Clinical Policy Title: Colorectal cancer screening

Clinical Policy Number: 08.01.09

Effective Date: April 1, 2017
Initial Review Date: March 15, 2017
Most Recent Review Date: March 15, 2017
Next Review Date: March 2018

Related policies:
CP# 08.01.04 Fecal DNA for colorectal cancer detection
CP# 08.01.07 Virtual colonoscopy – CT colonography

ABOUT THIS POLICY: Prestige Health Choice has developed clinical policies to assist with making coverage determinations. Prestige Health Choice’s clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of “medically necessary,” and the specific facts of the particular situation are considered by Prestige Health Choice when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Prestige Health Choice’s clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Prestige Health Choice’s clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Prestige Health Choice will update its clinical policies as necessary. Prestige Health Choice’s clinical policies are not guarantees of payment.

Coverage policy

Prestige Health Choice considers the use of any one of the following services for colorectal cancer (CRC) screening for average risk persons (asymptomatic, with no personal or family history of colon cancer, adenomatous polyposis, Crohn’s Disease, or ulcerative colitis) age 50 to 75 to be clinically proven and therefore, medically necessary:

1. Colonoscopy every 10 years
2. Double contrast barium enema every 5 years
3. Flexible sigmoidoscopy every 5 years
4. Fecal immunochemical test (FIT) every year
5. Fecal occult blood test (FOBT) every year

Virtual colonoscopy/CT colonography (CTC) is only considered medically necessary if any of the following criteria are met:
1. A conventional colonoscopy is contraindicated due to presence of lower gastrointestinal bleeding, colonic stenosis, colonic obstructions, diverticulosis, or diverticulitis.
2. The patient had complications with a prior colonoscopy.
3. The patient is taking anti-coagulation medicine, or is otherwise at risk for a bleeding disorder.
4. The patient has an elevated risk from sedation during a colonoscopy, from conditions such as Chronic Obstructive Pulmonary Disease, hypotension from sedation, a recent acute myocardial infarction, recent colonic surgery, or a previous adverse reaction to anesthesia.
5. The patient has obstructive colorectal cancer (CRC).

Any of the screening methods for CRC above is considered medically necessary at any age (unless specified below) as often as every two years (or otherwise specified below) if any patient has any of the following criteria:
   1. A personal history of CRC or adenomatous polyps (as often as every year)
   2. A personal history of inflammatory bowel disease, e.g., ulcerative colitis or Crohn’s disease
   3. A first-degree relative (sibling, parent, child) who has had CRC or adenomatous polyps diagnosed before age 60 (or two first-degree relatives diagnosed at any age); screening may start at age 40, and be repeated every 5 years
   4. A known family history of a hereditary CRC syndrome, e.g., familial adenomatous polyposis or hereditary non-polyposis colon cancer; screening may start at age 40.

Screening for African-Americans is considered medically necessary beginning at age 45 because of the elevated risk of CRC.

**Limitations:**

Coverage determinations are subject to benefit limitations and exclusions as delineated by the state Medicaid authority. The Florida Medicaid website can be accessed at http://ahca.myflorida.com/Medicaid/.

Prestige Health Choice considers the use of magnetic resonance imaging and wireless capsule endoscopy for CRC screening to be investigational/experimental, and therefore, not medically necessary.

**Alternative covered services:**

None.

**Background**

CRC is one of the most commonly-diagnosed cancers in the U.S., with 134,490 new cases estimated in 2016, more than any other cancer except lung/bronchus, breast, and prostate. From 1985 to 2013, the
The age-adjusted incidence and mortality rate of the disease declined by 43 and 46 percent, respectively, mostly due to greater numbers of pre-cancerous polyps being detected and removed after screening. Rates for Hispanics and Asians (34.7 and 34.8 per 100,000 persons) are considerably lower than for Caucasians (41.0) and Blacks (50.7). Males have a 33 percent higher rate than females (43.72 vs. 32.97 per 100,000 in 2013).

The five-year survival rate for CRC has risen from 49.8 to 66.2 percent since the mid-1970s. Survival for those cancers considered localized is 90.1 percent, compared to just 13.5 percent for those considered distant, illustrating the importance of regular screening (Howlader, 2016). However, despite considerable educational efforts by health officials, 35 percent of adults age 50 to 75 have not been tested for CRC as of 2012 (CDC, 2013). Because blood in the stool is often the only symptom of CRC, screening can play a useful role in early detection and treatment.

Colonoscopy is considered the preferred method of detecting CRC. The procedure offers the most thorough means of examining the lower intestine; allows the provider to remove any polyps during the same procedure; and in persons testing negative who shows no subsequent symptoms, needs only to be repeated every ten years. Limits of colonoscopy include the extensive preparation required, the chance of a puncture, sedation risk, disqualification of some patients for medical reasons, surgical risk - including perforation of the colon - of 4 to 8 per 10,000 colonoscopy patients (Lin, 2016), and patient unwillingness factor.

Other types of CRC screening offer certain benefits. All tests require less extensive preparation (flexible sigmoidoscopy and CT colonography require similar preparation), pose no surgical or anesthetic risk (surgical risk for sigmoidoscopy is lower), do not disqualify patients due to medical conditions, do not create an unwillingness among patients, and cost less. Conversely, non-colonoscopy procedures must be performed more frequently, fail to detect as many polyps and cancers as colonoscopy, involve radiation exposure (virtual colonoscopy/CT colonography), and require a separate colonoscopy if polyps are detected.

Because the risk of CRC begins to sharply increase in middle age, experts agree that screening should begin at age 50 for persons not at risk. Screening is considered appropriate starting at an earlier age if the patient has a risk factor such as personal or family history of CRC; experts recommend that screening begin at age 45 for African Americans, who have an elevated risk for the disease compared to other racial and ethnic groups (Agrawal, 2005).

Screening for average-risk persons between the age of 75 and 84 should not be routinely performed, but done based on considerations that classify the patient as high-risk; in addition, persons age 75-84 never screened before have a greater chance of benefiting from the test (USPSTF, 2016). Persons over age 85 should not be screened for CRC (USPSTF, 2008). The American College of Physicians recommends that screening stop at age 75, or in adults with a life expectancy of less than 10 years (Qaseem, 2012).
CRC screening, especially colonoscopy, is also used post-operatively in patients who have resected colons, to detect metachronous lesions (Rex, 2006).

Searches

Prestige Health Choice searched PubMed and the databases of:
- UK National Health Services Centre for Reviews and Dissemination.
- Agency for Healthcare Research and Quality’s National Guideline Clearinghouse and other evidence-based practice centers.
- The Centers for Medicare & Medicaid Services (CMS).

We conducted searches on January 26, 2017. Search terms were: “CRC screening”, colonoscopy, sigmoidoscopy, “computed tomography colonography”, “fecal DNA”, “fecal occult blood test”, “fecal immunochemical test”, and “double contrast barium enema.”

We included:
- **Systematic reviews**, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.
- **Guidelines based on systematic reviews**.
- **Economic analyses**, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

Findings

Numerous U.S. professional societies have developed guidelines for CRC screening, some by themselves and some as part of a joint effort. These organizations include the American Cancer Society, American College of Physicians, American College of Gastroenterology, American College of Radiology, American Society of Colon and Rectal Surgeons, National Comprehensive Cancer Network, U.S. Multi-Society Task Force on Colorectal Cancer, and U.S. Preventive Services Task Force.

The general consensus is that CRC screening has been proven to reduce incidence and mortality of the disease. Thus, screening in asymptomatic individuals who have no personal or family history of CRC should occur between the ages of 50 and 74. Screening between ages 75 to 84 is a physician-patient decision dependent on the patient’s risk status, and screening over age 85 is not recommended.

The general consensus on which screening methods can be used, and the interval for their use, include colonoscopy every 10 years; CT colonography every 5 years; flexible sigmoidoscopy every 5 years, or
every 10 years if FIT is also done annually; FIT and fecal DNA test every 1-3 years; FIT alone every year; or FOBT every year (USPSTF, 2016).

Colonoscopy is also recommended 3 to 6 months after colon cancer surgery, for endoscopically resected Stage I, surgically resected Stages II and III, and Stage IV cancers. If this examination is normal, another colonoscopy should be performed in 1 year to detect metachronous lesions, based on reports of a high incidence of these second cancers. If this examination is normal, the interval before the next examination should be 3 years (Rex, 2006).

Nations outside the U.S. may have different standards for CRC screening. The Canadian Task Force on Preventive Health Care recommended adults age 50 to 74 be screened for CRC with FOBT or FIT every 2 years, or with flexible sigmoidoscopy every 10 years. In Canada, colonoscopy is not recommended for routinely screening adults 75 years or older, and as a primary screening test (CTFPHC, 2016). In Japan, FIT is the principal means of CRC screening, and models show that this method identifies 94 percent of the CRC cases that colonoscopy does (Ross, 2010).

Each approach to CRC screening has demonstrated a benefit. The table below lists model estimated in life-years gained per 1000 persons screened, based on screening between age 50 and 75, plus appropriate follow-up for the remainder of the patient life span (USPSTF, 2016):

<table>
<thead>
<tr>
<th>SCREENING METHOD AND FREQUENCY</th>
<th>LIFE-YEARS GAINED PER 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonoscopy every 10 years</td>
<td>270</td>
</tr>
<tr>
<td>FIT-DNA every 1 year</td>
<td>261</td>
</tr>
<tr>
<td>Flexible sigmoidoscopy every 10 years plus FIT every 1 year</td>
<td>256</td>
</tr>
<tr>
<td>CT colonography every 5 years</td>
<td>248</td>
</tr>
<tr>
<td>HSg FOBT every 1 year</td>
<td>247</td>
</tr>
<tr>
<td>FIT every 1 year</td>
<td>244</td>
</tr>
<tr>
<td>FIT-DNA every 3 years</td>
<td>226</td>
</tr>
<tr>
<td>Flexible sigmoidoscopy every 5 years</td>
<td>221</td>
</tr>
</tbody>
</table>

Colonoscopy is considered the most effective means of diagnosing CRC or pre-cancerous polyps or adenomas. A 5 percent sample of Medicare beneficiaries found that 2.3 percent were diagnosed with colorectal cancer within 10 years of a negative colonoscopy, a 97.7 percent specificity (Singh, 2011). The colonoscopy “miss rate” (false negatives) for other disorders of the colon and rectum include polyps of all sizes (28 percent), adenomas (20 percent), polyps greater than 5 millimeters in diameter (9 percent), and advanced adenomas (11 percent) (Heresbah, 2008).

The sensitivity and specificity ranges of various screening methods to detect CRC other than colonoscopy have been estimated. The sensitivity and specificity ranges of various screening methods to detect CRC include FIT-DNA/Cologuard, 92 and 84 percent (Lin, 2016); CT colonography for sensitivity, 96 percent (Pickhardt, 2011); HSg FOBT, 62-79 and 87-96 percent (Lin, 2016); and stool DNA testing, 76
Capsule endoscopy sensitivity and specificity varies for CCE-1 (95 and 97 percent) and CCE-2 (87 and 54 percent) to detect polyps over 10 mm diameter (Spada, 2016).

The use of flexible sigmoidoscopy has demonstrated effectiveness in detecting CRC and polyps, and thus reducing mortality. Screening with the procedure every 5-10 years resulted in 1 fewer CRC death per 5000 persons screened in 4.3 years (Tang, 2015), and reduced CRC mortality 27 percent (Lin, 2016), compared to no screening. Screening every 5 years lowered CRC incidence and mortality 22 and 28 percent (Shroff, 2014). The procedure also reduced distal CRC incidence and mortality 64 and 66 percent, with no reduction in proximal CRC (Brenner, 2014).

Sigmoidoscopy is able to detect 81.0 to 84.4 percent of the CRC cases that colonoscopy does (Schoen, 2012); and when combined with FIT, has reduced CRC mortality more than sigmoidoscopy alone (Holme, 2014). Colonoscopy reduced CRC-related mortality 29 percent more than sigmoidoscopy; but reduction from sigmoidoscopy was 26 percent greater than FOBT (Elmunzer, 2015).

While endoscopic approaches like colonoscopy and sigmoidoscopy show a higher detection rate of advanced colorectal neoplasia than do fecal tests (RR = 3.21), they also have a lower rate of participation (RR=0.67), meaning that both approaches are useful in reducing CRC (Hassan, 2012).

FIT appears to be effective in detecting CRC, with a diagnostic accuracy of 95 percent (Lee, 2014), but is less effective for identifying adenomas (Niedermaier, 2016). A meta-analysis found that FIT is able to detect adenomas greater than 6 millimeters 73 to 88 percent of the time; adding multi-target DNA screening to FIT raises this figure to 92 percent (Lin, 2016), a lower proportion of false positives (Imperiale, 2014).

Evidence indicates FIT is superior to FOBT as a CRC screen (Rabeneck, 2012). A meta-analysis of average-risk patients in 11 randomized and cohort trials found that FIT detected two to three times more advanced colorectal neoplasms than FOBT (Zhu, 2010). FIT had a 16 percent greater adherence to screening, and about double the rate of detection of advanced neoplasia (RR = 2.28) and cancer (RR = 1.96) than did FOBT (Hassan, 2012).

Biennial FOBT tests have been associated with a 22 percent reduced risk of CRC mortality in 30 years (Lin, 2016). Biennial FOBT was associated with a 14 percent reduction in CRC mortality in 10 years, but no further change in years 11-16 (Heresbach, 2006). A Cochrane study found that FOBT reduces CRC mortality 16 percent, but does not change all-cause mortality (Hewitson, 2008). Compared to controls, FOBT reduced CRC mortality 18 percent, less than the 26 percent reduction for those undergoing sigmoidoscopy (Fitzpatrick-Lewis, 2016). Among types of FOBT products, OC-sensor has greater sensitivity and specificity (87 and 93 percent) than does Hemoccult (47 and 93 percent) (Launois, 2014).

Fecal DNA testing alone has proven cost effective vs. no screening, but not cost-effective vs. all other screening alternatives (Skally, 2013). In a review of 20 studies, fecal DNA sensitivity and specificity were
76 and 88 percent for CRC, and 68 and 92 percent for advanced adenocarcinoma in high risk groups; corresponding numbers were lower for non-risk persons screened (Yang, 2013).

In persons over age 55 with symptoms suggestive of CRC, barium enema detected CRC in 5.6 percent of persons screened, significantly lower than the 7.3 percent mark for CT colonography. The 2.2 percent detection rate of barium enema to detect large polyps was also lower than for the 3.6 percent figure for CT colonography (Halligan, 2015).

Policy updates:

None.

Summary of clinical evidence:

<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>USPSTF (2016)</td>
<td><strong>Key points:</strong></td>
</tr>
</tbody>
</table>
| Benefits and harms of colorectal cancer (CRC) screening | • Guideline concludes evidence shows CRC screening is an effective (but underused) preventive health strategy in the U.S.  
• Recommendation that all asymptomatic persons with no family history every 10 years be screened beginning at age 50 until 75.  
• For patients with no history of abnormal screen, colonoscopy should be performed every 10 years; CT colonography every 5 years; flexible sigmoidoscopy every 5 years (every 10 years if fecal immunochemical test (FIT) is performed every year); FIT plus fecal DNA every 1-3 years; FIT alone every year; fecal occult blood test every year.  |
| Hoffman (2016)    | **Key points:**                                                              |
| Benefits and risks of CRC screening                      | • Systematic review of 114 studies.  
• Good evidence exists that screening reduces CRC mortality, but not overall mortality.  
• Potential harms include bleeding, perforation, false test results, over detection, over diagnosis, overtreatment, and (rarely) death.  |
| Lin (2016)        | **Key points:**                                                              |
| Evidence report on effectiveness, diagnostic accuracy, and harms of CRC screening | • Systematic review for USPSTF on CRC screening, using 2008-2014 literature of multiple RCTs (n = 458,002).  
• Sigmoidoscopy reduced CRC incidence 27%, compared with no screening.  
• FOBT testing reduced CRC mortality 22% in 30 years.  
• CT colonography vs. colonoscopy had 73-98% sensitivity and 89-91% specificity to detect adenomas 6 mm in diameter or larger.  
• Colonoscopy had sensitivity of 75-93% to detect adenomas 6 mm or larger.  
• FIT plus DNA had better sensitivity than FIT alone (92%) but lower specificity (84%) to detect CRC.  
• Adverse events from colonoscopy include perforations (4 per 10,000 procedures) and major bleeds (8 per 10,000).  
• CT colonography may have harms from radiation exposure or identification of

### Key points:

- Systematic review of appropriateness of CRC screening.
- Lower screening rates associated with low income, less education, being uninsured, being of Hispanic or Asian descent, or not being acculturated into the U.S.
- Higher screening rates associated with being insured, having higher income or education, being non-Hispanic white, participating in other cancer screenings, having family history of CRC, having personal history of other cancer, having physician recommendation to be screened.
- No studies tested interventions to reduce overuse or misuse of CRC screening.
- No studies assessed monitoring for underuse, overuse, and misuse of CRC screening.

### References

**Professional society guidelines/other:**


Peer-reviewed references:


**CMS National Coverage Determinations (NCDs):**

Colorectal cancer screening (201.3), October 9, 2014. Includes Fecal Occult Blood Tests (covered), CologuardTM Multi-Target Stool DNA Test (covered), screening sDNA tests (not covered), and CT colonography (not covered). [https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDid=281&ncdver=5&CoverageSelection=Both&ArticleType=All&PolicyType=Final&s=All&KeyWord=colorectal+cancer+screening&KeyWordLookUp=Title&KeyWordSearchType=And&bc=gAAAAACAAAAAAA%3d%3d&]. Accessed January 30, 2017.

**Local Coverage Determinations (LCDs):**

Commonly submitted codes

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>45330</td>
<td>Sigmoidoscopy, flexible; diagnostic, including collection of specimen(s) by brushing or washing, when performed</td>
<td></td>
</tr>
<tr>
<td>45378</td>
<td>Colonoscopy, flexible; diagnostic, including collection of specimen(s) by brushing or washing, when performed</td>
<td></td>
</tr>
<tr>
<td>74263</td>
<td>Computed tomographic (CT), colonography, screening with image postprocessing</td>
<td></td>
</tr>
<tr>
<td>74280</td>
<td>Radiologic examination, colon; air contrast with specific high density barium enema, with or without glucagon</td>
<td></td>
</tr>
<tr>
<td>82270</td>
<td>Blood, occult, by peroxidase activity (eg, guaiac), qualitative; feces, consecutive collected specimens with single determination, for colorectal neoplasm screening</td>
<td></td>
</tr>
<tr>
<td>82274</td>
<td>Blood, occult, by fecal hemoglobin determination by immunoassay, qualitative, feces, 1-3 simultaneous determinations</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICD-10 Code</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z12.11</td>
<td>Encounter for screening for malignant neoplasm colon</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HCPCS Level II Code</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>G0104</td>
<td>Colorectal cancer screening; flexible sigmoidoscopy</td>
<td></td>
</tr>
<tr>
<td>G0105</td>
<td>Colorectal cancer screening; colonoscopy on patient at high risk</td>
<td></td>
</tr>
<tr>
<td>G0106</td>
<td>Colorectal cancer screening; alternative to G0104, screening sigmoidoscopy, barium enema</td>
<td></td>
</tr>
<tr>
<td>G0120</td>
<td>Colorectal cancer screening; alternative to G0105, screening colonoscopy; barium enema</td>
<td></td>
</tr>
<tr>
<td>G0121</td>
<td>Colorectal cancer screening; colonoscopy on individual not meeting criteria for high risk</td>
<td>Report 45378 for non-Medicare.</td>
</tr>
<tr>
<td>G0122</td>
<td>Colorectal screening; barium enema</td>
<td>Not covered for Medicare</td>
</tr>
</tbody>
</table>