AAVBC

AMERICAN ACADEMY OF VALUE BASED CARE

# Small Intestine Cancer

## Quick Reference Guide

2026

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# 1 CLINICAL SNAPSHOT

**Definition**: **Small intestine cancer** (small bowel cancer) is a group of rare malignancies of the **duodenum**, **jejunum**, and **ileum**.[1] Although the small intestine makes up roughly **75%** of the length of the gastrointestinal tract, these tumors account for fewer than **3%** of GI neoplasms and about **0.6%** of all new US cancers.[1,2] **Four histologies dominate** and each behaves, stages, and codes differently: **adenocarcinoma** (most common, typically duodenal),[3,4] **neuroendocrine tumors** (NETs/carcinoids, most often ileal),[1] **gastrointestinal stromal tumors** (GIST), and **lymphoma**.[5] The defining clinical problem is **diagnostic delay**: nonspecific symptoms mimic benign disease, so adenocarcinoma is delayed an average of **6–8 months** from symptom onset and small bowel NETs up to **36 months**.[1,6]

### ICD-10 Codes:

Small bowel adenocarcinoma is reported with anatomic-subsite codes: **C17.0** (duodenum), **C17.1** (jejunum), **C17.2** (ileum), **C17.3** (malignant Meckel diverticulum), **C17.8** (overlapping sites), and **C17.9** (small intestine, unspecified).[7] **Histology drives code family**:[3,7–10] neuroendocrine/carcinoid tumors use the **C7A.019** series (not **C17.x**), GIST uses **C49.A3**, and confirmed metastasis to the small bowel uses **C78.4**. The single most common coding error is defaulting to **C17.9** when pathology or imaging **has identified the subsite** → document the anatomic location **explicitly** (e.g., 'adenocarcinoma of the jejunum'). Code complications and surgical status separately **at every encounter**: malignant bowel obstruction (**K56.69**), cancer-related anemia (**D63.0**, not **D64.9** unspecified), and ileostomy status (**Z93.2**).[7] Reserve **Z85.068** (personal history) only for **true remission with no active treatment**, surveillance, or complications; premature use during adjuvant therapy or watchful waiting **eliminates the active-malignancy picture entirely**.

**Prevalence and Burden**: The National Cancer Institute estimates approximately **14,450** new cases and **2,170** deaths from small intestine cancer in the US in 2026.[11] The global age-standardized incidence is about **0.60 per 100,000**, and incidence has been rising for both adenocarcinoma and NETs over the past two decades.[2] Median age at diagnosis is in the **6th decade**, with peak incidence in adults **60–79 years**.[4,12] **Age itself confers risk**: the hazard ratio for adenocarcinoma is **3.12** (95% CI 1.33–7.31) in adults ≥65 versus 50–55 years, and increasing age is an independent predictor of mortality (**HR 1.1** per year).[5,13] SEER data show a median survival of **11 months** in patients >60 versus **24 months** in those ≤60 ($p<0.0001$).[13]

## HCC/RAF V28 Mapping

| ICD-10 CODE(S)[7] | HCC CATEGORY (V28)[14] | RAF (CNA)*[15] | DOCUMENTATION REQUIREMENT[3,7,8] |
|---|---|---|---|
| **C17.0/C17.1/C17.2 Malignant neoplasm of duodenum/ jejunum/ileum** | **HCC 22** Bladder/ Colorectal/and **Other Cancers** | 0.363 | Active SBA confirmed by pathology; **specify subsite** (duodenum, jejunum, or ileum); **document histologic subtype and AJCC 8th Edition stage**; for duodenum, distinguish from **ampullary origin** |

| ICD-10 CODE(S)[7] | HCC CATEGORY (V28)[14] | RAF (CNA)*[15] | DOCUMENTATION REQUIREMENT[3,7,8] |
|---|---|---|---|
| **C17.3/C17.8 Malignant Meckel diverticulum/ overlapping sites of small intestine** | **HCC 22** Bladder/ Colorectal/and **Other Cancers** | 0.363 | **C17.3**: confirm malignant origin within Meckel diverticulum by pathology; **C17.8**: document involved subsites and mass epicenter; use only when single subsite code is insufficient |
| **C17.9 Malignant neoplasm of small intestine, unspecified** | **HCC 22** Bladder/ Colorectal/and **Other Cancers** | 0.363 | **AVOID**: Most common coding error; use only when subsite is **genuinely undetermined** after full pathologic/imaging workup; specify **C17.0–C17.2 whenever possible** |
| **C7A.010/C7A.011/ C7A.012 Malignant carcinoid tumor of duodenum/jejunum/ ileum** | **HCC 22** Bladder/ Colorectal/and **Other Cancers** | 0.363 | Important distinction from adenocarcinomas (**C17.x** series) = **different biology and treatment**; **document**: WHO grade, Ki-67 index, neuroendocrine histology; specify subsite; note **carcinoid syndrome status** if applicable |
| **C7A.019 Malignant carcinoid tumor of small intestine, unspecified** | **HCC 22** Bladder/ Colorectal/and **Other Cancers** | 0.363 | **AVOID**: Use site-specific **C7A.010–C7A.012** whenever subsite is determinable; use only when subsite is **genuinely undetermined** after full workup |
| **C49.A3 Gastrointestinal stromal tumor of small intestine** | **HCC 18** Cancer Metastatic to Bone/ **Other** | 2.341 | **Rare**; requires c-KIT/ DOG1 or PDGFRA confirmation; document mitotic rate per 50 HPF and tumor size |

| ICD-10 CODE(S)[7] | HCC CATEGORY (V28)[14] | RAF (CNA)*[15] | DOCUMENTATION REQUIREMENT[3,7,8] |
|---|---|---|---|
| **C78.4 Secondary malignant neoplasm of small intestine** | **HCC 17** Cancer Metastatic to Lung/Liver/Brain/ **Other** | 4.209 | **Use** "confirmed metastasis," **not** "consistent with spread;" code **primary site separately**; document method of confirmation (pathology, imaging) |
| **C78.7 Secondary malignant neoplasm of liver and intrahepatic bile duct** | **HCC 17** Cancer Metastatic to Lung/ Liver/Brain/Other | 4.209 | **Most common distant metastatic site for SBA and GIST**; sequence **after** primary small bowel code; **document**: lesion number, size, and detection method (CT, MRI, biopsy) |
| **C78.6 Secondary malignant neoplasm of retroperitoneum and peritoneum** | **HCC 17** Cancer Metastatic to Lung/Liver/Brain/ **Other** | 4.209 | Peritoneal carcinomatosis from small bowel primary; **document extent** (localized vs. diffuse) and confirmation method; sequence **after primary code** |
| **C77.2 Secondary malignant neoplasm of intra-abdominal lymph nodes** | **HCC 18** Cancer Metastatic to Bone/ **Other** | 2.341 | Code alongside primary when mesenteric/ retroperitoneal LN metastasis is confirmed; **sequence after primary**; document nodal station(s) and confirmation method (pathology, imaging) |
| **C79.51 Secondary malignant neoplasm of bone** | **HCC 18** Cancer Metastatic to **Bone**/ Other | 2.341 | Rare in SBA, **more common with GIST**; document specific bone site(s), detection method (bone scan, PET/CT, MRI), and pathologic fracture status |

| ICD-10 CODE(S)[7] | HCC CATEGORY (V28)[14] | RAF (CNA)*[15] | DOCUMENTATION REQUIREMENT[3,7,8] |
|---|---|---|---|
| **Z85.068/Z85.060 Personal history of small intestine malignancy/carcinoid** | No HCC | — | **AVOID for active disease**: Use **ONLY after** definitive treatment with confirmed remission and no active therapy; NET patients on SSAs **retain C7A.01x** |
| **D37.2 Neoplasm of uncertain behavior of small intestine** | No HCC | — | **AVOID premature C17.x/C49.A3**: Use for indeterminate biopsy pending surgical pathology; convert to definitive code **only after confirmed malignancy** |
| **K56.69/D63.0/Z93.2 Intestinal obstruction/anemia in neoplastic disease/ ileostomy status** | No HCC (supports complexity) | — | Code at every applicable encounter; **K56.69**: sequence first if reason for admission; **D63.0**: do not use **D64.9**; sequence neoplasm first. **Z93.2**: document **temporary vs. permanent** |
| **K90.82x Short bowel syndrome** | No HCC (supports complexity) | — | **Post-resection malabsorption**; specify colon continuity (**K90.821**) or without (**K90.822**); document parenteral nutrition dependence if applicable |

**ABBREVIATIONS:** HCC = Hierarchical Condition Category; CNA = Community Non-Dual Eligible, Aged segment; RAF = Risk Adjustment Factor; SBA = small bowel adenocarcinoma; AJCC = American Joint Committee on Cancer; WHO = World Health Organization; c-KIT = KIT proto-oncogene receptor tyrosine kinase; DOG1 = discovered on GIST-1; PDGFRA = platelet-derived growth factor receptor alpha; HPF = high-power field; GIST = gastrointestinal stromal tumor; CT = computed tomography; MRI = magnetic resonance imaging; PET/CT = positron emission tomography/computed tomography; LN = lymph node; NET = neuroendocrine tumor; SSA = somatostatin analog; ICD-10-CM = International Classification of Diseases, 10th Revision, Clinical Modification; CMS = Centers for Medicare & Medicaid Services; CMS-HCC V28 = CMS Hierarchical Condition Category Model, Version 28; MA = Medicare Advantage
***RAF values represent the Community Non-Dual Eligible Aged (CNA) coefficient from the 2026 CMS-HCC model;[13] values vary across patient populations based on eligibility and care setting**

### Risk-Adjusted Care Resources per Patient/Year[14,15]

Risk-adjusted care resource allocation — MA base rate (~$10,402.34) × RAF coefficient

| PRIMARY SMALL INTESTINE CANCER | GIST OR METASTATIC TO BONE/LYMPH | METASTATIC BONE/ BRAIN/LUNG |
|---|---|---|
| $3.8K | $24.4K | ~$24.4K-43.8K |

**RAF values represent the Community Non-Dual Eligible Aged (CNA) coefficient from the 2026 CMS-HCC model; values vary across patient populations based on eligibility and care setting**

### AAVBC PERSPECTIVE

***From the AAVBC's perspective,value-based care in small bowel cancer*** *requires shifting primary care from* ***symptom reassurance to accountable diagnostic stewardship****, while recognizing that contemporary NCCN guidelines are derived largely from younger, fitter trial populations and provide* ***limited evidence for the older****,* ***medically complex adults*** *who comprise much of the geriatric population. The principal failure is* ***delayed recognition****: because no validated screening test or pathognomonic early symptom exists, diagnosis is* ***frequently postponed*** *after negative colonoscopy or EGD despite persistent symptoms. PCPs should recognize that standard upper and lower endoscopy* ***does not adequately evaluate the jejunum and much of the ileum****. Persistent unexplained iron deficiency anemia, occult gastrointestinal bleeding, abdominal pain, weight loss, or obstructive symptoms* ***should prompt dedicated small bowel evaluation*** *(CT or MR enterography, capsule endoscopy, or specialist referral) rather than repeated conventional endoscopy or empiric treatment.* ***Early diagnosis is critical****, as survival declines dramatically with advanced-stage disease.*

*Equally important is* ***optimizing physiologic reserve before and during treatment****. Because the small intestine is the primary site of nutrient absorption, malnutrition is a* ***disease mechanism rather than simply a treatment complication****. Nutritional prehabilitation, medication de-prescribing to minimize polypharmacy-related toxicity, and coordinated management among primary care, gastroenterology, and oncology are essential to* ***preserve function****,* ***reduce avoidable emergency care****, and* ***improve value-based outcomes****.*

# 2 RECOGNITION AND DIAGNOSIS

**No validated population-based screening test exists for small bowel cancer**, and mass screening is not recommended given the **low age-standardized incidence** (~0.6 per 100,000).[16] Evaluation is **symptom-triggered** or surveillance-based in **high-risk groups** (Lynch syndrome, Peutz-Jeghers syndrome, FAP, Crohn's disease).[4,17] **Medicare Part B** covers the following diagnostic and surveillance tests **when medically necessary**.

## Diagnostic Tests Covered Under Medicare Part B (Older Adults, At-Risk Population)

| TEST/SERVICE | FREQUENCY | CPT/ HCPCS | CLINICAL INDICATION |
|---|---|---|---|
| **CT abdomen/ pelvis with contrast** | **At workup**; surveillance **q6–12 mo yr 1–2**, then **q12 mo yr 3–5** | 74177 | **First-line cross-sectional imaging** for staging and post-resection surveillance; surveillance intervals extrapolated from colorectal cancer data[3] |
| **CT or MR enterography†** | When standard imaging/ endoscopy is nondiagnostic | 74177 (enteric protocol) | Pursue when **symptoms persist** after negative colonoscopy and EGD; MRE sensitivity (**93%**) may exceed CTE (**76%**) for small bowel tumors[18] |
| **Capsule endoscopy††** | When other modalities fail to localize a suspected lesion | 91110 | **Obscure GI bleeding or suspected small bowel source**; cannot obtain tissue; contraindicated with known obstruction or stricture[3,19] |
| **EGD with biopsy (± EUS)** | **At workup** for suspected duodenal lesion | 43239 | **Visualizes duodenum only**; does not reach jejunum or ileum → a negative EGD **does not exclude** small bowel cancer[3,20] |
| **MMR/MSI testing** | **Once at initial diagnosis** (**mandatory** per NCCN) | — | **Determines treatment algorithm**; dMMR/MSI-H opens **checkpoint-inhibitor eligibility** at every line of therapy[3] |
| **CA 19-9 and CEA** | **At workup**; **q3–6 mo yr 1–2**, then **q6 mo yr 3–5** | 82378/ 86301 | **Baseline tumor markers**; a rising CEA on two consecutive measures prompts repeat imaging[3,21] |
| **Colorectal cancer screening‡** | Per USPSTF/NCCN intervals (ages 45–75) | G0105/ 45378 | **Does not** detect jejunal/ileal tumors but may incidentally identify **duodenal lesions**[3] |
| **Geriatric Assessment/G-8 screen** | **At treatment initiation**; reassess at each line change | — | **G-8 ≤14** triggers full geriatric assessment; ECOG/Karnofsky alone are **insufficient** in older adults with cancer[22,23] |
| **Advance Care Planning (AWV)§** | **Annually** + when goals change; especially in advanced disease | 99497/ 99498 | Shared decision-making on **treatment intensity and palliative transition**; particularly relevant in stage IV or elderly patients[22,23] |

| TEST/SERVICE | FREQUENCY | CPT/ HCPCS | CLINICAL INDICATION |
|---|---|---|---|

**ABBREVIATIONS:** CT = computed tomography; MR = magnetic resonance; MRE = magnetic resonance enterography; CTE = computed tomography enterography; EGD = esophagogastroduodenoscopy; GI = gastrointestinal; EUS = endoscopic ultrasound; MMR = mismatch repair; MSI = microsatellite instability; dMMR = mismatch repair deficient; MSI-H = microsatellite instability-high; NCCN = National Comprehensive Cancer Network; CA 19-9 = carbohydrate antigen 19-9; CEA = carcinoembryonic antigen; USPSTF = US Preventive Services Task Force; ECOG = Eastern Cooperative Oncology Group; G-8 = Geriatric-8; AWV = Annual Wellness Visit; ACP = advance care planning; CPT/HCPCS = Current Procedural Terminology/Healthcare Common Procedure Coding System; MA = Medicare Advantage; HEDIS COL = HEDIS Colorectal Cancer Screening measure
**† MRE preferred over CTE in patients <35 years or when serial imaging is anticipated, to reduce cumulative radiation exposure**
**†† Often requires Medicare Advantage prior authorization; routine capsule endoscopy is not indicated for post-resection surveillance per NCCN**
**‡ Medicare-covered preventive benefit; does not substitute for dedicated small bowel evaluation when clinical suspicion is present**
**§ ACP is covered with no patient copay when performed during the AWV; 99497 covers the first 30 minutes, 99498 each additional 30 minutes**

## Subtle Early Signs in Older Adults (>65)

| SIGN/SYMPTOM[8,24] | CLINICAL SIGNIFICANCE[3,6,25,26] |
|---|---|
| **Recurrent crampy abdominal pain (33–44%)** | **Most common presenting symptom**; dull, intermittent, often **postprandial**; routinely misattributed to IBS, dyspepsia, or Crohn disease; pain persisting **>4–6 weeks or progressive** should prompt CT imaging |
| **Unexplained weight loss (23–43%)** | The small bowel is the **primary organ of nutrient absorption**; weight loss combined with pain or anemia is a high-yield combination **warranting contrast CT** |
| **Iron deficiency anemia/ occult GI bleeding (10–24%)** | Frequently treated empirically with iron without pursuing a small bowel source; small bowel lesions account for ~**5%** of all GI bleeding and are easily missed |
| **Small bowel obstruction (16–44%)** | Nausea, vomiting, distention, cramping; small bowel tumors are the **third most common** cause of mechanical small bowel obstruction in adults |
| **Adult intussusception** | **Nearly always pathologic in adults**; a 'target sign' on CT should be treated as a tumor until proven otherwise → **refer urgently** |
| **Jaundice (~5%)** | **Elevated bilirubin and alkaline phosphatase** may be early signs of a duodenal tumor causing **biliary obstruction**; differentiate from ampullary and pancreatic primaries |
| **Flushing, diarrhea, wheezing (carcinoid syndrome, ~10% of NETs)** | Indicates a **metastatic neuroendocrine tumor with hepatic involvement**; prompt 24-hour urine 5-HIAA and somatostatin-receptor imaging |

| SIGN/SYMPTOM[8,24] | CLINICAL SIGNIFICANCE[3,6,25,26] |
|---|---|
| **Asymptomatic/ incidental mass (19–29%)** | A substantial share, particularly GIST, **found incidentally** on imaging or at surgery; an incidental small bowel mass or wall thickening warrants **expedited tissue diagnosis** |

**ABBREVIATIONS:** IBS = irritable bowel syndrome; CT = computed tomography; GI = gastrointestinal; NET = neuroendocrine tumor; 5-HIAA = 5-hydroxyindoleacetic acid; GIST = gastrointestinal stromal tumor

## Geriatric Risk Factors

| FACTOR | RISK SIGNAL | NOTES |
|---|---|---|
| **Crohn disease** | aHR **15.8** (95% CI 11.0–22.8) for adenocarcinoma; binational aHR **9.09** (95% CI 7.34–11.3); ACG notes ≥**18-fold** relative risk[27,28] | **The strongest established risk factor**; highest in ileal and stricturing disease, though absolute risk stays low (~0.3 cases/1,000 patient-years)[28] |
| **Ulcerative colitis** | aHR **2.0** (95% CI 1.2–3.1) for adenocarcinoma; US propensity-matched aHR **2.28** (95% CI 1.65–3.14)[29] | A real but **more modest elevation** than Crohn disease; maintain a low imaging threshold for new or changing symptoms[27,30] |
| **Lynch syndrome (HNPCC)** | **Well-established increased risk**; structured upper GI surveillance recommended[17,31] | All SBA patients should be counseled for familial malignancy and **considered for Lynch assessment**; EGD surveillance detected early-stage duodenal cancer in **71%** of surveilled vs **29%** of non-surveilled patients[3,4,31] |
| **Peutz-Jeghers syndrome (STK11)** | **13%** lifetime risk of small bowel cancer; **~39%** lifetime colorectal risk[17] | NCCN recommends **small bowel visualization** (capsule or CT/MR enterography) **every 2–3 years** from age 8–10 and throughout adulthood[17] |
| **Familial adenomatous polyposis** | Elevated duodenal adenocarcinoma risk[17,32] | ACG recommends duodenoscopic surveillance **from age 25–30**, interval by **Spigelman stage**[32] |
| **Celiac disease** | HR **3.05** (95% CI 1.86–4.99) for adenocarcinoma[33] | **Absolute risk low** (1 extra case per 2,944 celiac patients over 10 years); a strict gluten-free diet is thought protective; consider celiac studies in all newly diagnosed SBA[4,33] |
| **Age ≥65 years** | HR **3.12** (95% CI 1.33–7.31) for adenocarcinoma vs age 50–55[5] | **Peak incidence in adults 60–79**; increasing age is an independent predictor of mortality (HR 1.1 per year)[4,5] |

| FACTOR | RISK SIGNAL | NOTES |
|---|---|---|
| **Obesity (BMI ≥35)** | HR **1.95** (95% CI 1.06–3.58) for malignant carcinoid[5] | **Population-level associations also exist for**: smoking, alcohol, physical inactivity, and diabetes, though individual-level evidence is weak[34] |

**ABBREVIATIONS:** aHR = adjusted hazard ratio; CI = confidence interval; ACG = American College of Gastroenterology; HNPCC = hereditary nonpolyposis colorectal cancer; SBA = small bowel adenocarcinoma; GI = gastrointestinal; EGD = esophagogastroduodenoscopy; STK11 = serine/threonine kinase 11; NCCN = National Comprehensive Cancer Network; CT = computed tomography; MR = magnetic resonance; HR = hazard ratio; BMI = body mass index

## Diagnostic Thresholds (NCCN Workup and AJCC TNM, 8th Edition)

Small bowel cancer evaluation follows a **symptom-triggered diagnostic sequence**: clinical suspicion (persistent unexplained abdominal pain, iron deficiency anemia, weight loss, or obstruction), cross-sectional imaging (abdomen/pelvis CT with IV and oral contrast), endoscopic evaluation (EGD with EUS for duodenal lesions; CT/MR enterography or capsule endoscopy when standard workup is negative), tissue diagnosis with pathologic review, and histologic classification with MMR/MSI testing **to guide the treatment algorithm**.[3,25] The critical branch point is **histology**: adenocarcinoma, neuroendocrine tumor, GIST, and lymphoma **each follow entirely separate NCCN guidelines** with distinct staging systems, so confirming histologic subtype before staging **prevents misclassification and mis-coding**.[3,8,9,35]

**For adenocarcinoma specifically**, the algorithm then bifurcates by **anatomic location** (duodenum vs. jejunum/ileum) and **MMR/MSI status** (pMMR/MSS vs. dMMR/MSI-H), which together determine the treatment pathway.[3] This histology-first, location-second, biomarker-third approach, then AJCC 8th Edition **TNM staging after resection**, forms the framework for **all subsequent treatment decisions**.[3]

### Histologic Classification

| HISTOLOGIC SUBTYPE | APPROXIMATE FREQUENCY | GOVERNING NCCN GUIDELINE | STAGING SYSTEM |
|---|---|---|---|
| **Adenocarcinoma** | **30–45%** | NCCN Small Bowel Adenocarcinoma (v2.2026) | AJCC 8th Ed. Small Intestine Adenocarcinoma |
| **Neuroendocrine tumors (NETs/NECs)** | **25–35%** | NCCN Neuroendocrine and Adrenal Tumors (v1.2026) | AJCC 8th Ed. NET system; WHO grade (G1/G2/G3) |
| **GIST** | **10–20%** | NCCN Soft Tissue Sarcoma (GIST section) | AJCC 8th Ed. GIST system (mitotic rate-based) |

| HISTOLOGIC SUBTYPE | APPROXIMATE FREQUENCY | GOVERNING NCCN GUIDELINE | STAGING SYSTEM |
|---|---|---|---|
| **Lymphoma** | **15–20%** | NCCN B-Cell or T-Cell Lymphomas | Ann Arbor/ Lugano classification |

**ABBREVIATIONS:** NCCN = National Comprehensive Cancer Network; AJCC = American Joint Committee on Cancer; NET = neuroendocrine tumor; NEC = neuroendocrine carcinoma; WHO = World Health Organization; GIST = gastrointestinal stromal tumor

## Histologic Grading

The NCCN SBA uses a standard **4-tier differentiation grading system** (**G1–G4**), which is an **independent prognostic factor for survival**:[1,25]

| GRADE | DEFINITION | PROGNOSTIC SIGNIFICANCE |
|---|---|---|
| **G1 (well differentiated)** | >95% gland formation | Favorable prognosis; **~6%** of SBA at diagnosis |
| **G2 (moderately differentiated)** | 50–95% gland formation | Most common grade at diagnosis (**~37%**); favorable prognosis |
| **G3 (poorly differentiated)** | <50% gland formation | Independent predictor of worse OS; **associated with Crohn's and Lynch syndrome** |
| **G4 (undifferentiated)** | No gland formation | Rare (**~1%**); **worst prognosis** |

**ABBREVIATIONS:** SBA = small bowel adenocarcinoma; OS = overall survival

### CLINICAL PEARL: MANDATORY BIOMARKER TESTING IN ALL NEWLY DIAGNOSED SBA PATIENTS

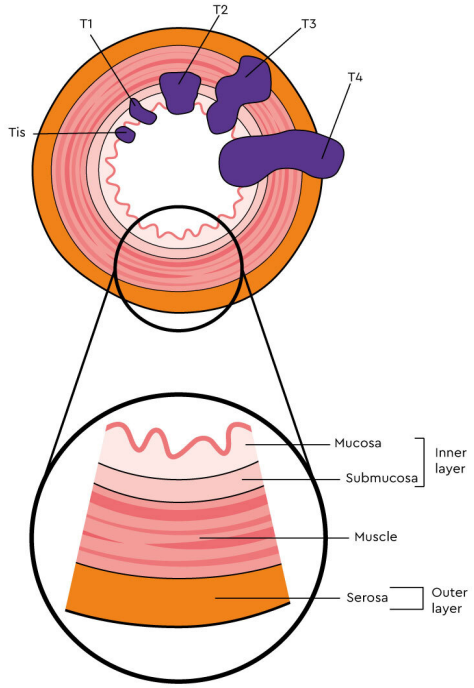
**Universal MMR or MSI testing is mandatory in all newly diagnosed SBA patients** per NCCN guidelines.[3,17] The incidence of dMMR/MSI-H is **enriched in SBA compared to colorectal cancer**, making it both a prognostic and predictive biomarker.[17,36] dMMR/MSI-H status drives **entirely separate treatment algorithms**, including eligibility for **neoadjuvant checkpoint inhibitor immunotherapy** (for T4 or bulky primaries) and **adjuvant FOLFOX/CAPEOX + atezolizumab** for **T4 N0** or **node-positive** disease.[3]

## Advanced Small Bowel Imaging

When standard endoscopy and CT are nondiagnostic, **dedicated small bowel imaging modalities are recommended**. A meta-analysis of CT enteroclysis for small bowel tumors reported a pooled sensitivity of 92.8% and specificity of 99.2%. [11] A prospective head-to-head comparison of 150 patients found MR enterography sensitivity (93%) was significantly higher than CT enterography (76%, p = 0.04). [11] The NCCN guideline states that capsule endoscopy should be considered when radiographic imaging and other endoscopy fail to reveal a suspected primary lesion, but is contraindicated with obstruction or strictures and cannot obtain tissue.

## Staging: AJCC 8th Edition TNM (2017)

**The AJCC 8th Edition TNM** is the **sole validated staging system for SBA** in all current US guidelines:[3]




## T Definitions - Small Intestine Adenocarcinoma

| T CATEGORY | DEFINITION |
|---|---|
| **Tis** | High-grade dysplasia/carcinoma in situ |
| **T1a** | Tumor invades the lamina propria |
| **T1b** | Tumor invades the submucosa |
| **T2** | Tumor invades the muscularis propria |

## N Definitions

| N CATEGORY | DEFINITION |
|---|---|
| **N0** | No regional lymph node metastasis |
| **N1** | Metastasis in 1–2 regional lymph nodes |
| **N2** | Metastasis in ≥3 regional lymph nodes |

## AJCC 8th Edition Prognostic Stage Groups: Small Intestine Adenocarcinoma

| STAGE | T | N | M | 5-YEAR OS |
|---|---|---|---|---|
| **0** | Tis | N0 | M0 | — |
| **I** | T1–2 | N0 | M0 | ~60% |
| **IIA** | T3 | N0 | M0 | ~40% |
| **IIB** | T4 | N0 | M0 | ~40% |
| **IIIA** | Any T | N1 | M0 | ~27% |
| **IIIB** | Any T | N2 | M0 | ~27% |
| **IV** | Any T | Any N | M1 | ~3% |

**ABBREVIATIONS:** OS = overall survival

## Lymph Node Evaluation

The AJCC recommends a **minimum evaluation of 8 lymph nodes**, though the **College of American Pathologists** notes no clear minimum has been established to predict complete lymph node negativity.[3] **Regional lymph node basins differ by site**: duodenum (retropancreatic, hepatic artery, inferior pancreaticoduodenal, superior mesenteric) and jejunum/ileum (cecal and ileocolic for terminal ileum only, superior mesenteric, mesenteric NOS).[3] **Lymph node yield has a profound impact on staging accuracy and survival**. In a SEER analysis of 1,444 patients, **recovery of ≥10 nodes** significantly improved 5-year OS in stage II disease (61.8% vs. 32.9%, p <0.001).[37] The NCCN defines **inadequate lymphadenectomy** as **<5 nodes** for **duodenal** and **<8 nodes** for **jejunal/ileal** tumors, representing a high-risk feature in stage II SBA that may **prompt adjuvant chemotherapy**.[3]

## Tumor Markers

**CA 19-9** and **CEA** are included in the NCCN workup at baseline and followed **every 3–6 months for 2 years**, then **every 6 months** for a total of **5 years**.[3] Markers support monitoring but **do not establish the diagnosis**, which requires tissue.[3] **Serial biomarker elevation** triggers physical examination, endoscopic evaluation, and CT with contrast.[3]

## Other Relevant Staging and Classification Systems

| SYSTEM | BASIS | KEY FEATURES | PRIMARY USE |
|---|---|---|---|
| **WHO 6th Edition Classification (2026)**[38] | **Histologic type**, molecular markers | **Separates duodenal/ampullary from jejunoileal tumors**; neuroendocrine neoplasms in dedicated chapter; introduces amphicrine-like carcinoma concept | **Pathologic diagnosis**; determines histologic subtype input for AJCC staging and treatment selection |

| SYSTEM | BASIS | KEY FEATURES | PRIMARY USE |
|---|---|---|---|
| **SEER-based Nomograms (multiple)**[39] | Age, sex, grade, TNM, surgery, chemotherapy, LN ratio | C-indices 0.715–0.764 vs. ~0.65 for TNM alone; validated in training and external cohorts | Predicts **cancer-specific and overall survival**; supplements TNM staging for individualized prognostication |
| **AJCC 8th Ed. NET Staging**[8] | Tumor size, depth, node status, distant metastasis | **Separate from adenocarcinoma staging**; incorporates WHO grade (G1/G2/G3 by Ki-67 and mitotic rate) | Staging of well-differentiated **neuroendocrine tumors** of the small intestine |
| **AJCC 8th Ed. GIST Staging**[40] | Tumor size, **mitotic rate**, site | Mitotic rate (≤5 vs. >5 per 5 $mm^2$) is the **key prognostic variable** alongside size | **Staging of gastrointestinal stromal tumors**; distinct from adenocarcinoma staging |
| **Lugano/Ann Arbor Classification**[41] | Anatomic extent of **lymphoma involvement** | **Stage IE** (single extranodal site) **through Stage IV**; modified for GI lymphomas | Staging of **primary small bowel lymphomas** (DLBCL, MALT, MCL, EATL, MEITL) |

**ABBREVIATIONS:** WHO = World Health Organization; AJCC = American Joint Committee on Cancer; SEER = Surveillance, Epidemiology, and End Results; TNM = tumor-node-metastasis; LN = lymph node; NET = neuroendocrine tumor; GIST = gastrointestinal stromal tumor; GI = gastrointestinal; DLBCL = diffuse large B-cell lymphoma; MALT = mucosa-associated lymphoid tissue; MCL = mantle cell lymphoma; EATL = enteropathy-associated T-cell lymphoma; MEITL = monomorphic epitheliotropic intestinal T-cell lymphoma

## Common Oversights

| OVERSIGHT | WHY IT MATTERS — WHAT TO DO INSTEAD |
|---|---|
| **Treating a negative colonoscopy and EGD as 'GI cancer ruled out'** | Standard endoscopy **does not** visualize the jejunum or proximal ileum; persistent symptoms require CT enterography, MR enterography, or capsule endoscopy, **not reassurance or a repeat colonoscopy**[3,16] |

| OVERSIGHT | WHY IT MATTERS — WHAT TO DO INSTEAD |
|---|---|
| **Attributing chronic vague abdominal symptoms to IBS or dyspepsia** | Contributes to the **6–8 month adenocarcinoma delay** and the **36-month NET delay**; **29%** of NET patients were **first misdiagnosed as IBS** → re-evaluate persistent or progressive symptoms **with imaging**[6,24] |
| **Empirically treating iron deficiency anemia without a source** | Occult small bowel bleeding is a recognized cause of **obscure GI bleeding**; in adults ≥65 with negative standard endoscopy, **pursue CT enterography or capsule endoscopy**[16,42] |
| **Dismissing adult intussusception as benign** | Adult intussusception is **nearly always pathologic** and frequently tumor-related; **image and refer** rather than observe[3] |
| **Overlooking carcinoid syndrome** | Flushing, diarrhea, and wheezing point to a **metastatic NET**; failure to test **delays somatostatin-directed care**[4] |
| **Missing hereditary-syndrome surveillance** | Patients with **Lynch**, **FAP**, or **Peutz-Jeghers** need structured small bowel surveillance; lapses allow advanced tumors to develop undetected[17] |
| **Reactive rather than proactive nutritional monitoring** | The small bowel is the main absorptive organ; **post-resection malabsorption** and **sarcopenia accelerate functional decline** → weigh at every visit and refer to a dietitian at >5% loss in 30 days[23] |
| **Not confirming MMR/MSI testing was ordered** | **dMMR/MSI-H status** changes the entire treatment algorithm from step 1 and opens **checkpoint-inhibitor eligibility**; confirm at the first post-diagnosis visit[3] |

**ABBREVIATIONS:** EGD = esophagogastroduodenoscopy; GI = gastrointestinal; CT = computed tomography; MR = magnetic resonance; IBS = irritable bowel syndrome; NET = neuroendocrine tumor; FAP = familial adenomatous polyposis; MMR = mismatch repair; dMMR = mismatch repair deficient; MSI-H = microsatellite instability-high

## Key Differentials in Elderly

| PRESENTATION | DIFFERENTIAL[1,3,8] | KEY TESTS[1,3,8] |
|---|---|---|
| **Chronic crampy abdominal pain in an older adult** | **Small bowel adenocarcinoma or NET**; IBS; Crohn disease; peptic ulcer disease; chronic mesenteric ischemia | **Contrast CT abdomen/pelvis**; CT/MR enterography **if endoscopy negative**; CBC, CA 19-9/CEA |

| PRESENTATION | DIFFERENTIAL[1,3,8] | KEY TESTS[1,3,8] |
|---|---|---|
| **Recurrent small bowel obstruction without prior surgery** | **Small bowel tumor** (3rd most common cause); adhesions; stricturing Crohn disease; radiation enteritis | **CT with contrast**; surgical/GI consultation; tissue diagnosis |
| **Iron deficiency anemia, endoscopy-negative** | **Small bowel tumor**; angiodysplasia; NSAID enteropathy; celiac disease | **CT enterography or capsule endoscopy**; celiac serologie |
| **Obstructive jaundice with a duodenal mass** | **Duodenal adenocarcinoma**; ampullary carcinoma; pancreatic head cancer; cholangiocarcinoma | **MRCP**; EGD/EUS with biopsy; CA 19-9 |
| **Flushing and secretory diarrhea** | **Metastatic small bowel NET** (**carcinoid syndrome**); VIPoma; mastocytosis; medullary thyroid cancer | **24-hour urine 5-HIAA**; chromogranin A; somatostatin-receptor imaging |
| **Incidental hypervascular submucosal mass** | **GIST**; NET; lymphoma; metastasis (e.g., melanoma) | **Biopsy with immunohistochemistry** (c-KIT/DOG1 for GIST); cross-sectional imaging |

**ABBREVIATIONS:** NET = neuroendocrine tumor; IBS = irritable bowel syndrome; CT = computed tomography; MR = magnetic resonance; CBC = complete blood count; CA 19-9 = carbohydrate antigen 19-9; CEA = carcinoembryonic antigen; GI = gastrointestinal; NSAID = nonsteroidal anti-inflammatory drug; MRCP = magnetic resonance cholangiopancreatography; EGD = esophagogastroduodenoscopy; EUS = endoscopic ultrasound; 5-HIAA = 5-hydroxyindoleacetic acid; GIST = gastrointestinal stromal tumor; DOG1 = discovered on GIST-1

## Comorbidity Screening

| CONDITION | PREVALENCE/ASSOCIATION*[1,23,43,44] | SCREENING APPROACH[3,23,43,45,46] |
|---|---|---|
| **Malnutrition/ cachexia** | Weight loss present in ~**43%** of patients at diagnosis; the small bowel is the primary absorptive organ | **Weigh at every visit**; dietitian referral at >5% loss in 30 days or >10% in 6 months; proactive nutritional prehabilitation before surgery or chemotherapy |
| **Cardiovascular disease** | Common in the Medicare population; **affects chemotherapy selection** (fluoropyrimidine vasospasm; bevacizumab hypertension/ thromboembolism) | **Baseline cardiac assessment**; control blood pressure; minimize infusion volumes and slow infusion rates in heart disease per ASCO |
| **Chronic kidney disease** | **Alters fluoropyrimidine and oxaliplatin dosing**; capecitabine needs 75% dose at CrCl 30–50 mL/min | Check renal function **before each cycle**; select CKD-appropriate gadolinium agents for MR staging |

| CONDITION | PREVALENCE/ASSOCIATION*[1,23,43,44] | SCREENING APPROACH[3,23,43,45,46] |
|---|---|---|
| **Diabetes mellitus** | >2-fold increased risk of **chemotherapy-induced peripheral neuropathy**; steroids destabilize glycemic control | **Avoid neurotoxic agents** when alternatives exist; monitor glucose during steroid-containing antiemetic regimens |
| **Cognitive impairment** | Dementia prevalence **13.9%** in patients >70; impairs oral-chemotherapy adherence and toxicity reporting | **Screen with Mini-Cog** within geriatric assessment; arrange caregiver support and compliance packaging |
| **Polypharmacy** | Older patients frequently take **≥5 medications**; interactions (e.g., warfarin–5-FU) are common | Formal medication reconciliation **each visit**; GA-guided deprescribing reduced polypharmacy in **GAP70+** |
| **Iron deficiency anemia** | Frequently the presenting feature of **occult tumor bleeding**; small bowel sources are ~5% of GI bleeding | Code as **D63.0** (anemia in neoplastic disease), **not D64.9**; pursue a small bowel source rather than empiric iron alone |

**ABBREVIATIONS:** ASCO = American Society of Clinical Oncology; CrCl = creatinine clearance; CKD = chronic kidney disease; MR = magnetic resonance; GA = geriatric assessment; GI = gastrointestinal; 5-FU = 5-fluorouracil
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

### ⚠ RED FLAG — EMERGENCY/ACTIVATE CRISIS RESPONSE

These emergency conditions require **immediate intervention** in patients with known or suspected small bowel cancer:

- **Complete small bowel obstruction with signs of strangulation** (constant pain, peritoneal signs, tachycardia, fever):[47] most common emergency presentation (~44%); code tumor (**C17.x**) and obstruction (**K56.69**), sequencing obstruction first if admission reason
  - → **Emergent CT**; surgical consultation
- **Bowel perforation with peritonitis** (free air, diffuse rigidity):[47] ~32% of emergency presentations; most associated with lymphoma
  - → **Emergent surgical exploration**; broad-spectrum antibiotics
- **Massive GI hemorrhage with hemodynamic instability**:[47] ~24% of emergency cases; most characteristic of GIST
  - → **Emergent CT angiography**; surgical or IR consultation
- **Adult intussusception with 'target sign' on CT**:[48] nearly always pathologic in adults; malignancy in 25–48%
  - → **Surgical resection without reduction**

### ⚠ RED FLAG — URGENT (24-72 HOURS)

Expedited workup required = **do not** refer to routine follow-up:

- **Partial small bowel obstruction without strangulation**:[3] small bowel tumors are the third most common cause of mechanical SBO in adults
  - → Urgent surgical/GI consultation; contrast CT; expedited tissue diagnosis
- **Biliary obstruction with duodenal mass (jaundice, rising bilirubin)**:[3] EUS needed to distinguish duodenal from ampullary or pancreatic primary
  - → **Urgent MRCP and EGD/EUS with biopsy**
- **Unexplained iron deficiency anemia with negative upper and lower endoscopy**:[49] small bowel sources account for ~5% of all GI bleeding
  - → **CT enterography or capsule endoscopy**; do not attribute to dietary causes alone
- **Persistent abdominal pain >4–6 weeks with weight loss or anemia, especially with Crohn's, celiac, or hereditary polyposis**:[50] mean symptom-to-diagnosis delay is 6–8 months
  - → Contrast CT **within days, not weeks**
- **Carcinoid syndrome** (flushing, secretory diarrhea, wheezing):[51] indicates metastatic NET with hepatic involvement
  - → **Urgent 5-HIAA**; chromogranin A; SSTR-PET/CT; baseline echocardiogram

# 3 MEAT DOCUMENTATION ESSENTIALS

Small intestine cancer documentation translates a rare, histologically diverse malignancy into **a record that supports continuity**, **coordination**, and **shared decision-making**. The **most consequential gaps**: defaulting to **C17.9** when the subsite is known, forcing a neuroendocrine tumor or GIST **into an adenocarcinoma code**, prematurely downgrading active disease to **Z85.068** during adjuvant therapy, and omitting complications (obstruction, cancer-related anemia, malnutrition, ostomy status) that **define real clinical complexity**. Each gap **obscures the clinical picture** and impedes coordination with gastroenterology, surgical oncology, and the cancer care team. The MEAT framework below **ties each element into appropriate clinical action**:

*A 74-year-old man presents to his PCP with three months of intermittent crampy abdominal pain, 6 kg unintentional weight loss, and fatigue. Colonoscopy and EGD eight weeks earlier **were negative**; he was reassured and started on empiric iron for **microcytic anemia**. PMH: type 2 diabetes (metformin), hypertension (lisinopril). Repeat history reveals **postprandial pain and ongoing weight loss**; examination shows mild epigastric tenderness without a palpable mass. Functional status: independent ADLs; G-8 15.*

**MONITOR:** "**Weight**: 72 kg, down 6 kg over 3 months. **Functional status**: independent ADLs; G-8 = 15 → no geriatric vulnerability flagged. **Abdominal exam**: mild epigastric tenderness, no palpable mass, no organomegaly. **Iron deficiency anemia**: Hgb 10.1 g/dL (down from 12.4),

ferritin 8 ng/mL, TIBC elevated. Persistent postprandial crampy pain despite negative colonoscopy and EGD → pattern **not attributable** to functional GI disease; **small bowel source must be excluded**. **Nutritional status**: BMI trending down; albumin 3.2 g/dL."

**EVALUATE:** "CT abdomen/pelvis with IV contrast (date): 3.2 cm enhancing jejunal mass with mesenteric lymphadenopathy; no hepatic lesions, no peritoneal carcinomatosis. MR enterography (date): confirms jejunal mass at ligament of Treitz +40 cm; sensitivity 93% vs 76% for CT alone. Standard endoscopy does not visualize jejunum → **imaging escalation**, **not** repeat colonoscopy, was the appropriate next step. Surgical biopsy/resection pathology (date): adenocarcinoma of the jejunum, moderately differentiated. MMR/MSI: pMMR/MSS. AJCC stage IIIA (**pT4aN1M0**); 14 lymph nodes examined, 2 positive. **CEA 4.8 ng/mL**; CA 19-9 42 U/mL (baseline). DPYD genotype: normal metabolizer (1/1)."

**ASSESS:** "Active adenocarcinoma of the jejunum (**C17.1**), AJCC stage IIIA, pMMR/MSS, status post resection with primary anastomosis. **Associated**: cancer-related anemia (**D63.0**), Hgb 10.1; cancer-associated weight loss/malnutrition risk (**R63.4**); type 2 diabetes (**E11.65**), controlled, A1c 6.9; essential hypertension (**I10**), controlled on lisinopril 10 mg. G-8 15 = no formal CGA indicated; functional monitoring continues. PHQ-2 screened: negative. **Active C17.1 maintained through adjuvant treatment**; **Z85.068** reserved for confirmed remission with no active therapy."

**TREAT:** "**Adjuvant CAPEOX** planned: capecitabine 1,000 mg/m$^2$ BID days 1–14 + oxaliplatin 130 mg/m$^2$ day 1, q3 weeks × 6 cycles. DPYD normal metabolizer = full-dose fluoropyrimidine appropriate. G-8–guided dosing: no dose reduction indicated at baseline. **Pre-treatment optimization**: dietitian-led nutritional prehabilitation; diabetes = **hold metformin** day of oxaliplatin infusion, monitor glucose on capecitabine; BP = continue lisinopril, **recheck if diarrhea**. **Toxicity monitoring in primary care**: neuropathy grading each cycle (oxaliplatin), hand-foot syndrome (capecitabine), CBC/CMP before each cycle. **Surveillance plan post-adjuvant**: CT chest/abdomen/pelvis q3–6 months years 1–2, then q6–12 months years 3–5; CEA if elevated at baseline; weight at every visit. Shared decision-making documented: patient understands adjuvant intent, expected duration, and stopping criteria. ACP documented (CPT 99497): surrogate named, code status discussed. Return in 3 weeks for cycle 1 or sooner for new symptoms."

## Clinical Documentation Elements

- **Document the histology explicitly**:[7,8,25] adenocarcinoma (**C17.x**), neuroendocrine/carcinoid (**C7A.019**), GIST (**C49.A3**), or lymphoma → histology drives both **code family and treatment**
- **Document the anatomic subsite for adenocarcinoma**:[7] duodenum (**C17.0**), jejunum (**C17.1**), or ileum (**C17.2**); reserve **C17.9 only when** the subsite is **genuinely undetermined**
- **State active-malignancy status**: keep the active code (**C17.x**) throughout surgery, adjuvant therapy, and surveillance → **Z85.068** only used at **confirmed remission with no treatment**
- **Use definitive language for metastasis**: 'confirmed metastasis to the [organ]', **not** 'findings consistent with spread'; enables secondary-malignancy code (e.g., **C78.x**) and **HCC 17** mapping
- **Confirm and document that MMR/MSI testing was ordered at diagnosis**:[3] record **dMMR/MSI-H status** = changes the treatment algorithm and opens **checkpoint-inhibitor eligibility**

- **Document staging** (AJCC TNM 8th edition) and the **lymph node yield** (minimum 8 nodes; ≥10 improves stage II outcomes)[3]
- **Code each complication addressed at every applicable encounter**:[7] malignant bowel obstruction (**K56.69**), cancer-related anemia (**D63.0**), and ileostomy status (**Z93.2**)
- **Document nutritional status and weight at every visit**: dietitian referral at **>5% loss in 30 days**; record geriatric assessment findings (G-8, CGA) that **guide treatment intensity**[23,46]

## Reframing Common Documentation Shortcuts

| INSTEAD OF... | DOCUMENT...[3,7,23,52] |
|---|---|
| **'Small bowel cancer' (C17.9)** | 'Adenocarcinoma of the jejunum (**C17.1**), active, on adjuvant FOLFOX; **AJCC stage IIIA**' |
| **'Small bowel tumor' (no histology)** | **Specify histology**: 'duodenal adenocarcinoma (**C17.0**)', 'small bowel neuroendocrine tumor (**C7A.019**)', or 'GIST of small intestine (**C49.A3**), c-KIT positive' |
| **'Small bowel neuroendocrine tumor' coded as C17.9** | 'Malignant carcinoid/neuroendocrine tumor of small intestine (**C7A.019**)' = the **C7A series**, **not C17.x** |
| **'GIST' coded as C17.x** | 'Gastrointestinal stromal tumor of small intestine (**C49.A3**), c-KIT/DOG1 confirmed' → **HCC 18** |
| **'History of small bowel cancer' (during adjuvant therapy)** | 'Active adenocarcinoma of the jejunum (**C17.1**), on adjuvant chemotherapy'; reserve **Z85.068** for **confirmed remission only** |
| **'Findings consistent with liver spread'** | 'Confirmed secondary malignant neoplasm of the liver (**C78.7**)' → **clinical complexity documented** and **HCC 17** mapped |
| **'Anemia'** | 'Anemia in neoplastic disease (**D63.0**)' = **not D64.9 unspecified**; documents medical necessity for oncologic management |
| **'Bowel obstruction'** | 'Malignant small bowel obstruction (**K56.69**) due to jejunal adenocarcinoma (**C17.1**)'; sequence **K56.69 first if the reason for admission** |
| **'Patient had surgery'** | 'Status post small bowel resection with ileostomy (**Z93.2**); en bloc lymphadenectomy, 12 nodes examined' |
| **'Weight loss'** | 'Cancer-associated weight loss (6 kg/3 months); **dietitian referral**; nutritional prehabilitation initiated' |

**ABBREVIATIONS:** AJCC = American Joint Committee on Cancer; FOLFOX = 5-fluorouracil/leucovorin/oxaliplatin; GIST = gastrointestinal stromal tumor; DOG1 = discovered on GIST-1; HCC = Hierarchical Condition Category

### DOCUMENTATION IS COMPREHENSIVE CODING

**Every active small bowel cancer encounter should document:** the histology (adenocarcinoma, NET, GIST, or lymphoma) and anatomic subsite,[3,8,35] the active-disease status (**not** 'history of'),[7] the AJCC TNM **stage** and **MMR/MSI result**,[3] the current treatment and monitoring, and the **full complication and comorbidity burden** (obstruction, cancer-related anemia, malnutrition, and ostomy status). Use **definitive language for any metastasis** so the clinical complexity is fully and accurately represented.

# 4 TREATMENT AND REFERRAL QUICK GUIDE

**Small intestine cancer treatment is driven by histology, anatomic location, resectability, and MMR/MSI status — and, in older adults, by functional reserve rather than chronologic age alone.**[3,19] Surgery is the only curative modality; systemic therapy for adenocarcinoma is largely extrapolated from colorectal regimens (FOLFOX/CAPEOX) because of the disease's rarity, but small bowel adenocarcinoma remains a distinct malignancy and should not be managed as colorectal cancer.[3] The PCP's highest-value contributions are shortening diagnostic delay,[7] confirming MMR/MSI testing was ordered,[3] coordinating proactive nutritional and symptom management,[19] co-monitoring chemotherapy safety,[20] and supporting geriatric-assessment–guided treatment intensity.[19,20] NCCN guidelines were built largely on trials that excluded older adults, so a comprehensive geriatric assessment — not a modified standard algorithm — should frame care in the geriatric population.[19,20]

## Therapy Escalation Criteria

| TRIGGER[3,8,23,43] | ACTION*[3,8,23,53] |
|---|---|
| **Persistent symptoms after negative colonoscopy and EGD** | Order CT abdomen/pelvis with contrast and refer for CT/MR enterography or capsule endoscopy; **do not repeat the colonoscopy** |
| **Tissue-confirmed small bowel adenocarcinoma** | Confirm **MMR/MSI testing** was performed; refer to surgical and medical oncology; assign **AJCC TNM stage** |
| **Resectable primary (any location/ MMR status)** | Surgical resection with en bloc lymphadenectomy (minimum **8 nodes**); **frailty assessment before surgery** in patients ≥65 |
| **pMMR/MSS, T4 N0 or node-positive after resection** | Adjuvant **FOLFOX** or **CAPEOX** x3–6 months, or fluoropyrimidine monotherapy ×6 months |
| **dMMR/MSI-H, T4 N0 or node-positive (new in v2.2026)** | Adjuvant **FOLFOX + atezolizumab** or **CAPEOX + atezolizumab**; monitor for immune-related adverse events |

| TRIGGER[3,8,23,43] | ACTION*[3,8,23,53] |
|---|---|
| **Advanced/metastatic, fit for intensive therapy (pMMR/MSS)** | **FOLFOX**, **CAPEOX**, **FOLFIRI**, or FOLFIRINOX ± **bevacizumab** |
| **Advanced/metastatic, older or frail** | **Capecitabine** ± bevacizumab or fluorouracil/leucovorin ± bevacizumab; GO2: 60% dose noninferior for PFS |
| **dMMR/MSI-H, any stage/line** | Checkpoint inhibitor immunotherapy (**pembrolizumab**, **nivolumab**, **dostarlimab**) → **no age-based exclusion**; monitor closely for irAEs in older patients |
| **Before any fluoropyrimidine** | **DPYD** testing; dose-reduce in heterozygous carriers with **escalation as tolerated** |
| **Persistent grade ≥2 neuropathy on oxaliplatin** | **Reduce** oxaliplatin 20% (grade 2) **or discontinue** (grade ≥3) while maintaining the fluoropyrimidine backbone |
| **Carcinoid syndrome/suspected metastatic NET** | **24-hour urine 5-HIAA and somatostatin-receptor imaging**; refer to a NET-experienced center |

**ABBREVIATIONS:** EGD = esophagogastroduodenoscopy; CT = computed tomography; MR = magnetic resonance; MMR = mismatch repair; MSI = microsatellite instability; AJCC = American Joint Committee on Cancer; TNM = tumor-node-metastasis; pMMR = mismatch repair proficient; MSS = microsatellite stable; FOLFOX = 5-fluorouracil/leucovorin/oxaliplatin; CAPEOX = capecitabine/oxaliplatin; dMMR = mismatch repair deficient; MSI-H = microsatellite instability-high; FOLFIRI = 5-fluorouracil/leucovorin/irinotecan; FOLFIRINOX = 5-fluorouracil/leucovorin/oxaliplatin/irinotecan; PFS = progression-free survival; irAEs = immune-related adverse events; DPYD = dihydropyrimidine dehydrogenase; NET = neuroendocrine tumor; 5-HIAA = 5-hydroxyindoleacetic acid
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

## NCCN Small Bowel Adenocarcinoma–Aligned Treatment by Profile

Small bowel adenocarcinoma (SBA) treatment follows a **stepwise algorithm** driven by resectability, MMR/MSI status, and patient fitness.[3] **Surgery is the only curative modality**; systemic therapy is largely extrapolated from colorectal cancer data given SBA's rarity (**~12,000 US cases/year** across all histologies).[1,54] The **NCCN SBA guideline** (**v2.2026**) introduced **adjuvant immunotherapy for dMMR/MSI-H** disease and emphasizes **geriatric assessment–guided dosing in older adults**.[3] For neuroendocrine tumors, a completely separate staging and treatment pathway applies under the **NCCN Neuroendocrine and Adrenal Tumors guideline**.[8]

| SUBTYPE/SETTING | GUIDELINE-ALIGNED OPTION(S)*[3] | KEY PCP NOTES* |
|---|---|---|
| **Resectable disease, any profile** | Resection with **en bloc lymphadenectomy** (≥8 nodes; ≥10 improves stage II OS); neoadjuvant checkpoint inhibitor for dMMR/MSI-H with T4/bulky primary | Surgery is the **only curative modality** and an independent prognostic factor in elderly SBA ($p<0.001$); **refer to high-volume center**; frailty assessment **before surgery** in patients ≥65[23] |

| SUBTYPE/SETTING | GUIDELINE-ALIGNED OPTION(S)*[3] | KEY PCP NOTES* |
|---|---|---|
| **Adjuvant, pMMR/MSS, low-risk (T1–2 N0 or T3 N0 low-risk)** | Observation | **Adjuvant benefit is debated** given rarity and retrospective data; clinical-trial enrollment is strongly encouraged[3] |
| **Adjuvant, pMMR/MSS, high-risk (T3 N0 high-risk, T4 N0, or node-positive)** | **FOLFOX** or **CAPEOX** x3–6 mo, or fluoropyrimidine monotherapy x6 mo | **DPYD testing before any fluoropyrimidine**; dose-reduce in heterozygous carriers with escalation as tolerated[54] |
| **Adjuvant, dMMR/MSI-H, T4 N0 or node-positive (new v2.2026)** | **FOLFOX** + **atezolizumab** or **CAPEOX** + **atezolizumab** | **Immunotherapy added in v2.2026**; monitor for immune-related adverse events; MMR/MSI testing at diagnosis is **mandatory** per NCCN[3] |
| **Advanced/metastatic, fit patient (pMMR/MSS)** | FOLFOX, CAPEOX, FOLFIRI, or FOLFIRINOX ± bevacizumab | Regimens **extrapolated from colorectal data**; SBA remains a biologically distinct disease; bevacizumab adds hypertension and thromboembolism risk[3] |
| **Advanced/metastatic, older or frail (pMMR/MSS)** | Capecitabine ± bevacizumab; fluorouracil/leucovorin ± bevacizumab | **GO2 trial**: reduced-intensity oxaliplatin/capecitabine (60% dose) noninferior for PFS (HR 1.10, 95% CI 0.90–1.33) with less toxicity; **preferred starting point in frail patients**[23,55] |
| **dMMR/MSI-H, any stage, any line** | **Checkpoint inhibitor** (pembrolizumab, nivolumab, dostarlimab) | **No evidence older patients derive less benefit**; ≥80y had 41.3% ≥1 irAE (12.2% grade 3–4); close monitoring but no age-based exclusion[56] |
| **Second-line and beyond** | Switch backbone (FOLFIRI after oxaliplatin, or vice versa); biomarker-directed therapy (BRAF V600E, HER2, NTRK, RET, KRAS G12C); TMB-high pembrolizumab; best supportive care | Molecular/NGS panel at diagnosis enables **targeted options at progression**; discuss goals of care and palliative transition when appropriate[3] |
| **G-8 ≤14 or established frailty** | **Comprehensive geriatric assessment**; GA-guided dosing (consider 20% dose reduction or single-agent); favor reduced-intensity regimens[23] | **GAP70+ trial**: GA-guided care cut grade 3–5 toxicity **from 71% to 51%** (RR 0.74) and halved falls; treatment decisions guided by functional status, not chronologic age[46] |

| SUBTYPE/SETTING | GUIDELINE-ALIGNED OPTION(S)*[3] | KEY PCP NOTES* |
|---|---|---|
| **Metastatic NET (carcinoid)** | **Somatostatin analogs** (octreotide LAR, lanreotide); r**efer to NET center**[8] | **Distinct staging and treatment from adenocarcinoma**; do not apply SBA chemotherapy pathways; 24-hr urine 5-HIAA and SSTR-PET/CT for workup[3,8] |

**ABBREVIATIONS:** dMMR = mismatch repair deficient; MSI-H = microsatellite instability-high; OS = overall survival; SBA = small bowel adenocarcinoma; pMMR = mismatch repair proficient; MSS = microsatellite stable; FOLFOX = 5-fluorouracil/leucovorin/oxaliplatin; CAPEOX = capecitabine/oxaliplatin; DPYD = dihydropyrimidine dehydrogenase; NCCN = National Comprehensive Cancer Network; MMR = mismatch repair; MSI = microsatellite instability; FOLFIRI = 5-fluorouracil/leucovorin/irinotecan; FOLFIRINOX = 5-fluorouracil/leucovorin/oxaliplatin/irinotecan; PFS = progression-free survival; HR = hazard ratio; CI = confidence interval; irAE = immune-related adverse event; BRAF = B-Raf proto-oncogene; HER2 = human epidermal growth factor receptor 2; NTRK = neurotrophic tyrosine receptor kinase; RET = rearranged during transfection; KRAS = Kirsten rat sarcoma viral oncogene; TMB = tumor mutational burden; NGS = next-generation sequencing; GA = geriatric assessment; RR = relative risk; NET = neuroendocrine tumor; 5-HIAA = 5-hydroxyindoleacetic acid; SSTR = somatostatin receptor; PET/CT = positron emission tomography/computed tomography; LAR = long-acting release

***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

### CLINICAL PEARL — FITNESS & HISTOLOGY > CHRONOLOGIC AGE

**Treat by fitness and histology, not chronologic age.** NCCN regimens were built largely on trials that excluded older adults, so treatment intensity should be adjusted using a comprehensive geriatric assessment (G-8 ≤**14** triggers full assessment).[3,46] Planned dose reduction is **evidence-based**: in the **GO2 trial**, reduced-intensity oxaliplatin/capecitabine at **60%** of standard dose was noninferior for PFS (HR **1.10**) with less toxicity, and GA-guided management in GAP70+ cut grade 3–5 toxicity from **71%** to **51%** (RR **0.74**).[46,55] Frame dose reduction to patients and families as guideline-endorsed care, **not a compromise**.

## Non-Pharmacologic Care and Supportive Interventions

| INTERVENTION[3,23,57] | TARGET/ RECOMMENDATION[23,43,58] | NOTES[46,59,60] |
|---|---|---|
| **Nutritional prehabilitation** | **Proactive**, multimodal nutritional support **before surgery or chemotherapy** | The small bowel is the primary absorptive organ; **unmanaged malnutrition** drives poor wound healing and treatment failure |
| **Dietitian-guided post-resection diet** | **Small frequent meals**; high protein for wound healing; B12 and fat-soluble vitamins after ileal resection | **Monthly B12 after ileal resection**; monitor fat-soluble vitamins |

| INTERVENTION[3,23,57] | TARGET/ RECOMMENDATION[23,43,58] | NOTES[46,59,60] |
|---|---|---|
| **Ostomy and hydration management** | Ileostomy patients need **2–3 L fluid/ day** with sodium-containing fluids | High ostomy output (**>1500 mL/ 24h**) requires hydration and electrolyte management |
| **Geriatric assessment and deprescribing** | **G-8 then CGA** across 8 domains; medication reconciliation and deprescribing | **GAP70+** reduced polypharmacy and falls without compromising survival |
| **Physical activity and body weight** | **NCCN Survivorship**: regular activity, healthy weight, plant-based diet, avoid alcohol/tobacco | Population evidence for specific dietary prevention is weak, but **survivorship measures are recommended** |
| **Gluten-free diet (celiac disease)** | Strict gluten-free diet **in confirmed celiac disease** | **Thought protective against SBA**; consider celiac studies in all newly diagnosed SBA |
| **Fall prevention** | **Fall-risk assessment**, non-slip footwear, grab bars, early PT | **Oxaliplatin-induced neuropathy** increased the fall rate **2.62-fold** in older patients |
| **Early palliative care integration** | Integrate alongside treatment for frail or advanced disease | Improves quality of life and may **reduce avoidable chemotherapy-related hospitalizations** |
| **Advance care planning** | **Document goals and surrogate**; revisit when goals change | Particularly relevant in **Stage IV disease** and at second-line failure |

**ABBREVIATIONS:** B12 = vitamin B12; G-8 = Geriatric-8; CGA = comprehensive geriatric assessment; NCCN = National Comprehensive Cancer Network; SBA = small bowel adenocarcinoma; PT = physical therapy

## Medication Safety and Key Interactions

| DRUG/CLASS | INTERACTION/TOXICITY*[56,61–63] | CLINICAL ACTION*[23,46,54,64] |
|---|---|---|
| **Fluoropyrimidines (5-FU, capecitabine)** | **DPYD deficiency** (4–8% of population) causes drug accumulation; **25.6x increased risk of treatment-related death in carriers**; diarrhea, mucositis, hand-foot syndrome, coronary vasospasm | **DPYD testing before initiation**; dose-reduce carriers with escalation as tolerated; **renal dose-adjust capecitabine** (75% at CrCl 30–50 mL/min) |

| DRUG/CLASS | INTERACTION/TOXICITY*[56,61–63] | CLINICAL ACTION*[23,46,54,64] |
|---|---|---|
| **Fluoropyrimidines + warfarin** | 5-FU/capecitabine inhibit **CYP2C9**, raising S-warfarin exposure **~57%** and INR **~2.8x**; **bleeding risk** | **Monitor INR weekly during cycles**; reduce warfarin empirically at cycle start; **consider DOAC switch** with oncology |
| **Oxaliplatin** | **Dose-limiting peripheral neuropathy** (grade 3 in 13% adjuvant); diabetes >2x neuropathy risk; falls increased in older adults | **Baseline neuropathy assessment**; reduce 20% at grade 2, **discontinue at grade ≥3** while keeping fluoropyrimidine; reassess after 3–4 months |
| **Bevacizumab** | **All-grade hypertension 28%** (grade ≥3: 5–18%); ATE ~2.6%; VTE 34% higher vs chemo alone; GI perforation 0.3–2.4% | **Target BP <130/80** (ACE inhibitor/ARB first-line); hold ≥28 days before/after elective surgery; review antiplatelet/NSAID use |
| **Checkpoint inhibitors (pembrolizumab, nivolumab, dostarlimab, atezolizumab)** | **irAEs**: colitis, hepatitis, pneumonitis, thyroid dysfunction; **≥70y**: higher overall irAE incidence (33% vs 25%); **≥80y**: **41.3%** any irAE, 12.2% grade 3–4 | **Screen HBV and latent TB before immunosuppression**; monitor q2–3 weeks; PJP prophylaxis if ≥20 mg prednisone/day ≥4 weeks |
| **High-dose corticosteroids (irAE/ antiemetic)** | Hyperglycemia, delirium, worsened comorbidity in **older or cognitively impaired patients** | **Use minimum effective dose**; monitor glucose; screen cognition with Mini-Cog before chemotherapy |
| **Polypharmacy in older adults** | **Anticholinergic and sedating agents add fall and cognitive risk**; chemotherapy interactions (e.g., warfarin–5-FU) | **Medication reconciliation each visit**; GA-guided deprescribing per Beers Criteria, **STOPP/START**[65] |

**ABBREVIATIONS:** 5-FU = 5-fluorouracil; DPYD = dihydropyrimidine dehydrogenase; CrCl = creatinine clearance; CYP2C9 = cytochrome P450 2C9; INR = international normalized ratio; DOAC = direct oral anticoagulant; BP = blood pressure; ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker; ATE = arterial thromboembolism; VTE = venous thromboembolism; GI = gastrointestinal; NSAID = nonsteroidal anti-inflammatory drug; irAEs = immune-related adverse events; HBV = hepatitis B virus; TB = tuberculosis; PJP = Pneumocystis jirovecii pneumonia; GA = geriatric assessment

***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

## When to Refer

| CRITERION[3,8,23,47] | SPECIALIST[3,8,23,42] | URGENCY[3,8,23,47] |
|---|---|---|
| **Complete obstruction with strangulation, perforation, or massive GI hemorrhage** | Emergency department/surgery | **Emergent** |
| **Adult intussusception ("target sign" on CT)** | Emergency department/surgery | **Emergent** |
| **Partial or intermittent small bowel obstruction** | Surgery/gastroenterology | **Urgent** (same/next day) |
| **New biliary obstruction with duodenal mass** | Gastroenterology/surgical oncology | **Urgent** (within days) |
| **Iron deficiency anemia, endoscopy-negative, age ≥65** | Gastroenterology (enterography/capsule endoscopy) | **Expedited** (1–2 weeks) |
| **Tissue-confirmed small bowel adenocarcinoma** | Surgical oncology + medical oncology | **Expedited** (within days) |
| **Carcinoid syndrome or metastatic NET** | NET-experienced oncology center | **Expedited** (within days) |
| **G-8 ≤14 or established frailty before treatment** | Geriatric oncology/geriatrics | **Before treatment cycle 1** |
| **Malnutrition or >5% weight loss in 30 days** | Registered dietitian | **Before surgery or chemotherapy** |
| **Advanced disease or goals-of-care needs** | Palliative care | When goals align |

**ABBREVIATIONS:** GI = gastrointestinal; CT = computed tomography; G-8 = Geriatric-8; NET = neuroendocrine tumor

## Follow-Up Timing

| CATEGORY | FREQUENCY[3,23,54] | LABS/MONITORING*[3,23,66] |
|---|---|---|
| **Post-resection surveillance imaging** | CT abdomen/pelvis with contrast **q3–6 months years 1–2**, then **q6–12 months years 3–5** | New lesion, lymphadenopathy, or peritoneal disease → **oncology referral** |
| **CEA (if elevated at baseline)** | **Every 3 months** during treatment and follow-up | **Rising CEA** on two consecutive measures → **repeat imaging** |

| CATEGORY | FREQUENCY[3,23,54] | LABS/MONITORING*[3,23,66] |
|---|---|---|
| **MMR/MSI status** | **Once at diagnosis** (mandatory) | **dMMR/MSI-H** → checkpoint-inhibitor eligibility at any line; document in the record |
| **DPYD testing** | **Once** before any fluoropyrimidine | **Deleterious variant** → dose modification per NCCN |
| **CBC before each cycle** | **Each chemo cycle**; weekly during induction if concern | ANC <1500/µL or platelets <100,000/µL → hold; Hgb <8 g/dL with symptoms → transfusion; code **D63.0** |
| **Renal function/metabolic panel** | **Before each cycle**; more often with CKD | **CrCl 30–50** → capecitabine 75%; **CrCl <30** → **avoid** capecitabine |
| **Peripheral neuropathy (OIPN)** | **Before each oxaliplatin cycle** (NCI CTCAE grading) | Grade 2 persistent → reduce 20%; grade ≥3 → **discontinue** oxaliplatin, keep fluoropyrimidine |
| **Blood pressure (bevacizumab)** | **Before each infusion**; home monitoring between cycles | **Target <130/80**; hold bevacizumab **if uncontrolled ≥160/100** |
| **Nutrition, weight, ostomy** | **Every encounter** post-surgery | >5% loss in 30 days → **dietitian**; ostomy output >1500 mL/24h → hydration/electrolytes; code **Z93.2** |
| **Geriatric assessment/G-8** | **At initiation**; reassess each line change | G-8 ≤14 → **full CGA**; guides dose modification and deprescribing |

**ABBREVIATIONS:** CT = computed tomography; CEA = carcinoembryonic antigen; MMR = mismatch repair; MSI = microsatellite instability; dMMR = mismatch repair deficient; MSI-H = microsatellite instability-high; DPYD = dihydropyrimidine dehydrogenase; NCCN = National Comprehensive Cancer Network; CBC = complete blood count; ANC = absolute neutrophil count; Hgb = hemoglobin; CKD = chronic kidney disease; CrCl = creatinine clearance; OIPN = oxaliplatin-induced peripheral neuropathy; NCI = National Cancer Institute; CTCAE = Common Terminology Criteria for Adverse Events; G-8 = Geriatric-8; CGA = comprehensive geriatric assessment
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

## Comorbidity Management — Primary Care Role

| COMORBIDITY | APPROACH[23,43,67,68] | CAUTION*[23,46,66,69] |
|---|---|---|
| **Malnutrition (cancer-associated)** | Dietitian referral at **>5% weight loss in 30 days**; nutritional prehabilitation before surgery or chemotherapy | The small bowel is the primary absorptive organ; **reactive management** leads to **functional decline and treatment failure** |

| COMORBIDITY | APPROACH[23,43,67,68] | CAUTION*[23,46,66,69] |
|---|---|---|
| **Cardiovascular disease (I10, I25.x)** | **Optimize BP and lipids**; baseline cardiac assessment **before** fluoropyrimidines or bevacizumab | **Fluoropyrimidine coronary vasospasm** (up to 5.4% with continuous 5-FU); bevacizumab hypertension and ATE; prior CVD increases risk (OR 1.22) |
| **Chronic kidney disease (N18.x)** | **Renal-adjust chemotherapy**; select CKD-appropriate gadolinium for MR staging | Capecitabine 75% dose at CrCl 30–50 mL/min; avoid at CrCl <30; monitor renal function **before** each cycle |
| **Diabetes mellitus (E11.x)** | **Optimize glycemic control**; monitor glucose during steroid-containing antiemetic regimens | **>2x neuropathy risk** with oxaliplatin; steroids destabilize glucose |
| **Cognitive impairment/ dementia** | **Mini-Cog** screen within GA; caregiver support; simplify oral regimens | Impairs oral-chemotherapy **adherence and toxicity reporting**; dementia prevalence 13.9% in patients >70 |
| **Iron deficiency anemia (D63.0)** | **Identify and treat the source**; transfuse if symptomatic; pursue small bowel evaluation after negative bidirectional endoscopy | Code **D63.0**, **not D64.9**; do not treat empirically without ruling out **a small bowel source** |
| **Polypharmacy (Z79.x)** | Medication reconciliation **each visit**; GA-guided deprescribing per Beers Criteria | Anticholinergic and sedating agents **add fall and cognitive risk**; warfarin–5-FU interaction requires weekly INR |
| **Post-resection malabsorption** | **B12 and fat-soluble vitamin repletion**; hydration and sodium-containing fluids for ileostomy | **Monthly B12 after ileal resection**; ostomy output >1500 mL/24h requires electrolyte management |

**ABBREVIATIONS:** BP = blood pressure; 5-FU = 5-fluorouracil; ATE = arterial thromboembolism; CVD = cardiovascular disease; OR = odds ratio; CKD = chronic kidney disease; MR = magnetic resonance; CrCl = creatinine clearance; GA = geriatric assessment; INR = international normalized ratio; B12 = vitamin B12
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

## Cost-Smart Options

| BRAND (EST. COST)[70–73] | GENERIC/ ALTERNATIVE (EST. COST)[74–76] | EST. SAVINGS/ BENEFIT | COST-SMART TIP*[59,77] |
|---|---|---|---|
| **Avastin (bevacizumab reference biologic; Medicare Part B mean monthly payor cost ~$2,720 pre-biosimilar)** | bevacizumab **biosimilars** (e.g., Zirabev, Mvasi; mean per-administration savings **~$36/uni**t in 2023, 52% lower per administration; 93% adoption by 2024) | **~44–52%** per administration; Medicare monthly payor cost fell to ~$1,527 | **Biosimilar substitution** is NCCN-endorsed for all biologic indications; biosimilar adoption reduced Medicare bevacizumab spending by **~$324 million** in 2022 alone |
| **IV 5-FU/leucovorin–based FOLFOX (requires 46–48h continuous infusion pump, infusion center visits q2wk, port maintenance)** | CAPEOX with oral capecitabine (**generic** available; oxaliplatin IV Day 1 only, q3 weeks) | **~4 fewer infusion visits per 6-month course (8 vs 12);** est. **~$1,300–$3,400/ patient** in administration savings; no continuous infusion pump | **CAPEOX reduces infusion visits by ~33%**; physician-office infusion costs **~50% less** than HOPD; generic capecitabine is widely available; NCCN lists CAPEOX **as equivalent to FOLFOX** for SBA |
| **No pre-treatment DPYD testing (standard-dose variant carriers: 64% hospitalization rate; mean hospitalization cost ~$8,900– $12,900)** | **Upfront DPYD genotyping** (**~$175 per** CMS clinical laboratory fee schedule; 6% variant prevalence) | Projected savings **~$37–$2,356 per patient** starting fluoropyrimidines | DPYD testing reduced hospitalizations **from 64% to 25%** in variant carriers; one center projected $303,528 in hospitalization costs avoided vs. $44,880 testing cost |
| **Full-dose oxaliplatin ×12 cycles in patients ≥75 (42% healthcare utilization rate; 24% polyneuropathy; 23% neutropenia)** | **Planned oxaliplatin de-escalation**: stop at 3–4 months or at grade ≥2 neuropathy; keep fluoropyrimidine backbone | Fewer falls, hospitalizations, and treatment disruptions | OIPN raised falls **2.62-fold** and early discontinuation 2.51-fold in older CRC patients; NCCN recommends strongly considering **oxaliplatin discontinuation** after 3–4 months |

| BRAND (EST. COST)[70–73] | GENERIC/ ALTERNATIVE (EST. COST)[74–76] | EST. SAVINGS/ BENEFIT | COST-SMART TIP*[59,77] |
|---|---|---|---|
| **Pembrolizumab (Keytruda; ~$15,000/ month; ~$73,600 average Medicare spending per beneficiary in 2022)** | No generic/biosimilar available | N/A | Applicable only for **dMMR/MSI-H SBA**; subcutaneous formulation (Keytruda Qlex) approved 2025 **may reduce infusion costs**; no age-based exclusion per NCCN |

**ABBREVIATIONS:** NCCN = National Comprehensive Cancer Network; IV = intravenous; FOLFOX = 5-fluorouracil/ leucovorin/oxaliplatin; CAPEOX = capecitabine/oxaliplatin; SBA = small bowel adenocarcinoma; DPYD = dihydropyrimidine dehydrogenase; CMS = Centers for Medicare & Medicaid Services; OIPN = oxaliplatin-induced peripheral neuropathy; CRC = colorectal cancer; dMMR = mismatch repair deficient; MSI-H = microsatellite instability-high; 5-FU = 5-fluorouracil
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

## Patient Education and Adherence

Small intestinal cancer patient education is **distinguished by the diagnostic delay**: symptoms are nonspecific and standard colonoscopy and EGD do not visualize most of the small bowel, producing an **average 6–8-month gap from symptom onset to diagnosis** that patients must understand to advocate for further workup if symptoms persist.[50,78] **Three biologically distinct histologies** (adenocarcinoma, neuroendocrine/carcinoid, GIST) each follow separate treatment algorithms, making it essential that patients understand their specific subtype.[3] **Education should emphasize**: which symptoms require **emergency evaluation** (obstruction signs, new GI bleeding), why a negative colonoscopy **does not exclude small bowel pathology**, oral chemotherapy adherence when applicable, and post-resection nutritional monitoring (particularly B12 and fat-soluble vitamins after ileal resection).[1]

### DOCUMENTATION — PATIENT EDUCATION

**Document the following** education topics, the patient and caregiver(s) present, materials provided, and patient understanding (**teach-back method**):

- **Diagnosis in plain language**:[3] Document that the patient understands histologic subtype (adenocarcinoma, neuroendocrine/carcinoid, GIST), tumor location within the small bowel, and stage; clarify that small bowel cancer is rare and distinct from colorectal cancer, requiring a different treatment approach
- **Warning symptoms and when to call 911**:[50] Persistent or worsening abdominal pain, unexplained weight loss >5 lbs in a month, dark/tarry stools, and signs of obstruction (severe cramping, inability to pass gas or stool, distention, vomiting) require immediate medical attention
- **Why a "clean" colonoscopy does not rule out small bowel cancer**:[3,50] Document counseling that standard colonoscopy and EGD do not visualize most of the small bowel; CT enterography or capsule endoscopy is needed to evaluate jejunal and ileal lesions
- **Oral chemotherapy adherence (when applicable)**:[23,79] Document counseling on capecitabine schedule, timing with food, and importance of adherence; provide pill organizers or caregiver support where cognition or polypharmacy is a concern; establish when to contact the oncology team for side effects
- **Nutrition after resection**:[80] Document counseling on small frequent meals, adequate hydration, B12 and fat-soluble vitamin monitoring, and oral rehydration strategies; refer to registered dietitian for individualized management, especially after extensive resection
- **Geriatric assessment and dose adjustment rationale** (when applicable):[43] Document counseling that GA-guided dose reductions are evidence-based care shown to reduce toxicity without compromising survival, not under-treatment
- **Advance care planning**:[57] Surrogate designation, code status, goals of care; CPT 99497/99498 billable during AWV with no patient copay; particularly relevant when life expectancy shapes resection vs. palliative diversion decisions in elderly patients or when carcinoid heart disease limits surgical candidacy
- **Caregiver assessment**:[23] Document caregiver present, their understanding of medication timing, warning symptoms, and surveillance schedule, and burden screening; refer to social work if strain identified

## Quality Metrics Tie-In

**No small bowel cancer–specific HEDIS measures or MIPS measures are currently active in MY2026**, but small intestinal cancer management intersects multiple **cross-cutting quality measurement domains**: malnutrition screening, depression screening (PHQ-9), geriatric safety (fall risk, medication reconciliation), care transitions (post-resection follow-up), and advance care

planning.[1,4] **Small bowel cancer's combination of** high malnutrition prevalence (61% of GI cancer patients are malnourished at diagnosis), postoperative complication rates (~23% severe morbidity after small bowel resection), elevated psychological distress (GI cancer patient's depression prevalence ~15–21%), carcinoid syndrome–related cardiovascular complications (**carcinoid heart disease** in >50% of those with carcinoid syndrome), and polypharmacy in elderly patients on somatostatin analogs or imatinib means that cross-cutting national measures apply **across the care trajectory** and can **anchor quality reporting** for any PCP managing a small bowel cancer patient in a value-based program.

| MEASURE | STANDARD | APPLICABILITY TO RCC |
|---|---|---|
| **HEDIS CBP: Controlling High Blood Pressure** | **Denominator**: adults 18–85 with hypertension<br>**Numerator**: BP 140/90 mmHg;<br>**Exclusions**: hospice, ESRD, inpatient palliative care | Relevant for **NET patients** with **carcinoid syndrome** (flushing, BP fluctuations) and GIST patients on imatinib/sunitinib (TKI-induced HTN);*** PCP-led BP monitoring is standard of care** during active therapy[8,35] |
| **HEDIS COA: Care for Older Adults- Medication Review** | **Denominator**: MA enrollees ≥66, continuously enrolled<br>**Numerator**: 2 sub-measures documented annually:<br>(**1**) functional status assessment,<br>(**2**) medication review,<br>**Exclusions**: hospice, ESRD | Imatinib (GIST) requires **CYP3A4 interaction screening** (statins, anticoagulants, azoles); SSA regimens (NETs) require pancreatic enzyme supplementation review; FOLFOX (SBA) requires neuropathy and ototoxicity monitoring; **medication reconciliation at every visit** per NCCN Older Adult Oncology guidelines*****[23,63] |
| **HEDIS COA: Care for Older Adults- Functional Status Assessment** | **Denominator**: enrollees ≥66;<br>**Numerator**: functional status assessment documented annually;<br>**Exclusions**: hospice, ESRD | ECOG performance status and G-8 geriatric screening **directly satisfy this sub-measure**; document at every visit to **guide resection vs. palliative diversion decisions** in elderly patients with locally advanced disease[23,43,57] |
| **HEDIS TRC: Transitions of Care Patient** | **Denominator:** enrollees ≥18 with inpatient discharge<br>**Numerator:** 4 sub-measures within 30 days:<br>(**1**) notification of inpatient admission,<br>(**2**) receipt of discharge information,<br>(**3**) patient engagement after discharge,<br>(**4**) medication reconciliation post-discharge;<br>**Exclusions:** hospice | 30-day readmission rate after intestinal resection is **10–13%**; SSI (19.5%) and obstruction/ileus (10.3%) are the most common readmission drivers; PCP post-discharge follow-up within 7 days **reduces readmission risk**[81,82] |

| MEASURE | STANDARD | APPLICABILITY TO RCC |
|---|---|---|
| **HEDIS DMS-E: Utilization of the PHQ-9 to Monitor Depression Symptoms for Adolescents and Adults** | **Denominator:** enrollees ≥12 with diagnosis of major depression or dysthymia AND elevated PHQ-9 ≥10; **Numerator:** follow-up PHQ-9 documented within 4–8 months of index elevated score **Exclusions:** hospice | GI cancer patients have **1.5–3x** increased risk of depression and suicidal ideation vs. other cancers; up to **43%** of recently diagnosed GI cancer patients report high depression scores on PHQ-8; depression predicts mortality (HR 2.02 for malnourished GI cancer patients)[83,84] |
| **HEDIS ACP: Advance Care Planning** | **Denominator:** enrollees ≥66; **Numerator:** advance care plan or surrogate decision-maker documented, **OR** documentation that ACP was discussed but patient declined **Exclusions:** hospice | ACP should be addressed early and when **life expectancy shapes resection vs. palliative diversion** in elderly patients with locally unresectable or metastatic SBA; special consideration when **carcinoid heart disease limits surgical candidacy** in NET patients[23,85] |
| **HEDIS PCR: Plan All-Cause Readmission** | **Denominator:** enrollees ≥18 with acute inpatient discharge **Numerator:** unplanned readmission within 30 days (lower is better) **Exclusions:** planned readmissions (maintenance chemotherapy, transplant), hospice, psychiatric | **Post-resection readmission driven** by SSI, obstruction/ileus, and malnutrition/failure to thrive; chronic steroid use (OR 1.67), operative time ≥4 h (OR 1.45), and discharge to facility (OR 1.37) are major predictors; NET patients with SBO managed surgically have **lower 30-day readmission** (5.4% vs. 20.8%)[81,82] |

**ABBREVIATIONS:** BP = blood pressure; ESRD = end-stage renal disease; NET = neuroendocrine tumor; TKI = tyrosine kinase inhibitor; HTN = hypertension; PCP = primary care physician; MA = Medicare Advantage; CYP3A4 = cytochrome P450 3A4; SSA = somatostatin analog; FOLFOX = 5-fluorouracil/leucovorin/oxaliplatin; SBA = small bowel adenocarcinoma; NCCN = National Comprehensive Cancer Network; ECOG = Eastern Cooperative Oncology Group; G-8 = Geriatric-8; SSI = surgical site infection; PHQ-9 = Patient Health Questionnaire-9; GI = gastrointestinal; PHQ-8 = Patient Health Questionnaire-8; HR = hazard ratio; ACP = advance care planning; SBO = small bowel obstruction; OR = odds ratio; AWV = Annual Wellness Visit; CPT = Current Procedural Terminology; MST = Malnutrition Screening Tool; PG-SGA = Patient-Generated Subjective Global Assessment; SDoH = social determinants of health; HEDIS = Healthcare Effectiveness Data and Information Set

***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

### QUALITY OUTCOME: START WITH SHORTENING THE DIAGNOSTIC DELAY

When primary care **shortens the 6–36-month diagnostic delay** typical of small bowel tumors by escalating to CT enterography or capsule endoscopy after negative colonoscopy and EGD, patients enter treatment **at earlier, more treatable stages**.[16,50,86] Confirming that MMR/MSI testing, histologic subtype, and anatomic subsite are documented at diagnosis — and that the correct code family is assigned by histology (**C17.x** for adenocarcinoma, **C7A.01x** for NET, **C49.A3** for GIST) — ensures treatment follows the **appropriate algorithm** and **HCC mapping is preserved**.[3,8] Delivering **geriatric-assessment–guided treatments** in older adults and coordinating **proactive symptom monitoring and nutritional support** keeps patients in stable rather than crisis-driven care states, with randomized trial data showing that proactive symptom assessment in older cancer patients **reduces ED visits by 53%** and **hospitalizations by 68%**.[60] Quality outcomes follow naturally from delivering and documenting the **care the clinical picture demands**: they are consequences of good care, not separate goals.

# 5 CODING REMINDERS AND CASE EXAMPLES

## Coding Specificity

| ELEMENT | DOCUMENTATION REQUIREMENT[3,7,8,35] |
|---|---|
| **Histology-driven code family** | Adenocarcinoma → **C17.x**; neuroendocrine/carcinoid → **C7A.019;** GIST → **C49.A3**; **do not default** a NET or GIST to **C17.x** |
| **Anatomic subsite specificity** | Duodenum (**C17.0**), jejunum (**C17.1**), ileum (**C17.2**); **C17.9 only when** the subsite is **genuinely undetermined** after full workup |
| **Active vs history of malignancy** | Keep the active code (**C17.x**) throughout surgery, adjuvant therapy, and surveillance; use **Z85.068 only** at confirmed remission with **no active treatment** |
| **Histology and HCC mapping** | **C17.x** and **C7A.019** → **HCC 22** (RAF 0.363); GIST **C49.A3** → **HCC 18** (RAF 2.341); confirmed metastasis **C78.4** → **HCC 17** (RAF 4.209) |
| **Definitive metastatic language** | **Write** 'confirmed metastasis to the [organ]' (e.g., **C78.7** liver), **not** 'findings consistent with spread', so the secondary-malignancy code and **HCC 17** can be assigned |
| **Complication coding** | Malignant bowel obstruction (**K56.69**), cancer-related anemia (**D63.0**, not **D64.9**), and ileostomy status (**Z93.2**), coded at **every applicable encounter**; sequence **K56.69** first **if the admission reason** |

| ELEMENT | DOCUMENTATION REQUIREMENT[3,7,8,35] |
|---|---|
| **MMR/MSI documentation** | Record that **MMR/MSI testing** was performed at diagnosis and the result (dMMR/MSI-H vs pMMR/MSS) |
| **Staging and node yield** | Document AJCC TNM 8th-edition **stage** and **lymph node yield** (minimum 8; ≥10 improves stage II outcomes) |
| **Comorbidities — frequently undercoded** | Diabetes (**E11.-**), hypertension (**I10**), CKD (**N18.-**), malnutrition, and long-term drug therapy (**Z79.-**) shape **treatment and complexity** |

**ABBREVIATIONS:** NET = neuroendocrine tumor; GIST = gastrointestinal stromal tumor; HCC = Hierarchical Condition Category; RAF = Risk Adjustment Factor; MMR = mismatch repair; dMMR = mismatch repair deficient; MSI-H = microsatellite instability-high; pMMR = mismatch repair proficient; MSS = microsatellite stable; AJCC = American Joint Committee on Cancer; TNM = tumor-node-metastasis; CKD = chronic kidney disease

## Annual Clinical Review and Confirmation

- **Annual review**:[3,7,8,35] An active small bowel malignancy remains current and must be reassessed and documented with MEAT **each year** → histology, anatomic subsite, AJCC stage, MMR/MSI result, treatment status, and complication burden
- **Visit modality**: A face-to-face **or** synchronous audio-video telehealth encounter qualifies **when it supports meaningful clinical evaluation**; chart updates without an encounter **do not satisfy MEAT**
- **Histology-driven code family**:[3,35] Before accepting **C17.x**, **confirm histology**: adenocarcinoma → **C17.x**; neuroendocrine/carcinoid → **C7A.010–C7A.**[012] (**not C17.x**); GIST → **C49.A3** (**not C17.x**); each maps to a different HCC with distinct clinical and coding implication
- **Active disease vs. history**:[3,7] **Z85.068/Z85.060** (personal history) applies **only after** definitive treatment with **no evidence of disease**; a patient on adjuvant chemotherapy, somatostatin analogs for tumor control, or under surveillance imaging with detectable disease **retains the active code**
- **Metastatic site documentation**:[3,35] For metastatic disease, document the primary (**C17.x**, **C7A.01x**, or **C49.A3**) and code each confirmed metastatic site separately (**C78.4** small bowel, **C78.7** liver, **C78.6** peritoneum, **C79.51** bone); use "confirmed metastasis," **not** "consistent with spread"
- **Avoid rollover**: **Do not** copy forward a prior note **without updating**: the histology and subsite, active-disease status, AJCC TNM stage and MMR/MSI result, current treatment and monitoring, and the complication and comorbidity burden

## Good Documentation — EHR Tips

- **EHR TIP — Smartphrase]** Build a **.sbc_visit dot phrase** that **auto-populates**: subsite-specific **C17.x** code (**C17.0** duodenum, **C17.1** jejunum, **C17.2** ileum), histology, AJCC TNM stage, MMR/MSI status, DPYD result, treatment regimen with cycle number, complication codes (**K56.69**, **D63.0**, **Z93.2**), CEA trend, and G8 score. **Separate .sbc_surveillance phrase for post-treatment**: subsite, last CT date/result, CEA, weight, and neuropathy grade. Eliminates unspecified **C17.9** coding and supports MEAT in a single paste
- **[EHR TIP — Alert]** "**Subsite-to-HCC Check**" = flags **C17.9** when subsite is **documented elsewhere in chart**. "**Active vs. History Guard**" = flags **Z85.068** while antineoplastic therapy remains on active medication list. "**Metastasis-Language Guard**" = prompts for definitive language so secondary-malignancy codes (**C78.xx**) and **HCC 17** can be mapped
- **[EHR TIP — Best Practice]** Pin **subsite-specific C17.x with histology and stage** (e.g., "Adenocarcinoma of the jejunum, C17.1, AJCC stage IIIA, pMMR/MSS"), **not** "small bowel cancer." Require structured histology and active-vs-history fields **before C17.x or Z85.068 selection**. Code comorbidities **individually** (**D63.0**, **Z93.2**, **E11.x**). Reserve **Z85.068** only after confirmed remission with no active treatment
- **[EHR TIP — Workflow] Fire BPA when**: DPYD absent before fluoropyrimidine; MMR/MSI undocumented within 30 days of pathology; surveillance CT overdue per protocol; G8 not reassessed at line change; neuropathy ungraded during oxaliplatin; no MEAT encounter in 6 months. Flag **C17.9 persisting >30 days** for subsite upgrade
- **[EHR TIP — Order Set]** "**SBC Active Treatment**": CBC, CMP, CEA, CT per protocol, DPYD (if not on file), neuropathy assessment, BP monitoring (bevacizumab), G8 screen, dietitian referral. "SBC Surveillance": CEA q3–6 months, CT per interval, weight/nutrition assessment, **teach-back** on warning symptoms and insufficiency of standard endoscopy for recurrence detection

## Brief Case Examples

**SUCCESS: IMAGING ESCALATED, SUBSITE SPECIFIED, ACTIVE DISEASE CODED**

**SCENARIO**

A 74-year-old male with three months of **intermittent crampy abdominal pain**, 6 kg weight loss, and iron deficiency anemia; **colonoscopy and EGD negative 8 weeks earlier**. PMH: type 2 diabetes, hypertension. Provider recognized that negative standard endoscopy does not exclude **small bowel malignancy**, escalated imaging (CT abdomen/pelvis with contrast → MR enterography), identified a jejunal mass, and documented the full clinical picture through diagnosis, staging, and treatment initiation:

**Documentation:** "**C17.1**: Active adenocarcinoma of the jejunum (pathology confirmed [date]); pMMR/MSS on MMR/MSI testing. AJCC TNM stage [X] assigned; 12 lymph nodes examined. Status post resection with en bloc lymphadenectomy. Adjuvant CAPEOX initiated with **G8-guided dosing** (G8 score [value]). DPYD tested before fluoropyrimidine → normal metabolizer. **D63.0**: Cancer-

related anemia. **E11.9**: Type 2 diabetes, optimized perioperatively. **I10**: HTN, controlled. Dietitian-led nutritional prehabilitation completed. Care coordinated across GI, surgery, and oncology. Return [interval] or sooner for new symptoms."

**Outcome: C17.1 (HCC 22) + D63.0 + E11.9 + I10** mapped with full diagnostic and treatment course documented. **Every MEAT element present**: subsite-specific diagnosis with pathology confirmation, molecular testing (MMR/MSI), AJCC staging with node count, surgical and adjuvant treatment plan with pharmacogenomic safety testing (DPYD), geriatric functional assessment (G8), comorbidity optimization, multidisciplinary care coordination, and follow-up interval with return criteria. Diagnosis made by **appropriate imaging escalation** rather than repeat colonoscopy.

### PITFALL: UNSPECIFIED SUBSITE AND PREMATURE "HISTORY OF"

**SCENARIO**

A 72-year-old with known jejunal adenocarcinoma, status post resection, currently receiving active adjuvant chemotherapy. Presents for routine follow-up.

**Documentation as written:** "Small bowel cancer, stable post-op. Continue meds. Small intestine, unspecified (**C17.9**). History of small bowel cancer (**Z85.068**)."

**Consequence:** (**1**) Subsite not specified: **C17.9** used despite a known jejunal primary; **correct code is C17.1** = most common small bowel coding error. (**2**) **Z85.068** applied during active adjuvant chemotherapy, downgrading active disease to "history" and eliminating HCC capture while the patient is still on treatment. (**3**) Cancer-related anemia and ostomy status uncoded, understating clinical complexity. (**4**) No treatment details, staging, molecular testing, lab values, or functional assessment documented. **No MEAT elements present** beyond a bare, inaccurate diagnosis label.

**RAF Impact:** Active adenocarcinoma maps to **HCC 22** (CNA RAF 0.363) when coded as **C17.x**; switching to **Z85.068** removes the malignancy from the risk picture entirely while the patient is still receiving adjuvant therapy. The note misrepresents the clinical course and weakens continuity and quality reporting.

**Fix:** Document active disease with correct subsite; code all active comorbidities; **reserve Z85.068 for confirmed remission with no active treatment**. **Corrected documentation**: "**C17.1**: Active adenocarcinoma of the jejunum, on adjuvant chemotherapy cycle [X]; status post resection with ileostomy (Z93.2). D63.0: Anemia in neoplastic disease. AJCC TNM stage [X]. MMR/MSI status [result]. Labs: [values]. Functional status: G8 [score]. Return [interval] or sooner for new symptoms." **Coding after fix**: **C17.1** (HCC 22) + **Z93.2** + **D63.0** replaces **C17.9** + **Z85.068** = subsite-accurate, active-disease coding with **full clinical picture preserved**.

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