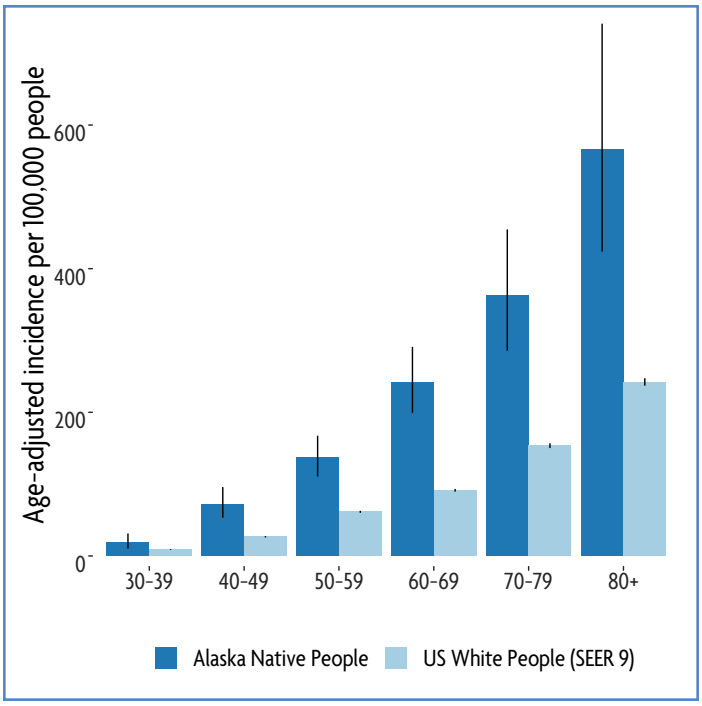
Background

The natural history of colorectal cancer (CRC) makes it ideally suited to screening. Most colorectal cancers develop over many years from benign adenomatous polyps. Precancerous polyps can be detected and removed during screening procedures. When CRC is found early and appropriately treated, survival is greatly enhanced, with a five-year relative survival rate of 90%.[1] Colorectal cancer is the third most commonly diagnosed cancer in the United States, and ranks second among Alaska Native people, occurring at almost twice the rate of the U.S. White population.[1-3] Alaska Native people have the highest CRC incidence (89 per 100,000) and mortality (40 per 100,000) rates in the US. It is double the rates in Non-Hispanic Blacks (46 and 19, respectively) and three times higher than Non-Hispanic Whites (39 and 14, respectively).[1] Incidence is higher at every age group, and as high in 40-49 year old Alaska Native people as in the Non-Hispanic White 50-59 year old age group (Fig. 1).[3-5]

Figure 1: Colorectal cancer incidence by age at diagnosis among Alaska Native People as compared to US White People (SEER 9), 2014–2018.



Notes

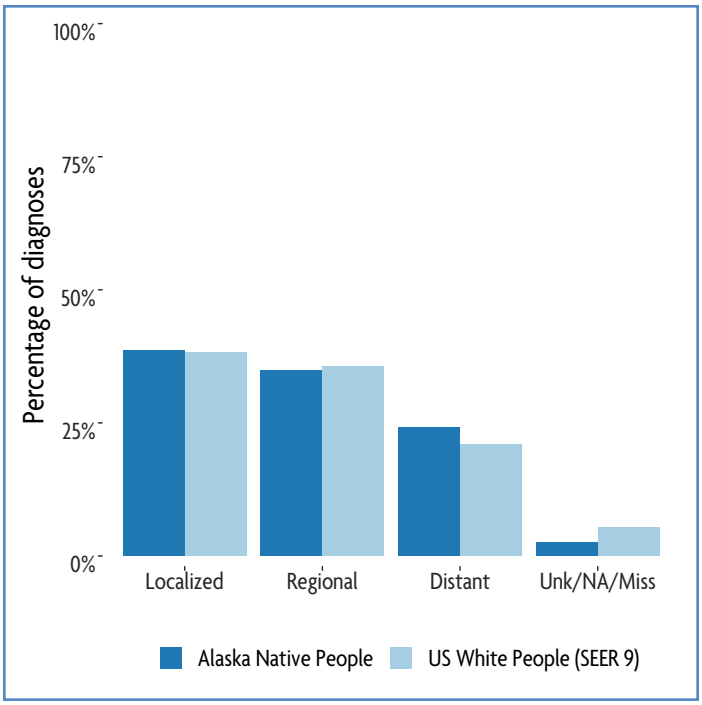
All populations

Rates are per 100,000 people and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130) standard.
Error bars represent the 95% confidence interval around the estimated incidence rate.
Colorectal cancer is defined as a combination of site-histology recodes found in the Site Recode ICD-O-3/WHO 2008 Definition provided by SEER.

US White People (SEER 9)

Data for 2018 were not available at the time of publication.

Figure 2: Proportion of colorectal cancer diagnoses by stage at diagnosis among Alaska Native People as compared to US White People (SEER 9), 2014–2018.



Notes

All populations
Colorectal cancer is defined as a combination of site-histology recodes found in the Site Recode ICD-O-3/WHO 2008 Definition provided by SEER.

Alaska Native people
Stage data for 2014-2017 come from Derived SEER Summary Stage 2000 (2004+).
Stage data for 2018 come from Derived SEER Summary Stage 2018 (2018+).

US White People (SEER 9)
Stage data for 2014-2017 come from SEER Combined Summary Stage 2000 (2004+).
Stage data for 2018 were not available at the time of publication.

Alaska Native people also have a disproportionately high burden of advanced adenomas, even in those ages 40-49,[6,7] although cancer stage is similar to US White population (Fig. 2).[4,5] CRC screening rates have been increasing among the Alaska Native population, but in contrast to other racial and ethnic groups, Alaska Native CRC incidence and mortality rates are not declining.[8]

Introduction

The Alaska Native Medical Center Colorectal Cancer (CRC) Screening Guidelines were last updated in 2013. The current guideline revisions (2021) include some key recommendations and changes highlighted below.

1. **Update of adenoma types and screening intervals for persons with a family history of colorectal cancer and polyps. See Table 1: Alaska Native Screening Age, Test and Interval Recommendations.**

Justification:

The ANMC screening guidelines have been updated to reflect changes in which types of adenomas require more frequent follow-up among the patient's relatives. This will bring the ANMC guidelines into accordance with the recommendations of the United States Preventive Services Task Force and national cancer organizations.[9-11]

2. **Update of polyp types and intervals for surveillance follow-up. (See Table 2: Recommendations for Surveillance and/or Screening Intervals in Individuals with Baseline Average Risk.)**

Justification:

Updating the polyp surveillance intervals will bring the ANMC guidelines into accordance with the recommendations of the United States Preventive Services Task Force and national cancer organizations.[10-13]

3. **Evaluation of the stool DNA test (Cologuard) for screening the Alaska Native population.**

Justification:

The stool DNA test (Cologuard) is a combination of a fecal immunochemical test (FIT) and markers for abnormal DNA. The test includes a patient navigation system and is recommended every 3 years. The sDNA test has been tested in the Alaska Native population and had a 1-time sensitivity for CRC of 92%.[14,15] Advantages of the sDNA test include the highest single-time testing sensitivity for cancer of any noninvasive, non-imaging CRC screening test. It also has higher sensitivity for sessile serrated lesions than FIT. However, it has a lower specificity and high cost relative to FIT.[11] Additionally, if the sDNA is abnormal it does require a follow-up colonoscopy similar to other at-home tests like FIT. Currently, the test is sent out of state to be read and there are logistical challenges in transporting specimens to this outside lab in a timely fashion.

Colonoscopy is the preferred screening test among Alaska Native people due to the high rates of pre-cancer and cancer in the population. Screening tests like FIT or sDNA may be appropriate for Alaska Native people who refuse or are unable to complete a screening colonoscopy. While sDNA is an accepted screening test, its use at ANMC is currently not included in the guidelines as availability and logistical realities of test completion/transport remain in question. If it is used for screening, it should be repeated every three years and if abnormal should be followed by colonoscopy.

A FIT exam is an acceptable alternative for patients unable or unwilling to undergo colonoscopy and should be repeated on a yearly basis. A positive result should be followed up with referral for colonoscopy.

Clinical Note

These guidelines are designed to assist clinicians and are not intended to supplant good clinical judgment or to establish a protocol for all patients with this condition. Patients with symptoms suggestive of possible colorectal cancer (CRC) should be referred for diagnostic procedures and are not appropriate for screening.

Colorectal Cancer Risk Factors[1]

1. Age
2. Personal history of colorectal cancer or adenomatous polyps
3. Personal history of inflammatory bowel disease (ulcerative colitis or Crohn's disease)
4. Familial adenomatous polyposis (FAP) or hereditary nonpolyposis colorectal cancer (HNPCC)
5. Family history of colorectal cancer or adenomatous polyps
6. Obesity
7. Physical inactivity
8. Use of tobacco products and alcohol consumption

Colorectal Cancer Symptoms[1]

Signs and symptoms of colorectal cancer typically occur only in advanced stages of the disease. The absence of symptoms should not be a reason to delay or ignore colorectal cancer screening

1. A change in bowel habits such as diarrhea, constipation, or narrowing of the stool that lasts for more than a few days
2. Abdominal pain
3. A feeling of bloating
4. Bleeding from the rectum or blood in the stool
5. Anemia
6. Decreased appetite
7. Weakness and fatigue
8. Weight loss

Screening Recommendations

Colonoscopy is the preferred screening test for the Alaska Native population.
Other options should be used only if colonoscopy is not available or for patients who prefer not to get a screening colonoscopy, including for patients with a positive family history who decline colonoscopy.[9,16] The fecal immunochemical test (FIT) is available as an alternate test for asymptomatic, average risk patients who refuse colonoscopy. The FIT can be done at home, and it detects cancer at a relatively high rate. To maximize the effectiveness of cancer detection and prevention, the test needs to be done annually and all abnormal FIT results require a follow up colonoscopy.

Table 1: Alaska Native Screening Age, Test and Interval Recommendations.[9]

Age	Risk Category	Test	Interval
40-75 years	Average risk[a] and healthy[b]	Colonoscopy*	10 years
		If colonoscopy refused/ unavailable: FIT	Annual
	Moderate risk Colorectal cancer or an advanced adenoma in a single first-degree relative diagnosed at age ≥60 years OR two second-degree relatives with CRC	Colonoscopy at age 40	Every 10 years
	High risk CRC or an advanced adenoma[d] in two first-degree relatives diagnosed at any age OR colorectal cancer or an advanced adenoma in a single first-degree relative at age <60 years	Colonoscopy at age 40 or 10 years before the age the youngest affected relative was diagnosed, whichever is earlier	Every 5 years
76-85 years	**Average risk**	No routine screening recommended unless healthy[b] and no screening has been done previously	None
	High risk **Moderate risk**	Continue surveillance until life expectancy <10 years and no high risk lesions	Follow surveillance interval recommendations
86 and older		No screening recommended	None

***Colonoscopy is the recommended screening test for the Alaska Native population.**

FOBT, DCBE, and flexible sigmoidoscopy are not recommended screening tests for the Alaska Native population..

Other screening options should be offered only if colonoscopy is not available or patients prefer not to get a screening colonoscopy. Any abnormal FIT requires follow-up colonoscopy. While FIT-sDNA is an accepted screening test, its use at ANMC is currently not included in the guidelines as availability and logistical realities of test completion/transport remain in question. If it is used for screening, it should be repeated every three years and if abnormal should be followed by colonoscopy.

[a]**Average risk:** Absence of inflammatory bowel disease, family history of CRC or advanced adenomas, hereditary syndrome associated with increased risk, serrated polyposis syndrome, personal history of CRC or advanced adenoma.

[b]**Healthy:** No significant co-morbidities and life expectancy ≥10 years.

[d]**Advanced adenoma:** lesion ≥10 mm in size or having tubulovillous/villous histology or high-grade dysplasia.

Average Risk and High Risk Screening Recommendations

Average Risk

Average Risk is defined as:

- No personal or family history of CRC or adenomatous polyps;
- No history of inflammatory bowel disease (ulcerative colitis or Crohn's disease);
- No history or suspicion of genetic syndromes such as Familial Adenomatous Polyposis (FAP) or Hereditary Non-Polyposis Colorectal Cancer (HPNCC), also known as Lynch syndrome.

Between the ages of 40 to 75, healthy Alaska Native men and women of average risk should have screening colonoscopy every 10 years or FIT every year if colonoscopy refused or inappropriate. Guaiac-based fecal occult blood testing (FOBT) and double contrast barium enema (DCBE) are not recommended as screening tests for the Alaska Native population.

Between the ages of 76 to 85, no routine screening is recommended if the last colonoscopy was negative. If never screened, consider co-morbidities and life expectancy prior to recommending screening.

Moderate Risk

Moderate Risk is defined as:

- Persons with a family history of CRC or advanced adenoma in a first-degree relative who was diagnosed ≥60 OR in two or more second-degree relatives should have a colonoscopy every 10 years beginning at age 40.

High Risk

High Risk is defined as:

- A personal history of advanced adenomas (lesion ≥1 cm in size or having high-grade dysplasia or villous elements[17]) or advanced serrated lesions (SSP or traditional serrated adenoma ≥10 mm in size or an SSP with cytologic dysplasia), on a previous colonoscopy;
- A personal history of colorectal cancer;
- A family history of CRC or documented history of advanced adenomas in two first-degree relatives diagnosed at any age OR colorectal cancer or an advanced adenoma in a single first-degree relative (parent, sibling, child) at age <60 years;
- A person with family history even in absence of inherited syndromes;
- Personal history of inflammatory bowel disease (ulcerative colitis or Crohn's disease);
- Personal history or suspicion of genetic syndromes such as Familial Adenomatous Polyposis (FAP) or Hereditary Non-Polyposis Colorectal Cancer (HPNCC). Persons with inherited syndromes may develop other tumor types in addition to CRC, including tumors of the endometrial, ovarian, gastric, small intestine, brain, ureter, and biliary tract.[18]

Persons with a family history of CRC or an advanced adenoma in two first-degree relatives diagnosed at any age OR colorectal cancer or an advanced adenoma in a single first-degree relative at age <60 years should have a colonoscopy every 5 years beginning at age 40, or 10 years before the age the youngest affected relative was diagnosed, whichever is earlier.

Between the ages of 76 and 85, continued screening is recommended until life expectancy <10 years and/or over age 85. No screening is recommended for patients over the age of 85, or who have significant co-morbid conditions, or have a life expectancy <10 years.

Surveillance Recommendations

These surveillance recommendations do not include recommendations for follow-up for individuals with hereditary CRC syndromes (e.g., Lynch syndrome and familial adenomatous polyposis), inflammatory bowel disease, a personal history of CRC (including malignant polyps), or serrated polyposis syndrome.

Table 2: Recommendations for Surveillance and/or Screening Intervals in Individuals With Baseline Average Risk[13]

Baseline colonoscopy	Recommended interval for surveillance colonoscopy (years)
Normal	10
≤20 hyperplastic polyps <10 mm	10
1–2 tubular adenomas <10 mm	7
3–4 tubular adenomas <10 mm	3
5-10 tubular adenomas <10 mm	3
Adenoma ≥10 mm	3
Adenoma with tubulovillous or villous histology	3
Adenoma with high-grade dysplasia	3
>10 adenomas on single examination	1
Piecemeal resection of adenoma ≥10 mm	6 months
1–2 sessile serrated polyps <10 mm	7
3-4 sessile serrated polyps <10 mm	3
5-10 sessile serrated polyps <10 mm	3
Sessile serrated polyps ≥10 mm	3
Sessile serrated polyps with dysplasia	3
Traditional serrated adenoma	3
Hyperplastic polyps ≥10 mm	3
Piecemeal resection of sessile serrated polyp ≥10 mm	6 months

Note: All recommendations assume examination complete to cecum with bowel preparation adequate to detect lesions >5 mm in size.

Polyp Surveillance

Polyp surveillance guidelines are based on national recommendations.[13,17]

Discontinuation of surveillance colonoscopy should be considered in persons with serious co-morbidities or with <10 years life expectancy OR at age ≥85. Patients with a history of CRC, genetic syndromes (FAP, HNPCC, etc.) or ulcerative colitis should be followed at appropriate intervals using colonoscopy.

- Patients with no polyps or ≤20 (<10 mm) hyperplastic polyps in the rectum or sigmoid colon should be considered to have normal colonoscopies and should be rescreened in 10 years.
- Patients with one or two small (<10 mm) tubular adenomas should have their next surveillance colonoscopy in 7 years. The precise timing of this interval should be based on other clinical factors such as prior colonoscopy findings, family history, and the preferences of the patient and judgment of the physician.
- Patients with three to four tubular adenomas <10 mm should have their next surveillance colonoscopy in 3 years.
- Patients with five to ten tubular adenomas <10 mm should have their next surveillance colonoscopy in 3 years.
- Patients with an adenoma 10 mm or greater should have their next surveillance colonoscopy in 3 years.
- Patients with adenomas with tubulovilllous or villous histology, or an adenoma with high-grade dysplasia, should have their next surveillance colonoscopy in 3 years.
- Patients with 10 or more adenomas on single examination should have their next surveillance colonoscopy in a year.
- Patients with piecemeal resection of adenoma or resection of sessile serrated polyp ≥10 mm should be rescoped in 6 months.
- Patients with one to two sessile serrated polyps <10 mm with no dysplasia should have their next surveillance colonoscopy in 7 years.
- Patients with three to four sessile serrated polyps <10 mm with no dysplasia should have their next surveillance colonoscopy in 3 years.
- Patients with five to ten sessile serrated polyps <10 mm with no dysplasia should have their next surveillance colonoscopy in 3 years.
- Patients with sessile serrated polyps ≥10 mm OR sessile serrated polyps with dysplasia OR traditional serrated adenoma should have their next surveillance colonoscopy in 3 years.
- Large hyperplastic polyps (≥10 mm), especially polyps located proximal to the splenic flexure or those seen in the context of serrated polyposis syndrome (previously known as hyperplastic polyposis syndrome) are now considered more likely to harbor malignant potential and may undergo malignant transformation more rapidly than adenomatous polyps. Patients with these atypical flat hyperplastic polyps should have their next colonoscopy in 3 to 5 years.[19]
- Patients with serrated polyposis syndrome should have their next surveillance colonoscopy in 1 year.

Repeat Surveillance

For patients with history of baseline adenoma removal and 1 subsequent colonoscopy, recommendations for subsequent surveillance should take into account findings at baseline and first surveillance (Table 3).[13]

Table 3: Recommendations for Second Surveillance Stratified by Advanced Adenoma Findings at Baseline and First Surveillance

Baseline finding	Recommended interval for first surveillance (years)	Finding at first surveillance	Recommended interval for next surveillance (years)
1–2 tubular adenomas < 10mm	7	Normal colonoscopy[a]	10
		1–2 tubular adenomas < 10mm	7
		3–4 tubular adenomas < 10mm	3
		Adenoma ≥10 mm in size; or adenoma with tubulovillous/ villous histology; or adenoma with high grade dysplasia; or 5–10 adenomas <10mm	3
3–4 tubular adenomas < 10mm	3	Normal colonoscopy[a]	10
		1–2 tubular adenomas < 10mm	7
		3–4 tubular adenomas < 10mm	3
		Adenoma ≥10 mm in size; or adenoma with tubulovillous/ villous histology; or adenoma with high grade dysplasia; or 5–10 adenomas < 10mm	3
Adenoma ≥10 mm in size; or adenoma with tubulovillous/ villous histology; or adenoma with high-grade dysplasia; or 5–10 adenomas < 10mm	3	Normal colonoscopy[a]	5
		1–2 tubular adenomas < 10mm	5
		3–4 tubular adenomas < 10mm	3
		Adenoma ≥10 mm in size; or adenoma with tubulovillous/ villous histology; or adenoma with high grade dysplasia; or 5–10 adenomas < 10mm	3

[a] Normal colonoscopy is defined as colonoscopy where no adenoma, sessile serrated polyp, or CRC is found.

Colonoscopy Quality Measures

The following are quality measures that are indicative of high quality colonoscopy and should be measured when infrastructure is in place to allow consistent and reliable data collection.[20,21]

- Bowel preparation adequate to detect polyps ≥5 mm
  - GOAL: 85%
- Cecal intubation rate
  - GOAL: ≥95% for screening colonoscopies
- Adenoma detection rate for average risk patients[1]
  - GOAL: 30% for male patients
  - GOAL: 20% for female patients
- Photodocumentation of polyps ≥10 mm. Photo should include an open snare or biopsy forceps to allow size comparison.
  - GOAL: 80%
- Photodocumentation of the cecum.
  - Goal: 90%

[1] ADR goal for men and women is set at the national quality benchmark for average risk screening and is a minimum threshold. Alaska Native ADR is expected to be higher.

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