Esophagogastroduodenoscopy (EGD), UGI Endoscopy

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Link to Codes

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Clinical Indications

- Esophagogastroduodenoscopy (UGI endoscopy) may be indicated for **1 or more** of the following(1)(2):
  - Achalasia (eg, onabotulinumtoxinA injection, balloon dilation)(4)(5)(6)(7)N
  - Atrophic gastritis, gastric intestinal metaplasia, or gastric dysplastic lesion on prior biopsy and **1 or more** of the following(14)(15)(16)(17)(18)(19):N
    - Advanced atrophic gastritis[A] in patient with first-degree relative[B] with gastric cancer, and no UGI endoscopy in last 1 year
    - Advanced atrophic gastritis[A] and no UGI endoscopy in last 3 years
    - Dysplastic lesion with biopsy indefinite for dysplasia on previous endoscopy: repeat UGI endoscopy with enhanced imaging and extensive biopsy sampling, then follow-up UGI endoscopy after 3 to 12 months
    - Dysplastic lesion with high-grade dysplasia[C] on previous endoscopy, managed with complete endoscopic resection: repeat UGI endoscopy every 3 to 6 months for 1 to 2 years
    - Dysplastic lesion with high-grade dysplasia[C] on previous endoscopy, managed with incomplete endoscopic resection: repeat UGI endoscopy within 3 months
    - Dysplastic lesion with low-grade dysplasia[D] on previous endoscopy, managed with complete endoscopic resection: repeat UGI endoscopy after 6 to 12 months, then follow-up UGI endoscopy every 1 year(22)
    - Dysplastic lesion with low-grade dysplasia[D] on previous endoscopy, managed with incomplete endoscopic resection: repeat UGI endoscopy within 6 months
    - Dysplastic lesion with nonvisible dysplasia on previous endoscopy: repeat UGI endoscopy with systemic biopsies every 3 to 12 months
    - Gastric intestinal metaplasia and increased risk of gastric cancer (eg, first-degree relative[B] with gastric cancer, incomplete gastric intestinal metaplasia, gastric intestinal metaplasia involving corpus, persistent *Helicobacter pylori* gastritis), and no UGI endoscopy in last 3 years[E]
    - Gastric polyp on previous endoscopy: repeat UGI endoscopy with enhanced imaging and extensive biopsy sampling
  - Atypical chest pain, after cardiac disease has been ruled out(23)(24)N

- Barrett esophagus[F] and **1 or more** of the following(27)(31)(32)(33)(34)(35)(36):N
  - Barrett esophagus indefinite for dysplasia on previous endoscopy: repeat UGI endoscopy at 3 to 6 months, then annually if repeat UGI endoscopy is indefinite for dysplasia
  - Barrett esophagus, nondysplastic (metaplastic columnar or glandular epithelium), on previous endoscopy: repeat UGI endoscopy at 3 to 5 years
  - Barrett esophagus with low-grade dysplasia on previous endoscopy, managed with endoscopic eradication therapy: repeat UGI endoscopy intervals individualized (every 6 months to 3 years)[G](32)(35)(42)(43)
  - Barrett esophagus with low-grade dysplasia on previous endoscopy, managed with surveillance: repeat UGI endoscopy at 6 months to reconfirm diagnosis, at 12 months after diagnosis, and then annually(42)
  - Endoscopic resection and/or ablation (ie, cryoablation, radiofrequency, or photodynamic therapy) for identification of dysplasia or treatment of positive (ie, low-grade or high-grade) dysplasia associated with Barrett esophagus(30)(43)(44)(45)(46)(47)
- Cancer, known or suspected, and **1 or more** of the following:
  - Cancer, and need for evaluation and treatment, as indicated by **1 or more** of the following(27)(48)(49):N
    - Ablation or resection of polyp, tumor, or other lesions(50)(58)(59)(60)(61)
    - Ampulla of Vater tumor, and need for **1 or more** of the following(62)(63)(64):
      - Endoscopic resection
      - Initial evaluation or staging with biopsies, as indicated
      - Post-treatment surveillance
    - Dilation of malignant stricture(65)
    - Esophageal or esophagogastric junction cancer, and need for **1 or more** of the following(66):
      - Assessment of response or surveillance after chemoradiation or systemic therapy (eg, immune checkpoint inhibitors)
      - Endoscopic mucosal resection or submucosal dissection of esophageal or esophagogastric junction cancer (high-grade dysplasia (Tis), carcinoma limited to lamina propria or muscularis mucosa (T1a), or superficial submucosa carcinoma (T1b) without lymphovascular invasion)(35)(46)(47)(55)(67)(68)(69)
      - Evaluation of suspected recurrence
      - Initial evaluation, staging with biopsies, or treatment planning (eg, radiation dose planning, tissue biopsy for testing for targeted therapy)(70)
      - Surveillance after local or regional therapy (eg, endoscopic resection and/or ablation, esophagectomy, chemoradiation): every 3 to 6 months for first 2 years, then annually(22)(43)(67)(71)(72)
    - Gastric cancer, and need for **1 or more** of the following(73)(74):
      - Assessment of response or surveillance after systemic therapy (eg, immune checkpoint inhibitors)
      - Dysplastic lesion with biopsy indefinite for dysplasia on previous endoscopy: repeat UGI endoscopy with enhanced imaging and extensive biopsy sampling, then follow-up UGI endoscopy after 3 to 12 months
      - Endoscopic mucosal resection or submucosal dissection of gastric carcinoma (carcinoma in situ (Tis) or well-differentiated or moderately differentiated carcinoma confined to mucosa (T1a) or submucosa (T1b) without evidence of lymph node metastases or lymphovascular invasion)(47)(67)(68)(75)(76)(77)(78)(79)
      - Initial evaluation, staging with biopsies, or treatment planning
      - Surveillance after therapy for gastric cancer or dysplasia[H]
    - Gastrointestinal neuroendocrine tumor, for **1 or more** of the following(15)(53)(54)(80)(81)(82):
      - Endoscopic resection(51)(53)(83)
      - Initial evaluation or staging with biopsies, as indicated
      - Surveillance of nonresected tumor or post-treatment surveillance
    - Gastrointestinal stromal tumor, for **1 or more** of the following(54)(84)(85):
      - Biopsy for treatment planning (eg, molecular testing for selection of targeted therapy)
      - Endoscopic resection(53)(83)(86)(87)
      - Initial evaluation with biopsies, as indicated
      - Surveillance of nonresected tumor
    - Gastrointestinal subepithelial lesion,[I] for **1 or more** of the following(51)(52)(53):
      - Endoscopic resection needed for tissue acquisition or to treat symptoms (eg, gastrointestinal bleeding)(83)
      - Surveillance of asymptomatic esophageal or gastric subepithelial lesion without definitive diagnosis(54)
    - Lymphoma (eg, MALT (mucosa-associated lymphoid tissue) lymphoma), for **1 or more** of the following(79)(88)(89):
      - Diagnosis, including endoscopic biopsy as needed for tissue diagnosis
      - Evaluation of response to therapy or restaging after initial therapy (eg, *Helicobacter pylori* treatment, rituximab)
      - Initial staging
      - Post-treatment surveillance
    - Small bowel tumor (eg, adenoma, adenocarcinoma), for **1 or more** of the following(90):
      - Diagnosis, including endoscopic biopsy as needed for tissue diagnosis(61)(91)(92)
      - Endoscopic resection for nonmalignant duodenal adenoma or polyp(61)(92)(93)

- Evaluation of post-treatment recurrence (eg, because of symptoms or serial biomarker (carcinoembryonic antigen or CA 19-9) elevation)
- Initial staging
- Post-treatment surveillance(93)

- Stent placement for treatment of malignant fistula or obstruction due to intrinsic or extrinsic compression(94)(95)(96)(97)(98)(99)(100)
- Thyroid cancer, and need for evaluation of suspected upper digestive tract involvement (eg, dysphagia, hemoptysis, imaging findings consistent with esophageal invasion)(101)(102)(103)(104)
- Tumor debulking or ablation (eg, electrocautery, laser, chemical)(105)

Cancer screening[J] in patient at increased risk, as indicated by **1 or more** of the following(27)(108)(109):

- High-risk family history, as indicated by **1 or more** of the following:
  - Family history suggestive of gastric adenocarcinoma and proximal polyposis of the stomach (GAPPS)[K]: screening frequency is individualized starting at age 15 years.(113)(114)
  - Family history suggestive of hereditary diffuse gastric cancer or hereditary lobular breast cancer[L] in patient without known pathogenic CDH1 mutation: screening every 1 year(117)(118)(119)(120)
  - Family member with Lynch syndrome (ie, hereditary nonpolyposis colorectal cancer): screening is individualized.[M](116)(122)
  - Family member with MUTYH-associated polyposis, and individual not tested for known MUTYH mutation, and **ALL** of the following(116):
    - Age 30 years or older
    - No UGI endoscopy in past 3 years
  - Family member with Peutz-Jeghers syndrome[N] and **ALL** of the following(124)(125):
    - Age 8 years or older(126)
    - No UGI endoscopy in past 2 years
  - Family member with tylosis[O]: screening frequency is individualized starting at age 20 years.
  - First-degree relative[B] with gastric cancer and **ALL** of the following(16)(19):
    - Age appropriate for screening, as indicated by **1 or more** of the following:
      - Age 45 years or older
      - Age is 10 years younger than youngest diagnosis of gastric cancer in family, or older.
    - No UGI endoscopy in past 3 years
- High-risk personal history, as indicated by **1 or more** of the following:
  - History of achalasia: screening frequency is individualized.(112)(127)
  - History of autoimmune gastritis: screening frequency is individualized.(15)(16)(18)
  - History of caustic injury to esophagus: screening frequency is individualized.(112)
  - History of chronic (5 years or more) gastroesophageal reflux disease and one or more risk factors for Barrett esophagus and esophageal adenocarcinoma (ie, male sex, age 50 years or older, obesity, history of tobacco smoking, first-degree relative[B] with Barrett esophagus or esophageal adenocarcinoma)(32)(33)(109)(111)(128)(129)
  - History of classical or attenuated familial adenomatous polyposis or colonic adenomatous polyposis of unknown etiology[P]: screening starting at age 18 to 25 years (baseline endoscopy may be offered at earlier age if colectomy performed before age 18 years), with repeat UGI endoscopy every 3 years or more frequently if duodenal or gastric polyps are present(113)(116)(124)(130)(131)
  - History of esophageal atresia or tracheoesophageal fistula: screening frequency is individualized.(5)(132)(133)(134)(135)(136)
  - History of pernicious anemia: single endoscopy is indicated.(15)(16)(18)
  - History of sleeve gastrectomy 3 or more years previously, and **1 or more** of the following(129)(137):
    - No UGI endoscopy in past 5 years
    - No UGI endoscopy since sleeve gastrectomy
  - Personal history of constitutional mismatch repair deficiency[Q] and **ALL** of the following(139)(140)(141)(142):
    - Age 6 years or older
    - No UGI endoscopy in past year
  - Personal history of gastric adenocarcinoma and proximal polyposis of the stomach (GAPPS)[K]: screening frequency is individualized.(113)(114)
  - Personal history of hereditary cancer predisposition syndrome associated with esophageal cancer (eg, Bloom syndrome, familial Barrett esophagus, Fanconi anemia, tylosis)(143)
  - Personal history of hereditary diffuse gastric cancer, hereditary lobular breast cancer, or heterozygous pathogenic CDH1 mutation[R] in patient who has not undergone gastrectomy: screening every 6 months(116)(117)(119)(120)
  - Personal history of heterozygous pathogenic CTNNA1 mutation: screening every 1 year[R](117)(119)(143)
  - Personal history of homozygous MUTYH pathogenic mutations and **ALL** of the following(113)(116)(123):
    - Age 30 years or older

        - No UGI endoscopy in past year
    - Personal history of juvenile polyposis syndrome[S] and **ALL** of the following(116)(123)(147):
        - Age 12 years or older
        - No UGI endoscopy in past year
    - Personal history of Li-Fraumeni syndrome[T] and **ALL** of the following(144)(148)(149):
        - Appropriate at-risk age, as indicated by **1 or more** of the following:
            - Age 25 years or older
            - Age is 5 years younger than earliest age of diagnosis of gastric cancer in family, or older.
        - No UGI endoscopy in past 2 years
    - Personal history of Lynch syndrome (ie, hereditary nonpolyposis colorectal cancer): screening is individualized.[M](116)(121)(150)(151)(152)(153)
    - Personal history of Peutz-Jeghers syndrome[N] and **ALL** of the following(123)(147):
        - Age 8 years or older
        - No UGI endoscopy in past year
    - Personal history of POLD1 or POLE polymerase proofreading-associated polyposis and **ALL** of the following(116):
        - Age 25 years or older
        - No UGI endoscopy in past 3 years

- [−] Cancer surveillance in patient with prior nonmalignant or premalignant gastrointestinal lesion,[J] as indicated by **1 or more** of the following:
    - Adenomatous polyposis syndrome (ie, classical or attenuated familial adenomatous polyposis syndrome, colonic adenomatous polyposis of unknown etiology,[P] MUTYH-associated polyposis, or POLD1 or POLE polymerase proofreading-associated polyposis): subsequent surveillance intervals based on modified Spigelman score of UGI endoscopy duodenal polyposis findings, as indicated by **1 or more** of the following(113)(116)(123)(124)(131)(154):
        - Spigelman stage 0 and no UGI endoscopy in past 3 years
        - Spigelman stage I and no UGI endoscopy in past 2 years
        - Spigelman stage II and no UGI endoscopy in past 1 year
        - Spigelman stage III and no UGI endoscopy in past 6 months
        - Spigelman stage IV and no UGI endoscopy in past 3 months[U]
    - Esophageal dysplasia, low-grade, on prior biopsy, managed with endoscopic resection, and no UGI endoscopy in past 6 months; subsequent UGI endoscopy at 12 months post resection and every 1 year thereafter(22)
    - History of duodenal adenomatous polyp: status post polyp removal, and no UGI endoscopy in past 3 months; if no recurrence, subsequent UGI endoscopy at 3-month to 1-year intervals(58)(63)(93)
    - History of gastric adenomatous polyps: status post gastric adenomatous polyp removal, and no UGI endoscopy in past 1 year; if subsequent UGI endoscopy negative, then surveillance at 3-year to 5-year intervals(108)
    - History of gastric polyp (including fundic gland polyp, pyloric gland adenoma, or tubular adenoma) in individual with classical or attenuated familial adenomatous polyposis, status post polyp removal, as indicated by **1 or more** of the following(113)(155):
        - Fundic gland polyp less than 1 cm and no UGI endoscopy in past 3 years
        - Gastric adenoma or pyloric gland adenoma less than 1 cm and no UGI endoscopy in past 1 year
        - Gastric polyp 1 cm or greater with complete resection and no UGI endoscopy in past 1 year
        - Gastric polyp 1 cm or greater with incomplete resection (piecemeal resection or inability to remove all large polyps) and no UGI endoscopy in past 6 months
        - Gastric polyp with high-grade dysplasia and no UGI endoscopy in past 3 months
        - Proximal polypoid mound (including fundic gland polyp, pyloric gland adenoma, or tubular adenoma) and no UGI endoscopy in past 3 months
    - Juvenile polyposis syndrome,[S] and no UGI endoscopy in past 1 year(123)(147)
    - Personal history of Lynch syndrome (ie, hereditary nonpolyposis colorectal cancer): screening is individualized.[M](116)(121)(150)(151)(152)(156)
    - Peutz-Jeghers syndrome,[N] and no UGI endoscopy in past 1 year(123)(147)
- Caustic ingestion(127)(157)(158)(159)(160)
- [−] Crohn disease and suspected involvement of **1 or more** of the following(163)(164)(165)(166)(167):
    - Esophagus
    - Stomach
    - Duodenum(168)
- Duodenal disease, known or suspected, and need for examination and biopsy (eg, celiac disease, neoplastic lesion)(5)(171)(172)(173)(174)(175)(176)
- [−] Dyspepsia and **1 or more** of the following(3)(181):
    - Age 60 years or older(186)
    - Dysphagia or odynophagia[V]
    - Eosinophilic esophagitis, gastritis, or duodenitis, suspected, and need for biopsy(158)(180)(185)(188)(189)

- Failure of medical therapy (eg, poor response to H2-receptor antagonists, proton pump inhibitors)
- Family history of UGI cancer in first-degree relative[B](59)(190)
- History of gastric surgery
- Involuntary weight loss since onset of symptoms
- Iron deficiency anemia
- Medication-induced enterocolitis, suspected(182)(183)(184)(191)
- Persistence for 3 months or longer
- Planned bariatric surgery(192)(193)(194)(195)
- Suspected gastrointestinal graft vs host disease (eg, vomiting, abdominal pain, or anorexia in patient with history of hematopoietic stem cell transplant)(196)(197)(198)
- Use of NSAIDs
- Vomiting(59)

− Dysphagia[W] and **1 or more** of the following(3)(65)(187):

- Bleeding associated with any swallowing problem
- Compression, obstruction, or anatomic disruption and need for endoscopic therapy (eg, stent placement)(27)(99)(210)(211)(212)
- Eosinophilic esophagitis, suspected, and need for biopsy(158)(185)(188)(189)(209)
- Mechanical obstruction, known or suspected, due to clinical signs, patient history, or results of radiographic testing (eg, Schatzki ring, vascular ring, esophageal stricture, ingested foreign body, gastric outlet obstruction)(162)(208)(213)(214)(215)(216)
- Need for tissue biopsy or other samples for identification of infectious pathogen (eg, suspected candidal esophagitis)(217)(218)(219)
- Planned bariatric surgery(192)(193)(194)(195)
- Suspected gastrointestinal graft vs host disease (eg, dysphagia in patient with history of hematopoietic stem cell transplant)(196)(220)
- Swallowing problems and history of esophageal and/or gastric surgery or endoscopic therapy (eg, tracheoesophageal fistula repair, esophageal atresia repair, peroral endoscopic esophageal myotomy)(10)(132)(133)(134)(135)(136)(221)
- Swallowing problems that are persistent or recurrent(24)(105)(219)
- Symptoms after bariatric surgery(192)(193)(194)
- Transient obstruction, with repeated episodes

− Eosinophilic esophagitis, known or suspected, and **1 or more** of the following(185)(209)(216)(222)(223)(224)(225):

- Need for evaluation of response to medical or dietary treatment(234)
- Recurrence of symptoms
- Reduction or change in therapy being considered
- Stricture, known or suspected, and need for evaluation or treatment
- Suspected eosinophilic esophagitis, and need for biopsy

- Foreign body ingestion, known or suspected(158)(162)(213)(235)(236)

− Gastroesophageal (ie, gastric, esophageal, or combined gastroesophageal) varices and **1 or more** of the following(239)(240)(241)(242)(243)(244):

- Follow-up evaluation of known gastroesophageal varices(245)(249)
- Need for ligation or sclerosis of known gastroesophageal varices(5)(250)(251)
- Screening for gastroesophageal varices in patient at high risk (eg, known chronic liver disease, known portal venous thrombosis, hepatocellular carcinoma with planned initiation of combination atezolizumab-bevacizumab therapy)(247)(252)(253)(254)(255)

− Gastroesophageal reflux disease, known or suspected, and **1 or more** of the following(24)(25)(111)(129)(158)(256):

- Anemia
- Dysphagia(217)
- Eosinophilic esophagitis, suspected, and need for biopsy(158)(185)(188)(189)(209)(261)
- Epigastric mass on examination
- Failure of medical therapy (eg, poor response to empiric twice-daily proton pump inhibitor for 4 to 8 weeks)(260)(261)(262)(263)
- Gastrointestinal bleeding(264)
- History of esophageal atresia or tracheoesophageal fistula(5)(132)(133)(134)(136)
- History of esophageal stricture and recurrent dysphagia
- Involuntary weight loss or anorexia since onset of symptoms
- Persistent symptoms after antireflux surgery(265)
- Planned bariatric or antireflux surgery(192)(193)(194)(195)(266)
- Recurrent vomiting
- Reflux symptoms after therapy for achalasia (eg, peroral endoscopic esophageal myotomy)(10)
- Severe erosive esophagitis, known, and need for follow-up after 8 weeks of proton pump inhibitor therapy
- Symptoms after bariatric surgery(192)(193)(194)

- Gastrointestinal bleeding, as indicated by **1 or more** of the following(3)(5)(267)(268)(269):
  - Blood in stool and suspected UGI source (eg, history of UGI bleed, history of dyspepsia)(273)(274)(275)
  - Gastrointestinal bleeding in individual with clinically significant portal hypertension or advanced chronic liver disease(242)
  - Gastrointestinal bleeding in individual with gastrointestinal polyposis syndrome (eg, juvenile polyposis syndrome, Peutz-Jeghers syndrome) or hereditary hemorrhagic telangiectasia(116)(276)
  - Hematemesis(270)(272)(277)
  - Melena(272)
  - Persistent occult bleeding after negative endoscopies, and need for repeat test(278)
  - Recurrent bleeding evident, with history of UGI bleeding or ulcer(277)
  - UGI endoscopy required for therapeutic intervention (eg, band ligation, thermal coagulation) of previously diagnosed lesion or site of bleeding (eg, due to recurrent bleeding or iron deficiency anemia that is inadequately responsive to iron therapy)(270)(279)
- Hiatal hernia, known or suspected(280)
- History of UGI bleeding or ulcer, and results may change management, as indicated by **1 or more** of the following:
  - Long-term anticoagulation planned
  - Long-term NSAID therapy planned
  - Organ transplant planned
- Iron deficiency anemia with no other source of chronic blood loss identified(3)(278)(281)(282)(283)
- Nausea and vomiting, unexplained(5)(180)(284)(285)
- Odynophagia[V](5)
- Peptic ulcer disease, as indicated by **1 or more** of the following(5)(287):
  - Before treatment for suspected ulcer, with **1 or more** of the following:
    - Blood in stool
    - Definitive diagnosis of *Helicobacter pylori* infection required because of **ALL** of the following:
      - Empirical trial of treatment inappropriate because of history of adverse drug reactions
      - Results of noninvasive tests for *Helicobacter pylori* negative or indeterminate
    - History of UGI surgery, gastrointestinal tract anomalies, or complicated antral, pyloric, or duodenal ulcer with scarring or gastric outlet obstruction(100)
    - Iron deficiency anemia
  - Gastric ulcer and **1 or more** of the following:
    - Dysplasia on initial biopsy
    - Family history of gastric cancer
    - Ulcer appearance on initial endoscopy large or suspicious for malignancy(289)
    - Ulcer appearance on UGI barium study suspicious for malignancy
    - Ulcer not associated with NSAID usage(290)
  - After treatment of duodenal ulcer, with **1 or more** of the following:
    - Incomplete clinical response to treatment
    - Ulcer complicated by bleeding or obstruction
    - Ulcer initially greater than 2 cm in diameter
- Weight loss, unexplained(5)

Alternatives

- Alternatives include:
  - Abdominal CT scan. See Abdominal/Pelvic CT Scan AC for further information.
  - Abdominal ultrasound. See Abdominal Ultrasound AC for further information.
  - Capsule endoscopy. See Capsule Endoscopy AC for further information.(291)(292)
  - Contrast swallowing evaluation. See UGI Contrast Studies: Esophagography, UGI Study, Small Bowel Follow-Through, and Swallowing Evaluation AC for further information.
  - Esophageal transit scintigraphy. See Esophageal Transit Scintigraphy AC for further information.
  - Gastric emptying study. See Gastric Emptying Study (Gastric Scintigraphy) AC for further information.
  - Gastrointestinal blood loss study
  - UGI contrast studies. See UGI Contrast Studies: Esophagography, UGI Study, Small Bowel Follow-Through, and Swallowing Evaluation AC for further information.(293)

Evidence Summary

Background

Esophagogastroduodenoscopy, also known as UGI endoscopy, is performed by passing a flexible endoscope through the nose or mouth in order to view the esophagus, stomach, and duodenum.(1)(3) **(EG 2)** It allows direct visualization of the mucosa and permits directed biopsy and endoscopic therapy.(1)(3) **(EG 2)**

Criteria

The evidence for the clinical indications found in this guideline includes 210 published peer reviewed articles, 47 specialty society or other evidence-based guidelines, 2 Cochrane systematic reviews, and 14 book sections.

For achalasia, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** Specialty society guidelines support the use of UGI endoscopy for management of achalasia (eg, botulinum toxin injection, balloon dilation).(5)(8)(9)(10) **(EG 2)** OnabotulinumtoxinA has a 1-month response rate of greater than 75%; however, approximately 50% of patients relapse and require repeat injections at 6-month to 24-month intervals. Studies of balloon dilation report therapeutic success in up to 90% of patients, with relapse occurring in about one-third of patients over a 4-year to 6-year period; repeat dilation can achieve long-term symptomatic remission in the majority of patients.(4)(11) **(EG 2)** Both onabotulinumtoxinA injection and balloon dilation are inferior to surgical myotomy, which is the treatment of choice for younger patients and those without contraindications to surgical therapy.(12)(13) **(EG 2)**

For atrophic gastritis, gastric intestinal metaplasia, or dysplastic lesions, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Intestinal-type gastric adenocarcinoma develops along a continuum progressing from nonatrophic gastritis to atrophic gastritis, intestinal metaplasia, dysplasia, and finally, gastric adenocarcinoma. Chronic infection with *Helicobacter pylori* is considered a primary risk factor.(14)(20) **(EG 2)** Although the evidence to inform the optimal endoscopic surveillance intervals in patients with gastric intestinal metaplasia and atrophic gastritis is limited, specialty society guidelines recommend that endoscopic surveillance be based on family history of gastric cancer, most recent gastric histopathologic findings, and the anatomic location of the gastric intestinal metaplasia or atrophic gastritis (eg, antrum, corpus).(14)(15)(16)(17)(18)(19) **(EG 2)**

For atypical chest pain, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Esophageal chest pain closely mimics cardiac chest pain, which should be the primary consideration and excluded or treated before UGI endoscopy is performed.(23) **(EG 2)** Up to 65% of patients with achalasia will present with chest pain.(12) **(EG 2)** An expert consensus guideline recommends evaluation with UGI endoscopy for individuals with noncardiac chest pain who have not responded adequately to a trial of proton pump inhibitor therapy or who have alarm symptoms.(25) **(EG 2)**

For Barrett esophagus, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** A systematic review and meta-analysis of 37 studies (521 patients) evaluating the efficacy of endoscopic treatments for low-grade dysplasia associated with Barrett esophagus found pooled rates of complete eradication of intestinal metaplasia and dysplasia of 68% and 89%, respectively; the pooled incidence of progression to cancer was 3.9 per 1000 patient-years.(37) **(EG 1)** Reviews of studies of endoscopic mucosal resection for Barrett esophagus with high-grade dysplasia reported complete remission rates of 88% to 100%.(38)(39) **(EG 2)** Studies of 50 or more patients with low-grade dysplasia followed for 2 to 7 years found that the incidence of cancer ranged from 1% to 39%.(40) **(EG 2)** Consensus statements recommend that a high-resolution endoscope be used for surveillance of patients with Barrett esophagus and that 4-quadrant biopsies are needed to exclude synchronous neoplastic lesions. Guidelines state that endoscopic mucosal resection of high-grade dysplasia and subsequent ablation has been found to be superior to surveillance alone and can result in complete remission of neoplasia in 80% to 100% of cases.(27)(36)(41) **(EG 2)** For patients with Barrett esophagus with confirmed low-grade dysplasia, a specialty society guideline considers both endoscopic therapy and endoscopic surveillance for progression to be acceptable alternatives.(32) **(EG 2)**

For cancer and need for evaluation and treatment, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** Specialty society guidelines support the use of UGI endoscopy for ablation or removal of selected polyps, tumors, or other lesions; for dilation of malignant strictures; for palliative stent placement in patients with stenosing neoplasms or malignant esophageal fistulas; or for tumor debulking or ablation (eg, electrocautery, laser, chemical) of stenosing esophageal neoplasms.(1)(27)(48)(49)(50) **(EG 2)** Because the majority of esophageal and gastric cancers relapse within 2 to 5 years after completion of local therapy, specialty society guidelines recommend careful surveillance utilizing UGI endoscopy with multiple (eg, at least 4 to 6) biopsies of suspicious lesions and strictures after definitive treatment of gastric or esophageal cancer or other previously removed precancerous lesions; endoscopic surveillance includes a search for Barrett esophagus with 4-quadrant biopsies in patients treated locally for esophageal cancer.(27)(48) **(EG 2)** For the evaluation of gastrointestinal subepithelial lesions (masses or mass-like structures that project into the gastrointestinal lumen and are covered with normal-appearing epithelium), specialty society guidelines recommend endoscopic ultrasound as first-line evaluation, but UGI endoscopy may be indicated for endoscopic resection to treat symptomatic lesions or obtain tissue for diagnosis, particularly for lesions that are larger than 2 cm or have features suggestive of gastrointestinal stromal tumors or other high-risk indicators, and for surveillance of undiagnosed lesions.(51)(52)(53)(54) **(EG 2)** A retrospective matched cohort study that included 114 patients with mucosal esophageal adenocarcinoma found that both en bloc esophagectomy and endoscopic resection are effective when done in high-volume centers; however, esophagectomy was associated with higher morbidity and risk for procedure-related mortality, while endoscopic resection was associated with a higher recurrence rate, which mandated thorough follow-up.(55) **(EG 2)** A systematic review and meta-analysis of 19 studies (6118 patients) did not identify any randomized controlled trials comparing endoscopic resection with gastrectomy for early gastric cancer; however, it found that there was no significant difference in 3-year and 5-year disease-free survival or 5-year and 10-year overall survival between the procedures. Endoscopic resection was associated with

increased rates of local recurrence and metachronous lesions.(56) **(EG 1)** A systematic review of stents for malignant gastric outlet obstruction found that the postprocedure clinical success rate was 83% with a mean patency time of 115 days.(57) **(EG 2)**

For upper gastrointestinal tract cancer screening, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** An evidence-based specialty society guideline recommends consideration of periodic surveillance with UGI endoscopy and biopsies for patients with hereditary cancer predisposition syndromes (eg, tylosis, familial Barrett esophagus, Bloom syndrome, Fanconi anemia).(27) **(EG 2)** Uncontrolled studies and database analysis suggest a reduction in mortality with screening patients at increased risk for gastric cancer.(59)(110) **(EG 2)** The accuracy of UGI endoscopy with adequate biopsies for the detection and diagnosis of early gastric cancer in patients at increased risk has been reported to be between 90% and 96%, making it the gold standard for gastric cancer diagnosis.(59) **(EG 2)** Specialty society guidelines recommend a single screening UGI endoscopy in individuals with gastroesophageal reflux disease with additional risk factors for Barrett esophagus and esophageal adenocarcinoma.(32)(33)(111) **(EG 2)** A specialty society guideline recommends UGI endoscopic surveillance for esophageal carcinoma in patients with a history of achalasia or caustic injury to the esophagus; however, the authors note that there is no consensus among experts regarding when to initiate endoscopic screening and the frequency for subsequent surveillance.(112) **(EG 2)** A specialty society guideline recommends UGI endoscopy for cancer screening in individuals at high risk for gastric cancer, including individuals with a family history of gastric cancer in a first-degree relative, first-generation immigrants from areas with high gastric cancer incidence, and those with certain hereditary polyposis or cancer syndromes.(19) **(EG 2)** However, another specialty society guideline is unable to make a recommendation for opportunistic screening for gastric cancer and gastric premalignant conditions for individuals considered at high risk due to immigration status, race or ethnicity, or environmental factors.(18) **(EG 2)**

For cancer surveillance, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Expert consensus guidelines note that, although the evidence to screen specifically for upper gastrointestinal tract cancer in individuals with hereditary cancer syndromes is limited, there are surveillance protocols in place for these patients who have had nonmalignant duodenal lesions removed during UGI endoscopies, based on their specific hereditary cancer syndrome diagnosis, and for surveillance for early-stage gastric carcinoma in patients with hereditary diffuse gastric cancer.(116) **(EG 2)** For patients with Barrett esophagus with confirmed dysplasia, a specialty society guideline considers both endoscopic therapy and endoscopic surveillance for progression to be acceptable alternatives.(32) **(EG 2)**

For caustic ingestion, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** A specialty society guideline supports the use of UGI endoscopy for assessment of acute injury after caustic ingestion.(1) **(EG 2)** In a multicenter observational study of 162 children of median age 36.9 months, multivariate analysis showed that the presence of symptoms was significantly associated with severe esophageal lesions (odds ratio of 2.3), leading to the conclusion that endoscopy is mandatory in symptomatic patients.(161) **(EG 2)** A review article recommends UGI endoscopy within 12 to 24 hours of a suspected caustic ingestion in patients who are symptomatic, have oropharyngeal burns, or have significant history of ingestion (eg, intentional ingestion).(159) **(EG 2)** A specialty society guideline recommends UGI endoscopy within 24 hours of the suspected exposure for children who are symptomatic after suspected caustic ingestion; asymptomatic children with suspected caustic ingestion may be able to be observed without UGI endoscopy, but adequate follow-up must be assured.(158) **(EG 2)** A specialty society guideline recommends emergent endoscopy after a caustic ingestion when CT scan of the neck, thorax, and abdomen is unavailable, contraindicated, or indeterminate, and in pediatric patients, but notes that CT scan may be more sensitive for detecting transmural injuries and predicting esophageal stricture formation after caustic ingestions.(162) **(EG 2)**

For Crohn disease, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** A systematic review of 20 studies of 2511 patients with Crohn disease who underwent gastroduodenal biopsy reported a prevalence of UGI involvement of 34%.(168) **(EG 1)** According to a specialty society guideline, routine UGI endoscopy is not recommended for all adult patients suspected of having Crohn disease because when the UGI tract is involved in Crohn disease, disease is usually present in the terminal ileum, colon, or perianal area; however, UGI endoscopy should be obtained for adults with upper gastrointestinal symptoms (eg, dyspepsia, dysphagia, epigastric pain) and for all children with suspected Crohn disease.(163) **(EG 2)** Review articles and a specialty society recommend that UGI endoscopy should be part of the initial diagnostic evaluation of suspected Crohn disease in pediatric patients regardless of UGI symptoms.(165)(166)(169) **(EG 2)** Patients with symptomatic upper gastrointestinal strictures due to Crohn disease may benefit from endoscopic balloon dilation.(170) **(EG 2)**

For duodenal disease and need for examination and biopsy (eg, celiac disease, neoplastic lesion), evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** Specialty society guidelines support the use of UGI endoscopy for biopsy confirmation of suspected celiac disease and suspected neoplastic lesion.(1)(5)(171)(172)(177) **(EG 2)** UGI endoscopy with biopsies is also recommended for evaluation of patients with celiac disease with relapse or refractory symptoms in spite of a gluten-free diet to assess for alternative diagnoses or aberrant clonal proliferations.(174)(177)(178) **(EG 2)** An observational study of 47 pediatric patients with suspected celiac disease who underwent duodenal biopsy found that the diagnosis was confirmed in 89% of cases.(179) **(EG 2)** A specialty society guideline recommends UGI endoscopy with biopsies in patients with a suspected noneosinophilic gastrointestinal disorder beyond eosinophilic esophagitis and suspected small bowel involvement.(180) **(EG 2)**

For dyspepsia, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** UGI endoscopy should be performed in patients with alarm features (eg, weight loss, iron deficiency anemia) and is a useful diagnostic tool if empiric treatment does not resolve symptoms.(3) **(EG 2)** A retrospective review of 2000 consecutive patients who underwent UGI endoscopy for UGI symptoms showed that a significantly higher percentage of patients with alarm symptoms (eg, dysphagia, vomiting, anemia, weight

loss, persistent symptoms) had abnormal findings as compared with patients without alarm symptoms (65% vs 42%, respectively).(181) **(EG 2)** Specialty society guidelines note that UGI endoscopy can be used to evaluate suspected enterocolitis due to immune checkpoint inhibitor therapy, especially if the symptoms are predominantly UGI in nature (eg, dyspepsia, nausea, vomiting) or in the setting of persistent lower gastrointestinal symptoms (eg, diarrhea) with a negative lower endoscopy.(182)(183)(184) **(EG 2)** A specialty society guideline suggests that, because UGI endoscopy can identify conditions that could be treated before bariatric surgery, routine preoperative UGI endoscopy in patients undergoing bariatric surgery may be reasonable, but notes that routine screening is controversial. The authors recommend UGI endoscopy after bariatric surgery in patients with gastrointestinal symptoms and note that routine UGI endoscopy 3 or more years after sleeve gastrectomy may be reasonable, based on limited evidence.(137) **(EG 2)** A specialty society guideline recommends UGI endoscopy with biopsies to exclude eosinophilic esophagitis in children with symptoms suggestive of eosinophilic esophagitis (eg, feeding problems, abdominal pain, vomiting) or with typical gastroesophageal reflux disease symptoms that are refractory to a trial of proton pump inhibitor therapy, and in adults with dysphagia, food bolus impaction, or typical gastroesophageal reflux disease symptoms that are associated with features of eosinophilic esophagitis and refractory to a trial of proton pump inhibitor therapy.(185) **(EG 2)**

For dysphagia, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** UGI endoscopy is indicated to rule out esophageal carcinoma in patients with symptoms of bleeding and dysphagia.(65) **(EG 2)** Specialty society guidelines support the use of UGI endoscopy for confirmation and histologic diagnosis of suspected upper tract stricture or obstruction as demonstrated by radiographic testing and for UGI symptoms that are persistent or recurrent (eg, dysphagia due to suspected achalasia, benign or malignant stricture, esophageal reflux).(1)(5) **(EG 2)** When mechanical obstruction is suspected as a cause of dysphagia, UGI endoscopy is a useful initial diagnostic test because it permits immediate biopsy with or without dilation of strictures, masses, or rings.(3)(187)(203)(204) **(EG 2)** UGI endoscopy may also be used for the placement of temporary stents for treating leaks, fistulas, and perforations.(99)(205) **(EG 2)** UGI endoscopy may be part of the evaluation of dysphagia in patients with a history of esophageal injury, anatomic disruptions (eg, tracheoesophageal fistula or esophageal atresia), or surgery, who are at risk for delayed complications (eg, strictures, esophageal dysmotility, fistulas).(132)(133)(134)(135)(206) **(EG 2)** Database analysis of patients undergoing dilation for a symptomatic esophageal ring found that 65% of the patients had symptoms of dysphagia.(207) **(EG 2)** A small observational study of children with a suspected vascular ring found that there was 85% agreement between endoscopic and surgical findings.(208) **(EG 2)** Recurrent dysphagia can occur in up to 40% of patients who had stent placement for malignant stricture due to stent migration, tumor growth, or food obstruction.(105) **(EG 2)** A specialty society guideline states that a biopsy that shows a peak eosinophil level of 15 or more cells per high-power field is required to make a diagnosis of eosinophilic esophagitis in patients who have symptoms of esophageal dysfunction, including dysphagia.(209) **(EG 2)** A specialty society guideline suggests that, because UGI endoscopy can identify conditions that could be treated before bariatric surgery, routine preoperative UGI endoscopy in patients undergoing bariatric surgery may be reasonable, but notes that routine screening is controversial. The authors recommend UGI endoscopy after bariatric surgery in patients with gastrointestinal symptoms and note that routine UGI endoscopy 3 or more years after sleeve gastrectomy may be reasonable, based on limited evidence.(137) **(EG 2)** A specialty society guideline recommends UGI endoscopy with biopsies to exclude eosinophilic esophagitis in children with symptoms suggestive of eosinophilic esophagitis (eg, feeding problems, abdominal pain, vomiting) or with typical gastroesophageal reflux disease symptoms that are refractory to a trial of proton pump inhibitor therapy, and in adults with dysphagia, food bolus impaction, or typical gastroesophageal reflux disease symptoms that are associated with features of eosinophilic esophagitis and refractory to a trial of proton pump inhibitor therapy.(185) **(EG 2)**

For eosinophilic esophagitis, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** A specialty society guideline recommends UGI endoscopy with biopsies to exclude eosinophilic esophagitis in children with symptoms suggestive of eosinophilic esophagitis (eg, feeding problems, abdominal pain, vomiting) or with typical gastroesophageal reflux disease symptoms that are refractory to a trial of proton pump inhibitor therapy, and in adults with dysphagia, food bolus impaction, or typical gastroesophageal reflux disease symptoms that are associated with features of eosinophilic esophagitis and refractory to a trial of proton pump inhibitor therapy.(185) **(EG 2)** Treatment for eosinophilic esophagitis includes proton pump inhibitors, topical corticosteroids, and elemental or 6-food elimination diets, with the therapeutic goals of normalizing esophageal inflammation and reducing symptoms.(226)(227)(228) **(EG 2)** While disease severity scores based on findings on UGI endoscopy have been validated and are recognized as clinical and trial endpoints, measures of disease severity based on clinical signs and symptoms have been investigated but are not well validated.(223)(229)(230)(231)(232) **(EG 2)** Expert consensus guidelines recommend UGI endoscopy with biopsies to evaluate the response to dietary changes or pharmacologic treatment in patients with eosinophilic esophagitis.(185)(222) **(EG 2)** A joint task force guideline on the management of eosinophilic esophagitis notes that it is reasonable to monitor UGI endoscopy findings after treatment changes because symptom-based assessments may be misleading.(216) **(EG 2)** Another joint task force guideline recommends UGI endoscopy to evaluate the efficacy of therapies for eosinophilic esophagitis, based on expert opinion.(233) **(EG 2)** A specialty society guideline on the management of pediatric eosinophilic esophagitis recommends UGI endoscopy 4 to 12 weeks after a change in therapy, for evaluation of clinical relapse, and to inform decisions about reducing treatment intensity.(224) **(EG 2)**

For known or suspected foreign body ingestions, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Although most ingested foreign objects pass through the gastrointestinal tract without causing symptoms, UGI endoscopy may be indicated, depending on the object and its location. Ingested button batteries lodged in the esophagus are associated with a high risk of esophageal burns and stenosis due to discharged electric current and should be removed by UGI endoscopy emergently.(159)(235)(237) **(EG 2)** Most button batteries that have passed beyond the esophagus will pass spontaneously, but in some circumstances (eg, symptomatic patient, delayed presentation), UGI endoscopy may still be indicated to evaluate for esophageal injury.(235) **(EG 2)** An observational study of 115 pediatric patients who underwent endoscopic removal of a foreign body of the esophagus found that surgery was required in less than

1% of patients.(238) **(EG 2)** A specialty society guideline on pediatric foreign body ingestions recommends emergent or urgent UGI endoscopy for pediatric patients with suspected ingestions of a variety of objects (eg, button battery, magnets, sharp objects), with level of urgency depending on the object's location and the presence of symptoms. For a witnessed or suspected button battery ingestion, with the object lodged in the esophagus, emergent endoscopic removal is indicated; while the authors note that the management of a button battery located in the stomach or beyond is more controversial, they suggest UGI endoscopy for patients age 5 years or younger with ingestion of a larger battery (20 mm or greater).(213) **(EG 2)** Another specialty society guideline recommends emergent UGI endoscopy (within 2 hours) for pediatric patients with impacted esophageal button batteries or esophageal, gastric, or proximal duodenal sharp-pointed objects, regardless of symptoms, and for symptomatic patients with impacted esophageal blunt foreign bodies. Indications for urgent UGI endoscopy (within 24 hours) include esophageal foreign bodies in asymptomatic patients, blunt foreign bodies in the stomach or duodenum when associated with symptoms or when the object is larger than 2.5 cm in diameter or 6 cm or more in length, and all magnets within endoscopic reach.(158) **(EG 2)**

For gastroesophageal varices, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Specialty society and expert consensus guidelines support the use of UGI endoscopy for patients with cirrhosis and other causes of portal hypertension (eg, porto-sinusoidal vascular disease) in order to document and treat gastroesophageal varices.(240)(241)(242)(244)(245)(246)(247)(248) **(EG 2)** In addition, specialty society guidelines suggest UGI endoscopy in patients with known gastroesophageal varices, with or without a history of endoscopic variceal eradication.(241)(242)(245) **(EG 2)**

For gastroesophageal reflux disease, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Clinical practice guidelines recommend UGI endoscopy for certain patients with gastroesophageal reflux disease, including those who have alarm symptoms, those who have failed a trial of medical therapy, and those who require reassessment after treatment for severe erosive esophagitis.(1)(111)(129)(257) **(EG 2)** Two additional expert consensus statements recommend objective reflux testing (eg, UGI endoscopy, ambulatory pH monitoring) in patients with suspected gastroesophageal reflux disease, with consideration for upfront reflux testing, including UGI endoscopy, in patients with isolated extraesophageal or atypical symptoms (eg, cough, hoarseness) without typical signs and symptoms of gastroesophageal reflux disease (eg, heartburn, regurgitation).(258)(259) **(EG 2)** Cohort and case control studies have suggested that esophageal cancer discovered through endoscopic screening and surveillance is associated with longer survival time than esophageal cancer presenting symptomatically; however, these studies are limited by lead time and length bias.(257) **(EG 2)** A specialty society guideline suggests that, because UGI endoscopy can identify conditions that could be treated before bariatric surgery, routine preoperative UGI endoscopy in patients undergoing bariatric surgery may be reasonable, but notes that routine screening is controversial. The authors recommend UGI endoscopy after bariatric surgery in patients with gastrointestinal symptoms and note that routine UGI endoscopy 3 or more years after sleeve gastrectomy may be reasonable, based on limited evidence.(137) **(EG 2)** A multisociety expert consensus panel suggests UGI endoscopy for patients with medically refractory gastroesophageal reflux disease and esophageal symptoms who are undergoing evaluation for antireflux surgery.(260) **(EG 2)** A specialty society guideline recommends UGI endoscopy with biopsies to exclude eosinophilic esophagitis in children with symptoms suggestive of eosinophilic esophagitis (eg, feeding problems, abdominal pain, vomiting) or with typical gastroesophageal reflux disease symptoms that are refractory to a trial of proton pump inhibitor therapy, and in adults with dysphagia, food bolus impaction, or typical gastroesophageal reflux disease symptoms that are associated with features of eosinophilic esophagitis and refractory to a trial of proton pump inhibitor therapy.(185) **(EG 2)**

For gastrointestinal bleeding, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** UGI endoscopy is indicated for evaluation of blood in stools and occult fecal blood if no source is found on colonoscopy.(1) **(EG 2)** For hematemesis, early UGI endoscopy (within 24 hours of presentation) is recommended to reduce the risk of further bleeding and potentially allow a shorter length of stay; patients with low-risk features on initial UGI endoscopy may be safely discharged promptly after UGI endoscopy, while patients with high-risk features may require additional endoscopic hemostatic therapy.(250)(267)(270) **(EG 2)** UGI endoscopy is indicated in the evaluation of melena because the UGI tract is the most likely source of bleeding.(271) **(EG 2)** A randomized trial of 516 patients presenting to the emergency department with an acute UGI bleed compared UGI endoscopy performed within 6 hours and 24 hours of specialist consultation and found, at 30-day follow-up, that there was no difference in mortality or incidence of further bleeding between groups. The authors noted that exclusion of hemodynamically unstable patients with ongoing bleeding limited generalizability.(272) **(EG 1)**

For hiatal hernia, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** A review article notes that UGI endoscopy is useful for both diagnosis of hiatal hernia and evaluation of associated findings such as esophagitis and Barrett esophagus.(280) **(EG 2)**

For a history of UGI bleeding or ulcer, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** A specialty society guideline supports the use of UGI endoscopy for the identification of UGI pathology that may modify planned management (eg, patient is a transplant candidate, prior to initiation of long-term anticoagulation or NSAID therapy for arthritis).(1) **(EG 2)**

For iron deficiency anemia, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Specialty society guidelines support the use of UGI endoscopy for evaluation of iron deficiency anemia when there is no other source of chronic blood loss, particularly when the clinical situation suggests a UGI source.(1)(281)(283) **(EG 2)** A specialty society guideline recommends UGI endoscopy for patients with unexplained iron deficiency anemia after bariatric surgery due to the risk of anastomotic ulcers.(279) **(EG 2)**

For nausea and vomiting (unexplained), evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Specialty society guidelines support the use of UGI endoscopy for persistent vomiting of unknown etiology.(1)(5)(285) **(EG 2)** An expert consensus guideline concludes that UGI endoscopy is required for establishing the diagnosis of gastroparesis.(286) **(EG 2)**

For odynophagia, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Specialty society guidelines support the use of UGI endoscopy for the evaluation of patients with odynophagia.(1)(5) **(EG 2)**

For peptic ulcer disease, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** UGI endoscopy is the most sensitive and specific technique for examining the UGI tract; approximately 8% of gastric ulcers that appear to be benign on radiography are malignant on endoscopy or surgery.(287) **(EG 2)** UGI endoscopy is a useful diagnostic tool if treatment for diagnosed *Helicobacter pylori* infection results in an incomplete clinical response.(287)(288) **(EG 2)** A retrospective review of 2000 consecutive patients who underwent UGI endoscopy for evaluation of UGI symptoms showed that a significantly greater percentage of patients with alarm symptoms (including gastrointestinal bleeding and anemia) had abnormal findings (including gastric inflammation, ulcer, and cancer) as compared with patients without alarm symptoms (65% vs 42%, respectively).(181) **(EG 2)**

For weight loss (unexplained), evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Specialty society guidelines support the use of UGI endoscopy for upper abdominal symptoms associated with unexplained weight loss.(1)(5) **(EG 2)**

Rationale

Use of this MCG care guideline helps the clinician determine if a particular treatment, medication, or service might be appropriate for a specific patient, taking into account their unique health complexities.

Use of these evidence-based clinical criteria to support decision making benefits the patient by identifying patient-specific complex clinical factors and conditions, promoting personalized treatment. Utilizing evidence-based clinical criteria promotes patient safety by helping ensure that potential patient benefits outweigh the risks. In addition, the use of evidence-based guidelines can increase consistency in treatment thresholds, leading to less variation in care and promoting equitable treatment among patients.

Related CMS Coverage Guidance

This guideline supplements but does not replace, modify, or supersede existing Medicare regulations or applicable National Coverage Determinations (NCDs) or Local Coverage Determinations (LCDs).

Code of Federal Regulations (CFR): 42 CFR 419.22(294); 42 CFR 422.101(295)

Internet-Only Manual (IOM) Citations: CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 14 - Medical Devices(296); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 15 - Covered Medical and Other Health Services(297); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 16 - General Exclusions from Coverage(298)

Medicare Coverage Determinations: Medicare Coverage Database(299)

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Footnotes

[A] Advanced atrophic gastritis is defined as endoscopic features of extensive or severe atrophic changes or intestinal metaplasia in both the antrum and corpus of the stomach or involving more than 2/3 of the stomach. Gastric intestinal metaplasia may be histologically graded as complete (ie, small intestinal-type histopathology) or incomplete (ie, at least partial colonic-type intestinal histopathology).(14)(15)(16)(18) The risk of gastric cancer in patients with extensive atrophic gastritis (eg, gastric body plus incisura and/or antrum) is greater than the risk in patients with limited gastric involvement (eg, antrum or incisura). Low-quality evidence suggests that patients with partial or total colonic-type gastric intestinal metaplasia are at higher risk of progressing to gastric cancer as compared with patients with histologically complete (ie, small intestinal-type) gastric intestinal metaplasia.(14)(15)(18) [A in Context Link 1, 2]

[B] First-degree relatives consist of male or female parents, siblings, or children.(21) [B in Context Link 1, 2, 3, 4, 5]

[C] High-grade dysplasia is a pathologic diagnosis characterized by the presence of neoplastic cells that are often cuboidal (rather than columnar) with a high nucleus to cytoplasm ratio, prominent amphophilic nucleoli, and more numerous mitotic figures.(16) [C in Context Link 1, 2]

[D] Low-grade dysplasia is a pathologic diagnosis characterized by minimal to mild cellular architectural disarray and mild to moderate cytologic atypia.(16) [D in Context Link 1, 2]

[E] For patients with gastric intestinal metaplasia and multiple risk factors for gastric cancer, a specialty society guideline states that shorter intervals of follow-up (eg, every 1 to 2 years) may be considered.(18) [E in Context Link 1]

[F] Barrett esophagus is the replacement of the normal squamous epithelium of the esophagus that is damaged by gastroesophageal reflux disease with metaplastic columnar or glandular epithelium that is predisposed to esophageal adenocarcinoma.(26)(27)(28)(29)(30) [F in Context Link 1, 2]

[G] Intervals for follow-up UGI endoscopy for patients who have undergone endoscopic eradication therapy for Barrett esophagus with low-grade dysplasia may be individualized, with shorter intervals if complete eradication of intestinal metaplasia was not achieved.(32)(42) [G in Context Link 1]

[H] Surveillance after locoregional treatment (endoscopic or surgical resection) for high-grade dysplasia or early-stage gastric cancer (ie, stages Tis, T1a, and T1b) is recommended at intervals of approximately every 3 to 6 months for the first year, then every 6 to 12 months for 3 to 5 years, then annually, but appropriate intervals depend on the completeness of resection and patient characteristics.(16)(18)(22)(48) [H in Context Link 1]

[I] Gastrointestinal subepithelial lesions are masses or mass-like structures that are covered with normal-appearing epithelium and project into the gastrointestinal lumen.(52)(53) Subepithelial lesions may be nonneoplastic (eg, ectopic pancreatic tissue) or neoplastic; neoplastic lesions may have no malignant potential (eg, lipomas) or have the potential for malignant transformation (eg, gastrointestinal stromal tumors, gastrointestinal neuroendocrine tumors).(52)(53) [I in Context Link 1]

[J] UGI cancer screening involves detecting and removing premalignant lesions (eg, dysplasia) in patients to improve survival.(106)(107) Surveillance entails the ongoing monitoring of patients with known premalignant or malignant lesions to evaluate for disease progression.(19)(106)(107) [J in Context Link 1, 2, 3, 4]

[K] Gastric adenocarcinoma and proximal polyposis of the stomach (GAPPS) is an autosomal dominant disorder associated with point mutations in the promoter 1B region of the APC gene. It is associated with extensive fundic gland polyposis and an increased risk of gastric adenocarcinoma (estimated lifetime incidence: 12% to 25%).(113)(114)(115) [K in Context Link 1, 2]

[L] A family history of hereditary diffuse gastric cancer or hereditary lobular breast cancer is suggested by the presence of one or more of the following: 2 or more cases of gastric cancer in first-degree or second-degree relatives, with at least one case of diffuse gastric

cancer or at least one case diagnosed at age 50 years or younger; one or more cases of diffuse gastric cancer and one or more cases of lobular breast cancer at age 70 years or younger in different first-degree or second-degree relatives; or 2 or more cases of lobular breast cancer in first-degree or second-degree relatives younger than 50 years.(116)(117)(118)(119) [L in Context Link 1]

[M] Individuals with Lynch syndrome have increased risk of gastric and small bowel cancer, but evidence to support specific screening strategies is limited. Screening with UGI endoscopy beginning at age 30 years is suggested for individuals with Lynch syndrome and at-risk family members, with subsequent screening every 2 to 4 years; consideration for earlier initiation of screening or shorter intervals is suggested for those at higher risk (eg, family history of UGI cancers).(116)(121) [M in Context Link 1, 2, 3]

[N] Peutz-Jeghers syndrome can be diagnosed by genetic testing; it can also be diagnosed clinically with 2 or more of the following: family history of Peutz-Jeghers syndrome; 2 or more hamartomatous polyps in the gastrointestinal tract; or mucocutaneous hyperpigmentation of the mouth, lips, nose, eyes, genitalia, or fingers.(123) [N in Context Link 1, 2, 3]

[O] Tylosis is a rare autosomal dominant syndrome associated with increased risk of esophageal squamous cell carcinoma.(1)(27) [O in Context Link 1]

[P] Colonic adenomatous polyposis of unknown etiology is defined as a cumulative lifetime history of 10 to 20 or more colonic adenomas without a pathogenic mutation identified in a polyposis gene.(116) [P in Context Link 1, 2]

[Q] Constitutional mismatch repair deficiency is a rare tumor predisposition caused by biallelic mutations in DNA mismatch repair genes (MLH1, MSH2, MSH6, and PMS2) that is associated with a high risk of a variety of tumors, including polyps and cancer involving the small intestine.(138)(139) [Q in Context Link 1]

[R] Hereditary diffuse gastric cancer is characterized by the presence of a heterozygous pathogenic CDH1 gene mutation in the setting of a family history of gastric cancer (ie, 2 or more cases of gastric cancer in first-degree or second-degree relatives, with at least one case of diffuse gastric cancer; one or more cases of diffuse gastric cancer and one or more cases of lobular breast cancer at age 70 years or younger in different first-degree or second-degree relatives) or a personal history of diffuse gastric cancer (ie, diffuse gastric cancer before age 50 years or at least one case diagnosed at age 50 years or younger; diffuse gastric cancer in individuals of Maori ancestry; diffuse gastric cancer with a personal or family history of cleft lip or palate; diffuse gastric cancer and lobular breast cancer, both diagnosed at age 70 years or younger; gastric in situ signet ring cells or pagetoid spread of signet ring cells in individuals younger than 50 years).(116)(117)(118)(119) Diagnostic criteria for hereditary lobular breast cancer include the presence of a heterozygous pathogenic CDH1 gene mutation in the setting of a family history of lobular breast cancer (ie, 2 or more cases of lobular breast cancer in first-degree or second-degree relatives younger than 50 years) or a personal history of lobular breast cancer (ie, diffuse gastric cancer and lobular breast cancer, both diagnosed at age 70 years or younger; bilateral lobular breast cancer diagnosed before age 70 years).(117)(118)(119)(144) Individuals with CDH1 pathogenic mutations but no known family history of diffuse gastric cancer or breast cancer are also at risk for gastric cancer.(117) Less frequently, hereditary diffuse gastric cancer may be associated with mutations in CTNNA1.(117)(145) [R in Context Link 1, 2]

[S] Juvenile polyposis syndrome can be diagnosed by genetic testing for the BMPR1A and SMAD4 genes; it can also be diagnosed endoscopically by 5 or more juvenile polyps in the colon, multiple juvenile polyps found throughout the gastrointestinal tract, or any number of juvenile polyps in a patient with a family history of juvenile polyposis syndrome.(123)(146) [S in Context Link 1, 2]

[T] Li-Fraumeni syndrome is a cancer predisposition syndrome characterized by a variety of early-onset tumors, including premenopausal breast cancer, colon cancer, sarcoma, adrenocortical carcinoma, hypodiploid acute lymphoblastic leukemia, melanoma, pancreatic cancer, and brain tumors. A diagnosis of Li-Fraumeni syndrome is established by identification of a heterozygous germline mutation in the TP53 gene and/or the presence of clinical features meeting consensus diagnostic criteria.(148)(149) [T in Context Link 1]

[U] Individuals with Spigelman stage IV duodenal findings should undergo expert surveillance endoscopy every 3 to 6 months. Surgical evaluation and counseling are also recommended.(116) [U in Context Link 1]

[V] Odynophagia is the sensation of pain on swallowing.(187) [V in Context Link 1, 2]

[W] Dysphagia refers to abnormal function of the oral, pharyngeal, or esophageal phases of swallowing. Dysphagia may cause patient-reported symptoms (eg, a sensation of food getting stuck in the throat or chest, coughing or choking with swallowing, regurgitation) or lead to observable signs during swallowing (eg, prolonged chewing or coughing, drooling, vocal changes with swallowing).(199)(200)(201)(202) [W in Context Link 1, 2]

Codes

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