Colonoscopy

General Guidelines (COLON-0)

- eviCore's Gastrointestinal Endoscopy Program applies an evidence-based approach to evaluate the most appropriate care for each individual. This evaluation requires submission of medical records pertinent to the treatment and/or services being requested by the provider.
- If the medical records provided do not provide sufficiently detailed information to understand the individual's current clinical status, then the medical necessity for the request cannot be established and the request cannot be approved.
- Specific elements of an individual's medical records commonly required to establish medical necessity should include, but are not limited to:
  - recent virtual or in-person clinical evaluation which includes a detailed history and physical examination pertinent to the current request
  - laboratory studies
  - imaging studies
  - pathology reports
  - procedure reports
  - reports from other providers participating in treatment of the relevant condition
- Adequate clinical information must be submitted to eviCore in order to establish medical necessity for gastrointestinal endoscopy services. Pertinent clinical evaluation (within 60 days) including a recent detailed history and physical examination, and/or laboratory and prior imaging studies should be performed prior to considering endoscopy. Other meaningful contact (telehealth visit, telephone or video call, electronic mail or messaging) by an established individual can substitute for an in-person clinical evaluation.
- eviCore reserves the right to change and update the Gastrointestinal Endoscopy Policy. The Policy undergo a formal review at least annually. eviCore's policy is based upon major national and international association and society guidelines and criteria, peer reviewed literature, major treatises, as well as input from health plans, and practicing academic and community-based physicians.
- This policy is not intended to supersede or replace sound medical judgment, but instead, should facilitate the identification of the most appropriate treatment given the individual's clinical condition. This policy is written to cover most gastrointestinal endoscopic indications. However, the policy may not be applicable in certain clinical circumstances. Physician judgment may override the policy. Clinical decisions, including treatment decisions, are the responsibility of the individual and his/her provider. Clinicians are expected to use independent medical judgment, which takes into account the clinical circumstances to determine individual management decisions.
- All time intervals in the guideline refer to colonoscopy, unless otherwise stated.
- Requests for Open-Access Colonoscopy must meet criteria according these guidelines.

- New and Emerging Technologies
  - Requests related to new and emerging technologies will be considered to determine whether they meet eviCore's evidence-based guidelines.
    - If a specific CPT code does not exist for a new technology, the CPT code used in the request will be considered based on its typical procedure application.
  - Procedures which are inconsistent with established clinical standards or are requested for data collection and not used in direct clinical management are not supported.
- State and federal legislations may need to be considered in the review of gastrointestinal endoscopy requests.
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Average-Risk Screening (COLON-1)

- "Average-risk" is defined as an asymptomatic individual with no previously diagnosed:
  - Colorectal cancer
  - Colonic adenomas
  - Inflammatory bowel disease involving the colon
- Colonoscopy every 10 years, beginning at age 45, up to age 85
  - Abnormal findings on an average-risk screening examination should be followed up according to the specific guideline for that finding
- See: **CT Colonography (CTC) (AB-25.1)** for imaging guidelines regarding screening CT Colonography and FIT-DNA testing
- See: **Colonoscopy After Noninvasive Colon Cancer Screening Test** (COLON-18) for guidelines regarding colonoscopy after noninvasive colon cancer screening test (Cologuard, FIT-DNA, etc.)

High-Risk Screening (COLON-2)

- Family history of colorectal cancer (CRC):
  - Colonoscopy every 5 years beginning 10 years younger than the age at which the youngest first-degree relative was diagnosed, or age 40 years, whichever is earlier, if ANY of the following:
    - One or more first-degree relative with CRC or an advanced adenoma (defined as a polyp ≥ 1 cm in size, or with high-grade dysplasia, or required surgery to remove the polyp) diagnosed at age ≤ 60 years
    - Two first-degree relatives (parent, sibling, child) with CRC or documented advanced adenomas at any age
    - One or more first-degree relatives with a documented advanced serrated lesion (a sessile serrated polyp or a traditional serrated adenoma ≥ 10mm in size) or a sessile serrated polyp with cytologic dysplasia
  - Colonoscopy beginning at age 40 years, but then every 10 years (average-risk screening schedule) if:
    - One first degree relative diagnosed at age > 60 years
- See also: **Background and Supporting Information: High-risk Screening**
- Genetic Syndromes
  - See: **Genetic Syndromes (COLON-11**

Surveillance after Polypectomy (COLON-3)

- The proper application of surveillance guidelines requires information regarding the size, number, and histologic findings from the initial baseline colonoscopy.
- First surveillance colonoscopy intervals after polypectomy:
  - Adenomatous Polyps:
    - If no polyps found on screening or other colonoscopy: 10 years (average risk)
    - 1-2 tubular adenomas < 10mm: 7-10 years
    - 3-4 tubular adenomas < 10mm: 3-5 years
    - 5-10 tubular adenomas < 10mm: 3 years
    - One or more tubular adenomas ≥ 10mm: 3 years
    - Adenoma with tubulovillous or villous histology: 3 years
    - Adenoma with high-grade dysplasia: 3 years.
    - > 10 adenomas on a single examination: 1 year
    - Piecemeal resection of adenoma ≥ 20mm: 6 months
  - Hyperplastic polyps:
    - All polyps located in the rectum and/or sigmoid colon:
      - ≤ 20 polyps, size < 10mm: Repeat in 10 years
    - Polyps located proximal to the sigmoid colon:
      - ≤ 20 polyps, size < 10mm: Repeat in 10 years
      - Polyps ≥ 10mm: Repeat in 5-10 years
    - > 20 polyps
      - Follow Serrated Polyposis Syndrome guidelines (**Genetic Syndromes (COLON-17)**)
  - Sessile Serrated Polyps:
    - 1-2 polyps < 10mm in size: Repeat in 5-10 years
    - 3-4 polyps < 10mm in size: Repeat in 3-5 years
    - 5-10 polyps < 10mm in size: Repeat in 3 years
    - Polyp ≥ 10mm: Repeat in 3 years
    - Isolated polyp containing dysplasia: Repeat in 3 years
    - Piecemeal resection of SSP > 20mm: Repeat in 6 months
    - See also: Serrated Polyposis Syndrome in **Genetic Syndromes (COLON-17)**
  - Traditional Serrated Adenoma:
    - Repeat in 3 years
- Second surveillance colonoscopy (stratified by baseline and first surveillance adenoma findings):
  - If Baseline Colonoscopy/Polypectomy Findings show 1-4 tubular adenomas < 10 mm:
    - First surveillance colonoscopy findings:
      - Normal colonoscopy:
        - Second surveillance colonoscopy: Repeat in 10 years
      - 1-2 tubular adenomas < 10mm:
        - Second surveillance colonoscopy: Repeat in 7-10 years
      - 3-4 tubular adenomas < 10mm:
        - Second surveillance colonoscopy: Repeat in 3-5 years
      - Adenoma ≥ 10mm in size:

        - Second surveillance colonoscopy: Repeat in 3 years
      - Adenoma with tubulovillous or villous history:
        - Second surveillance colonoscopy: Repeat in 3 years
      - Adenoma with high-grade dysplasia:
        - Second surveillance colonoscopy: Repeat in 3 years
      - 5-10 adenomas < 10mm:
        - Second surveillance colonoscopy: Repeat in 3 years
  - For any of the following scenarios on baseline colonoscopy/polypectomy:
    - **Adenoma ≥ 10mm**
    - **Adenoma with tubulovillous or villous pathology**
    - **Adenoma with high-grade dysplasia**
    - **5-10 adenomas < 10mm**
      - First surveillance colonoscopy findings:
        - Normal colonoscopy:
          - Second surveillance colonoscopy: Repeat in 5 years
        - 1-2 tubular adenomas < 10mm:
          - Second surveillance colonoscopy: Repeat in 5 years
        - 3-4 tubular adenomas < 10mm:
          - Second surveillance colonoscopy: Repeat in 3-5 years
        - Adenoma ≥ 10mm:
          - Second surveillance colonoscopy: Repeat in 3 years
        - Adenoma with tubulovillous histology:
          - Second surveillance colonoscopy: Repeat in 3 years
        - Adenoma with high-grade dysplasia:
          - Second surveillance colonoscopy: Repeat in 3 years
        - 5-10 adenomas < 10mm:
          - Second surveillance colonoscopy: Repeat in 3 years
  - If baseline colonoscopy shows: Adenoma or SSP > 20mm with piecemeal resection:
    - Second surveillance: 1 year from the first surveillance colonoscopy
    - Third surveillance: 3 years from the second surveillance colonoscopy
    - (Note: In this scenario, if any surveillance study after the initial polypectomy reveals local recurrence, subsequent examinations can be performed at 6 month intervals until there is no local recurrence. Once a clear resection site is documented, the next follow-up is at 1 year, and the subsequent follow-ups are at 3 year intervals.)

- Duodenal Adenoma (sporadic duodenal tumors not associated with genetic syndromes)[59]
  - If an ampullary adenoma or duodenal adenoma is found on EGD, a concomitant colonoscopy is also indicated.
  - See: Upper GI Polyp Treatment and Follow-Up (EGD-1.8) for EGD indications

Surveillance After Diagnosis of Colorectal Cancer (COLON-4)

- If colonoscopy was not completed pre-operatively (e.g., because of an obstructing lesion)
  - Repeat colonoscopy 3-6 months post-surgery, for clearance
- For individuals who have undergone curative surgical resection colonoscopy is indicated in the following scenarios[11]:
  - Successful peri-operative clearing colonoscopy at diagnosis or subsequent colonoscopy:
    - Colonoscopy 1 year after the surgery or one year after the clearing colonoscopy (assuming clearing colonoscopy occurred post-surgery)
    - Thereafter, repeat in 3 years (4 years from the surgery or clearing colonoscopy)
    - Repeat next colonoscopy in 5 years (9 years from the surgery or clearing colonoscopy)
    - Subsequent colonoscopies should occur at 5 year intervals.
  - Successful curative resection (based on histopathological criteria) of colonic dysplasia or adenocarcinoma via submucosal resection (SMR) or submucosal dissection (SMD)[63]:
    - Adenoma with low grade dysplasia or sessile serrated polyp without dysplasia:
      - Colonoscopy 1 year after resection
      - Second follow-up colonoscopy 3 years after the first surveillance
    - Traditional serrated adenoma, sessile serrated polyp with dysplasia, adenoma high grade dysplasia, carcinoma in situ, intramucosal carcinoma, or dysplasia in the setting of IBD:
      - Colonoscopy 6-12 months after resection
      - Second follow-up colonoscopy 1 year after the first surveillance
      - Subsequent colonoscopy 3 years after second surveillance
    - T1b (submucosal invasion) adenocarcinoma:
      - Colonoscopy 3-6 months after resection
      - Second follow-up colonoscopy 6-12 months after the first surveillance
      - Subsequent colonoscopy 1 year after second surveillance
- For individuals with Lynch Syndrome, see: **Genetic Syndromes (COLON-11)**
- Additional surveillance of rectal cancer:
  - In addition to the above surveillance colonoscopies, a sigmoidoscopy or EUS can be performed at prescribed intervals.
    - These surveillance strategies are beyond the scope of the current guideline, which only references colonoscopy.
- See: **Inflammatory Bowel Disease (COLON-5)** for surveillance of dysplasia

Inflammatory Bowel Disease (COLON-5)

- Colonoscopy is indicated for assessment of disease activity and/or treatment decisions, including assessment for mucosal healing on therapy[4]

- Post-surgery for Inflammatory Bowel Disease[4]
  - Evaluation of pouchitis, as clinically indicated
  - After partial colectomy or partial ileocolectomy
    - Examination of the neoterminal ileum 6-12 months after surgery to risk-stratify individuals who may be affected by endoscopic recurrence
- Screening and surveillance for dysplasia in established ulcerative colitis[3,4,5]
  - Average risk individuals with ulcerative colitis
    - Begin screening 8 years after symptom onset (includes individuals with pancolitis, and left-sided colitis).
    - Continue surveillance colonoscopy every 1-3 years
    - Individuals with isolated ulcerative proctitis do not appear to be at increased risk of colon cancer. Thus, surveillance is not recommended in this group.
  - Elevated risk individuals with ulcerative colitis:
    - Begin annual surveillance beginning immediately upon diagnosis in the following high risk individuals:
      - Active inflammation
      - Anatomic abnormality such as a stricture or multiple pseudopolyps
      - Prior history of dysplasia
      - Family history of CRC in a first-degree relative
      - History of primary sclerosing cholangitis
  - If dysplasia is discovered or a lesion is present which needs follow-up evaluation:
    - If a polypoid or non-polypoid dysplastic lesion has been removed[3,5]:
      - Colonoscopy surveillance at 1-6 months, then at 12 months, and then yearly
- Screening and surveillance for dysplasia in established Crohn's Disease of the colon:
  - Colonoscopy every 1-3 years in individuals with Crohn's Disease who have disease involving at least one-third of the colon, beginning 8 years after symptom onset
- Surveillance of pouchitis[64]
  - Annual colonoscopy for surveillance of an ileo-anal pouch is indicated for individuals with a history of any of the following:
    - Colorectal dysplasia
    - Colon cancer
    - Primary sclerosing cholangitis
  - If dysplasia is discovered or a lesion is present requiring follow up beyond annual surveillance:
    - Colonoscopy is indicated at 1-6 months and again at 6-12 months
      - Continued intensive surveillance is indicated until 2 consecutive negative colonoscopy exams, after which standard colonoscopy surveillance guidelines apply.
- Chronic inflammatory bowel disease in remission (clinical, endoscopic, or histologic)
  - Routine follow-up is not indicated except for dysplasia/cancer surveillance as above

Irritable Bowel Syndrome (COLON-6)

- Irritable Bowel Syndrome is a positive diagnosis, not a diagnosis of exclusion. It is characterized by abdominal pain associated with altered bowel habits, abdominal distension, and bloating over a period of 6 months. Subtypes include IBS-C (constipation-predominant), IBS-D (diarrhea-predominant), IBS-M (mixed), and unclassified IBS. Rome IV Criteria for the diagnosis of IBS are:
  - Recurrent abdominal pain, on average ≥ 1 day/week in the past 3 months, related to ≥ 2 of the following:
    - Defecation
    - Change in stool frequency
    - Change in stool appearance
- If any one of the following alarm features are present, colonoscopy can be performed:
  - Positive family history of colorectal cancer (first-degree relative)
  - Rectal bleeding in the absence of documented bleeding hemorrhoids or anal fissures (e.g. positive stool occult blood, hematochezia. See: **GI Bleeding (COLON-9)**)
  - Unintentional weight loss ≥5% of body weight
  - Abdominal pain awakening individual at night-time
  - A change of pattern including frequent passage of stool during night-time
  - Iron-deficiency anemia as manifested by a low hematocrit and/or hemoglobin AND one of the following:
    - Low serum iron
    - Low serum ferritin (≤ 45 ng/mL or < lab lower limit if higher than 45 ng/mL)
    - Elevated serum iron-binding capacity
    - Low serum transferrin saturation
  - Positive inflammatory markers (see typical lab studies as noted below)
- In the absence of alarm features, the following laboratory studies should be performed:
  - CBC
  - For non-constipated IBS:
    - CRP (C-reactive protein), fecal calprotectin, or fecal lactoferrin
    - Serologic tests for celiac disease (Note: HLA test does not preclude the need for celiac serology)
    - Stool analysis for giardia
- If the diagnosis is inconclusive or suggestive of IBD after the above studies, colonoscopy can be approved.

Constipation (COLON-7)

- Colonoscopy indicated:
  - For the following alarm symptoms:
    - Rectal bleeding
      - Note: the nature of rectal bleeding should be specific (e.g., bright red blood per rectum, melena, hematochezia, etc. See: **GI Bleeding (COLON-9)**)
    - Heme-positive stool
    - Iron-deficiency anemia as manifested by a low hematocrit and/or hemoglobin AND one of the following:
      - Low serum iron
      - Low serum ferritin (≤ 45 ng/mL or < lab lower limit if higher than 45 ng/mL)
      - Elevated serum iron-binding capacity
      - Low serum transferrin saturation
    - Weight loss (>5% loss of body weight)
    - Individuals ≥ 45 years who have not previously had colon cancer screening via colonoscopy
    - For dilation of benign colon strictures or creation of percutaneous cecostomy when clinically appropriate
      - Note: the nature of the stricture should be specified (e.g., anastomotic stricture in the sigmoid)
    - In selected individuals, if there is a documented concern for obstruction secondary to cancer, stricture, or extrinsic compression
    - If surgery is being considered for the treatment of constipation

Background and Supporting Information

- As per ASGE guidelines, colonoscopy is generally NOT performed for the initial evaluation of individuals presenting with symptoms of chronic constipation in the absence of alarm features or suspicion of organic disease. It should be noted that in a retrospective review of 41,775 colonoscopies performed for average-risk CRC screening, constipation only, or constipation with another indication, individuals with constipation alone (as opposed to constipation with another indication) had a lower risk of significant findings than individuals undergoing colonoscopy for average risk screening.[30] In general, the yield of colonoscopy for isolated constipation is comparable to that of asymptomatic individuals undergoing colonoscopy for routine CRC screening.

Diarrhea (COLON-8)

- Chronic diarrhea (≥ 28 days)[8,22]
  - Prior to colonoscopy, the following should be performed:
    - Fecal calprotectin or lactoferrin to screen for Inflammatory Bowel Disease.
    - Giardia antigen test or PCR for Giardia.
    - Testing for celiac with IgA tissue transglutaminase (A positive test would warrant confirmation by duodenal biopsy). The use of IgG-tTG or a test for IgG deaminated gliadin peptides can be considered for IgA-deficient individuals.
  - If the diagnosis is inconclusive or suggestive of IBD after the above studies, colonoscopy can be approved.
- Acute diarrhea[8] (< 28 days):
  - Immunocompetent individuals:
    - Stool and laboratory tests, including tests for the presence of microbial pathogens are the initial studies for the evaluation of clinical scenarios suggestive of infectious diarrhea
    - Colonoscopy is generally not indicated for the initial evaluation of acute diarrhea in this setting, unless:
      - Findings on sigmoidoscopy are inconclusive
        - Results should be provided
      - Symptoms persist and fail to respond to empirical therapy
        - Type of therapy should be provided
    - The diagnosis is inconclusive after routine blood and stool studies
      - Results of these studies should be provided
    - There is significant blood loss
      - Nature of blood loss should be specified
  - Immunocompromised Individuals:
    - Stool testing for pathogens is the first-line evaluation
    - Colonoscopy can be considered if stool studies fail to reveal a cause and symptoms persist. In addition, cytomegalovirus infection (CMV) diagnosed by PCR, viral culture, or positive serology may not be indicative of tissue-invasive disease and endoscopic biopsy may be needed.

Background and Supporting Information

- In the immunocompromised individual (e.g., HIV) evidence indicates that colonoscopy has a higher diagnostic yield than sigmoidoscopy.

GI Bleeding (COLON-9)

- The nature of the rectal bleeding should be specified (e.g., bright red blood per rectum, melena, hematochezia, etc.)
  - For symptoms suggesting outlet-type bleeding (e.g., scant hematochezia, blood on toilet paper, small amount of blood on outside of stool)
    - Individuals age less than 40 years, colonoscopy is indicated when:
      - In the presence of alarm symptoms of weight loss or bowel habit changes, or if criteria for colonoscopy is met by other guidelines (e.g. iron-deficiency anemia, etc.)
      - Sigmoidoscopy does not reveal a local source of bleeding such as hemorrhoids or anal fissure.
      - Findings on sigmoidoscopy or imaging suggest a need for further evaluation (e.g., inflammatory bowel disease, adenomatous polyp, etc.)
      - For elevated risk individuals with family history of colorectal polyps or cancer or other genetic predisposition to colonic cancer
    - Individuals age 40 years or older, colonoscopy is indicated
    - For confirmed positive occult blood, melena, or hematochezia not suggestive of outlet-type bleeding
      - Colonoscopy is indicated
- Iron-deficiency anemia as manifested by a low hematocrit and/or hemoglobin AND one of the following:
  - Low serum iron
  - Low serum ferritin (≤ 45 ng/mL or < lab lower limit if higher than 45 ng/mL)
  - Elevated serum iron-binding capacity
  - Low serum transferrin saturation

Abdominal Pain (COLON-10)

- With respect to colonoscopy indications, isolated abdominal pain is usually localized to the lower abdomen. In general, isolated abdominal pain is a poor indication for colonoscopy but can be considered in individual cases:
  - In individuals ≥ 45 years of age, colonoscopy is indicated if a screening colonoscopy (or a diagnostic colonoscopy for another indication) has not yet been performed.
    - A recent negative colonoscopy for colon cancer screening or for other investigative purposes should mitigate the need for another colonoscopy for isolated abdominal pain or irritable bowel-type symptomatology in the absence of new alarm symptoms.
      - See alarm symptoms under **Irritable Bowel Syndrome (COLON-6)** for indications for colonoscopy in this setting.
  - In individuals < 45 years of age, see alarm symptoms under **Irritable Bowel Syndrome (COLON-6)** for colonoscopy indications.

Unexplained Weight Loss (COLON-11)

- Unexplained weight loss of > 5% body weight within the last 6-12 months
  - Colonoscopy as requested
- See also: **Unexplained Weight Loss (ONC-30.2)** in the Oncology Imaging Guidelines

Abnormal Radiologic Study (COLON-12)

- Abnormal radiologic studies or other examinations indicating colorectal pathology[6]:
  - Colonoscopy as requested to assess the abnormality as indicated
    - The nature of the abnormality must be documented by description of the radiologic finding (e.g., colon wall thickening on CT scan)

Repeat Colonoscopy for Inadequate Preparation (COLON-13)

- Inadequate preparation on initial colonoscopy for screening or surveillance:
  - For cases in which the BBPS (Boston Bowel Prep Scale) score is not available::
    - Repeat examination as per the endoscopist with documentation from prior colonoscopy report indicating the inadequacy of the preparation and the need for earlier-than-usual follow-up.
  - For BBPS score of 0 or 1 in any segment of the colon or a total score of 0 to 5:
    - Repeat examination as per the endoscopist
- Adequate preparation on initial colonoscopy for screening or surveillance:
- For a BBPS (Boston Bowel Prep Scale) score of 2 or 3 in all segments of the colon:
    - Repeat examination as per screening or surveillance guidelines

General and Therapeutic Colonoscopy (COLON-14)

- Removal of a foreign body[6]
  - The nature of the suspected foreign body should be provided (e.g., battery, etc.)
- Treatment of a known bleeding source (e.g., radiation proctitis, arteriovenous malformation, etc.)
- Excision of a known polyp[6]
  - This would apply to a known polyp not previously resected. Documentation of the nature of the retained polyp should be provided (e.g., large polyp for which endoscopic mucosal resection is being planned)
- For colon polyp surveillance, see: **Surveillance after Polypectomy (COLON-3)**
  - For surveillance after surgical or submucosal resection (SMR) or submucosal dissection (SMD), see: **Surveillance After Diagnosis of Colorectal Cancer (COLON-4)**
- Decompression of acute nontoxic megacolon or sigmoid volvulus[6]
  - Documentation of the history should be provided
- Balloon-dilation of stenotic lesions[6]

- The nature of the stenosis should be specified (e.g., dilation of an anastomotic sigmoid stricture)

- Palliative treatment of stenosing or bleeding neoplasms[6]
  - The type of neoplasm and location should be specified
- Marking a neoplasm for localization[6]
  - The type of neoplasm and location should be specified
- Intra-operative colonoscopy for site identification at time of surgery[6]
  - The nature of the planned surgical procedure should be specified (e.g., surgical treatment of a polypoid lesion)

Metastatic Cancer of Unknown Primary Site (COLON-15)

- Metastatic adenocarcinoma of unknown primary site when, in the opinion of the treating physician responsible for oncology care, the results will not alter management.
  - Colonoscopy is NOT indicated[6]

Colonoscopy Via Stoma (COLON-16)

- Colonoscopy via stoma can be performed for any of the above indications, and in addition[13]:
  - To evaluate stoma complications (e.g., hernia, retraction, prolapse, stenosis, fistula, etc.)

Genetic Syndromes (COLON-17)

- Lynch Syndrome (NOTE: Screening colonoscopy begins at the stated age as indicated below, or 5 years before the youngest age of diagnosis of colorectal cancer in an affected family member, whichever occurs first)
  - MLH1/MSH2 Mutation:
    - Annual colonoscopy beginning at age 20
  - MSH6/PMS2 Mutation:
    - Annual colonoscopy beginning at age 25
  - Deletions of upstream EpCAM gene[52-54]:
    - Annual colonoscopy beginning at age 20
- Li-Fraumeni Syndrome (defined as a syndrome inherited in an autosomal-dominant manner, associated with germline mutations in TP53, and resulting in an increased susceptibility to a variety of cancers)
  - Colonoscopy every 2-5 years beginning at age 25 (or 5 years before the earliest known colon cancer in the family)[56, 57]
- Polyposis Syndromes
  - FAP (Familial Adenomatous Polyposis, confirmed by a mutation in the APC-Adenomatous Polyposis Coli gene):
    - Annual colonoscopy beginning at age 10
  - Attenuated FAP:
    - Annual colonoscopy beginning at age 18

- MUTYH-associated polyposis:
  - Annual colonoscopy beginning at age 25
- Juvenile Polyposis Syndrome (defined as individuals with 5 or more juvenile polyps in the colorectum or any juvenile polyps in other parts of the GI tract, or evidence of SMAD4 or BMPRI1A mutations)
  - Colonoscopy at age 12. If polyps are present, repeat yearly. If no polyps, repeat every 2 years.
- Serrated Polyposis Syndrome:
  - Colonoscopy yearly
  - Criteria for diagnosis - at least one of the following:
    - At least 5 serrated polyps proximal to the sigmoid colon with ≥ 2 of these being > 10mm
    - Any number of serrated polyps proximal to the sigmoid colon in an individual who has a first-degree relative with serrated polyposis
    - > 20 serrated polyps of any size, distributed throughout the colon
- Puetz-Jeghers Syndrome (individuals with perioral or buccal pigmentation and/or 2 or more histologically characteristic hamartomatous polyps, or family history of PJS, or STK11 mutations):
  - Colonoscopy at age 8. If polyps are present, can be repeated every 3 years. If no polyps are discovered, repeat at age 18, then every 3 years, or earlier if any symptoms occur.
- Cowden Syndrome (individuals with PTEN gene mutations, history of multiple gastrointestinal hamartomas or ganglioneuromas):
  - Colonoscopy beginning at age 15. Can be repeated every 2 years if no polyps are discovered. If polyps are found, repeat as requested.

- Family Colon Cancer X Syndrome (individuals who meet Amsterdam I criteria* but lack genetic mutation findings):
  - Colonoscopy every 3 years beginning 10 years before the age at diagnosis of the youngest affected relative.
- Hereditary Gastric Cancer (Hereditary Diffuse Gastric Cancer-HDGC Syndrome):
  - Colonoscopy beginning at age 40. Interval has not been established.
- BMMRD (Biallelic Mismatch Repair Deficiency)
  - Colonoscopy annually beginning at age 6. Once polyps are found, colonoscopy is recommended every 6 months.
  - All heterozygous family members are eligible for Lynch Syndrome Screening (See above for Lynch Syndrome)
- CHEK2 mutation
  - Colonoscopy every 5 years beginning at age 40 years (or 10 years prior to the age at which at first-degree relative was diagnosed with colorectal cancer)
- Cystic Fibrosis[58]
  - Individuals who have NOT received a solid organ transplant:
    - Colonoscopy every 5 years beginning at age 40 years
      - If any adenomatous polyps are found on colonoscopy, repeat colonoscopy should be performed within 3 years

        - Subsequent intervals based on the most recent endoscopic examination
    - Individuals who are ≥ 30 years of age and HAVE received a solid organ transplant:
        - Colonoscopy every 5 years beginning within 2 years of transplant (unless there is a negative colonoscopy within the past 5 years)
            - If any adenomatous polyps are found on colonoscopy, repeat colonoscopy should be performed within 3 years
            - Subsequent intervals based on the most recent endoscopic examination

Background and Supporting Information

- Lynch syndrome is caused by germline variants in one of the DNA mismatch repair (MMR) genes (MLH1, MSH2, MSH6, PMS2) or by deletions in the epithelial cell adhesion molecule gene (EpCAM). This increases susceptibility to colorectal, endometrial, and other tumors.
- High Risk Screening:
    - If there is no information regarding the pathology of the first-degree relative's polyp, it cannot be assumed that the adenomas or polyps were advanced, unless surgery was required to remove the polyp.
- *Amsterdam I Criteria
    - At least three relatives with colorectal cancer (CRC)
    - All of the following criteria should be present:
        - One should be a first-degree relative of the other two
        - At least two successive generations must be affected
        - At least one of the relative with CRC must have received the diagnosis before the age of 50 years
        - Familial adenomatous polyposis should be excluded
        - Tumors should be verified by pathologic examination

Colonoscopy After Noninvasive Testing (COLON-18)

- Colonoscopy is indicated after an abnormal result on a noninvasive colon cancer screening test (e.g., fecal occult blood test (FOBT), fecal immunochemical test (FIT), serum-based screening test, or stool-based DNA test such as Cologuard®)[47, 49-52]
- Colonoscopy is indicated if the individual had a prior negative screening colonoscopy, but later received an abnormal result on a noninvasive colon cancer screening test (as listed above)[48]

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