AAVBC
AMERICAN ACADEMY OF VALUE BASED CARE

Gallbladder Cancer

Quick Reference Guide

2026

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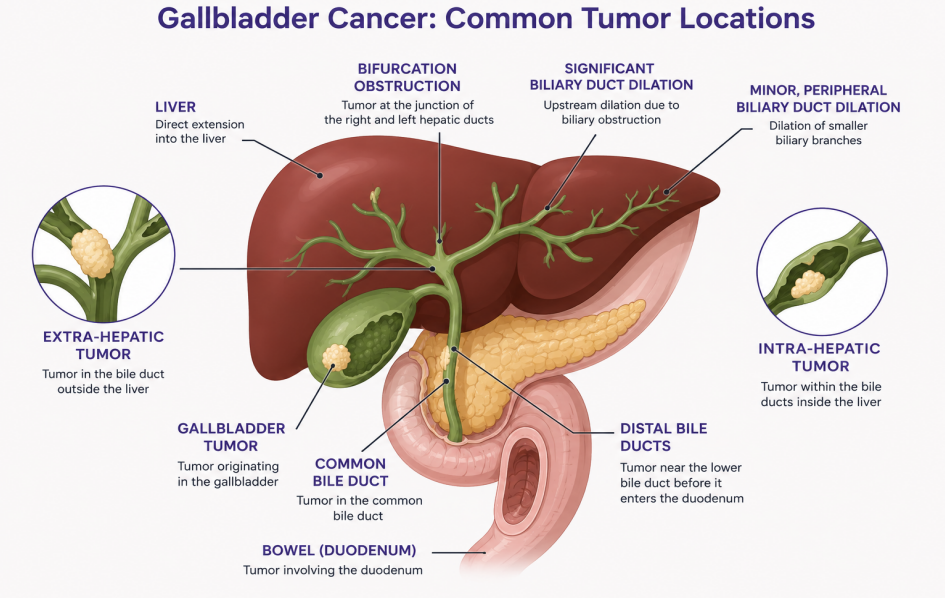
1 CLINICAL SNAPSHOT

Definition: **Gallbladder cancer** (GBC) is a rare but aggressive malignancy that arises in the inner lining of the gallbladder, most often as adenocarcinoma.[1,2] Because the organ sits **hidden beneath the liver**, early-stage disease is typically asymptomatic or produces **vague symptoms that mimic benign biliary colic**, so most cases are diagnosed at an **advanced stage**.[1,2] Approximately **50%** of cases are discovered incidentally during or after cholecystectomy for presumed benign disease (incidental gallbladder cancer; IGBC).[3] Only about **10%** of patients present with early-stage **resectable disease**.[3] GBC is strongly **age-associated**: it is predominantly a disease of **older adults** and is highly relevant to the **Medicare population**, which makes **primary care recognition** and **prompt referral** the central upstream behaviors in this pathway.[1,2]

ICD-10 Codes:

The primary ICD-10 code for gallbladder cancer is **C23** (malignant neoplasm of gallbladder).[4] Related biliary tract codes include **C24.0** (extrahepatic bile duct, including cystic duct), **C24.8** (overlapping sites of biliary tract), **C24.9** (biliary tract, unspecified → **AVOID** when the gallbladder is the known primary), and **C22.1** (intrahepatic cholangiocarcinoma).[4] **D01.5** (carcinoma in situ of liver, gallbladder, and bile ducts) corresponds to **high-grade dysplasia or carcinoma in situ** and is **not mapped** to an HCC.[4] When disease has spread, code the metastatic site **alongside the primary**: **C78.7** (secondary neoplasm of liver) and **C78.00-C78.02** (secondary neoplasm of lung). Use **Z85.09** (personal history of malignant neoplasm of other digestive organs) only **after treatment is complete** with no evidence of disease → **C23 must remain the active code** throughout the treatment continuum.[4]

Incidence and burden: For 2026 the American Cancer Society groups gallbladder with nearby large bile duct cancers, estimating about **12,640** new cases and approximately **4,590** deaths.[5] GBC is one of the few cancers **more common in women than men**, with females accounting for approximately **two-thirds** of all cases and deaths.[6,7] Incidence rises steeply with age, with patients **65 and older accounting for roughly two-thirds** of all diagnoses, with peak prevalence between ages **80 and 90**.[8] Marked **racial and ethnic disparities exist**: American Indian/Alaska Native populations have roughly **3 times** the incidence of non-Hispanic White populations, Hispanic/Latina women have an incidence of **2.5 per 100,000** (double that of non-Hispanic White women), and non-Hispanic Black incidence rose **1.4-2.1% annually** from 2001 to 2014.[6,9–11]



HCC/RAF V28 Mapping

ICD-10 CODE(S)[4]	HCC CATEGORY (V28)[12]	RAF (CNA)*[13]	DOCUMENTATION REQUIREMENT[1,4]
C23 — Malignant neoplasm of gallbladder	**HCC 20** Lung and **Other Severe Cancers**	1.136	Primary gallbladder malignancy; **document**: "gallbladder adenocarcinoma" or "malignant neoplasm of gallbladder, active disease;" keep **active throughout treatment**
C24.0 — Malignant neoplasm of extrahepatic bile duct	**HCC 20** Lung and **Other Severe Cancers**	1.136	Extrahepatic bile duct primary; **document**: "extrahepatic cholangiocarcinoma" or "malignant neoplasm of extrahepatic bile duct;" **specify site** if known (e.g., distal, perihilar)
C24.8 — Malignant neoplasm of overlapping sites of biliary tract	**HCC 20** Lung and **Other Severe Cancers**	1.136	Overlapping biliary primary; **document**: "tumor involving gallbladder and bile duct" or specify overlapping sites; use when **tumor crosses anatomic boundaries**
C24.9 — Malignant neoplasm of biliary tract, unspecified	**HCC 20** Lung and **Other Severe Cancers**	1.136	**TRAP**: biliary tract, unspecified; use only when the **primary site genuinely cannot be determined**; when the gallbladder is known, **C23** is the correct specific code
C22.1 — Intrahepatic bile duct carcinoma	**HCC 20** Lung and **Other Severe Cancers**	1.136	**Intrahepatic cholangiocarcinoma** → code when this is the documented primary site
C78.7 — Secondary malignant neoplasm of liver and intrahepatic bile duct	**HCC 17 Metastatic Cancer** and Acute Leukemia	4.209	Liver metastasis **from a gallbladder primary** → code alongside **C23** to document the full disease burden; **do not** omit metastatic sites
D01.5 — Carcinoma in situ of liver, gallbladder and bile ducts	No HCC	—	Carcinoma in situ/high-grade dysplasia of gallbladder → a distinct in-situ diagnosis, **not yet invasive malignancy**; note this code **also covers**: liver and bile duct in-situ lesions

ICD-10 CODE(S)[4]	HCC CATEGORY (V28)[12]	RAF (CNA)*[13]	DOCUMENTATION REQUIREMENT[1,4]

ABBREVIATIONS: ICD-10 = International Classification of Diseases, 10th Revision; HCC = Hierarchical Condition Category; V28 = CMS-HCC Model, Version 28; RAF = Risk Adjustment Factor; CNA = Community Non-Dual Eligible, Aged segment; CMS = Centers for Medicare & Medicaid Services; CMS-HCC = CMS Hierarchical Condition Category Model; ICD-10-CM = International Classification of Diseases, 10th Revision, Clinical Modification; MA = Medicare Advantage; MEAT = Monitor, Evaluate, Assess, Treat

***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[12,13]

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

PRIMARY GALLBLADDER CANCER	METASTATIC GALLBLADDER CANCER
$11.8K	**$43.8K+**
HCC 20 · RAF 1.136	HCC 17 · RAF 4.209

Annual risk value illustrative at base rate ~$10,402/year; actual plan payment varies by county and contract year

AAVBC PERSPECTIVE

From the AAVBC's perspective, value-based care in gallbladder cancer r*equires replacing passive observation with* ***accountable surveillance*** *and* ***rapid escalation in patients at increased risk****. PCPs should actively monitor patients with* ***gallstones****,* ***gallbladder polyps****, or* ***primary sclerosing cholangitis*** *using appropriate serial imaging and clinical follow-up, recognizing that* ***incidental detection*** *remains the most common route to potentially curative diagnosis.[1,2]* ***Under-recognition is the defining challenge****: early gallbladder cancer frequently mimics benign biliary disease, and delays in evaluation can allow a surgically curable malignancy to* ***become unresectable****.[14] Suspicious findings (including focal or asymmetric gallbladder* ***wall thickening >1 cm****,* ***polyps >1 cm*** *or demonstrating interval growth, or unexplained weight loss with biliary symptoms) should* ***trigger immediate cross-sectional imaging*** *and* ***surgical referral*** *rather than continued watchful waiting.[15,16] PCPs should frame surveillance as active disease management, not reassurance, because the highest-value intervention is* ***recognizing the narrow window for curative resection*** *and acting before that opportunity is lost.[1]*

2 RECOGNITION AND DIAGNOSIS

Medicare Screenings and Surveillance (Adult and Geriatric)

There is no GBC-specific population-wide screening test; workup begins once clinical suspicion is established (e.g., incidental finding, biliary symptoms, or mass on imaging).[2,15] Coverage applies to **diagnostic and staging workup**, not screening. **Medicare Part B** covers the following diagnostic tests and workup **when medically necessary**:

TEST	FREQUENCY	CPT/ HCPCS	CLINICAL INDICATION[15,17–19]
Abdominal ultrasound (complete)	**Initial evaluation** of biliary symptoms	76700	**First-line for RUQ symptoms**; **cannot** be used for staging → asymmetric/focal wall thickening >1 cm is a **red flag** warranting advanced imaging
Multiphasic CT abdomen/pelvis with IV contrast	**Staging** when GBC is suspected or confirmed	74177	**Defines**: local extent, nodal and distant spread; **pairs with chest CT** for full staging per NCCN
MRI abdomen with contrast†	When a gallbladder mass or wall **thickening >1 cm is identified**	74182/ 74183	**Preferred over CT** for evaluating gallbladder masses and bile duct involvement per NCCN; MRCP preferred **for cholangiography**
Chest CT ± contrast	**At staging workup**	71250/ 71260	Evaluates for **pulmonary metastasis** as part of NCCN staging workup
FDG-PET/CT, skull base to mid-thigh‡	When equivocal findings on CT/MRI or case-by-case basis	78815/ 78816	Limited sensitivity but **high specificity**; not routine → **consider selectively** when additional disease detection may alter management
Staging laparoscopy§	**Prior to** definitive resection for mass on imaging; selectively for incidental GBC	49320/ 49321	Recommended **prior to definitive resection** for gallbladder mass; for incidental GBC, **higher yield in**: T3+, poorly differentiated, or margin-positive disease
CA 19-9 and CEA	**Baseline** at diagnosis; consider during surveillance	86301/ 82378	Baseline tumor markers only; **NOT diagnostic** and not for screening → elevation with biliary symptoms should **prompt imaging**; consider after biliary decompression

TEST	FREQUENCY	CPT/ HCPCS	CLINICAL INDICATION[15,17–19]
LFTs (hepatic function panel)	**At diagnosis** and per treatment cycle	80076	**Essential baseline workup**; assess hepatic reserve **before** surgical or systemic therapy
Biomarker testing (MGPT)¶	**At diagnosis** for unresectable or metastatic disease	81455	Recommended for patients with **unresectable/metastatic BTC** who are candidates for systemic therapy; includes FGFR2, IDH1, BRAF, MSI/dMMR, NTRK, HER2
Geriatric screening (G8/ VES-13)‖	**Before** cancer-directed treatment in adults ≥65	—	**G8 score ≤14** indicates need for full geriatric assessment; **VES-13 score ≥3** indicates vulnerability → triggers **comprehensive GA** and targeted interventions
Advance Care Planning (AWV)**	**At diagnosis** and when goals change	99497/ 99498	**Document**: directives, surrogate, and goals; central in advanced or unresectable GBC and when comorbidities or advanced age **shape treatment intensity decisions**

ABBREVIATIONS: CPT/HCPCS = Current Procedural Terminology/Healthcare Common Procedure Coding System; RUQ = right upper quadrant; GBC = gallbladder cancer; CT = computed tomography; IV = intravenous; NCCN = National Comprehensive Cancer Network; MRI = magnetic resonance imaging; MRCP = magnetic resonance cholangiopancreatography; FDG-PET/CT = fluorodeoxyglucose-positron emission tomography/computed tomography; CA 19-9 = carbohydrate antigen 19-9; CEA = carcinoembryonic antigen; LFTs = liver function tests; MGPT = multigene panel testing; BTC = biliary tract cancer; FGFR2 = fibroblast growth factor receptor 2; IDH1 = isocitrate dehydrogenase 1; BRAF = v-Raf murine sarcoma viral oncogene homolog B; MSI = microsatellite instability; dMMR = deficient mismatch repair; NTRK = neurotrophic tyrosine receptor kinase; HER2 = human epidermal growth factor receptor 2; G8 = Geriatric 8 screening tool; VES-13 = Vulnerable Elders Survey-13; GA = geriatric assessment; AWV = Annual Wellness Visit; ACP = advance care planning; ERCP = endoscopic retrograde cholangiopancreatography; PTC = percutaneous transhepatic cholangiography; CMS = Centers for Medicare & Medicaid Services; NCD = National Coverage Determination; AHPBA = Americas Hepato-Pancreato-Biliary Association; ASCO = American Society of Clinical Oncology; USPSTF = US Preventive Services Task Force

† MRI is preferred over CT for evaluating masses within the gallbladder and demonstrating bile duct involvement per NCCN Principles of Imaging (BIL-A). MRCP is the preferred cholangiographic modality; ERCP/PTC are used more for therapeutic intervention

‡ PET/CT has limited sensitivity but high specificity per NCCN; routine use in the preoperative setting has not been established in prospective trials. CMS covers FDG-PET for staging, restaging, and treatment monitoring of solid tumors under NCD 220.6. The AHPBA consensus statement notes PET-CT detected occult metastases with 56% sensitivity and may alter management in select patients

§ NCCN recommends diagnostic laparoscopy prior to definitive resection for patients presenting with a gallbladder mass on imaging

‖ NCCN Older Adult Oncology guidelines list G8, VES-13, and seven other validated screening tools; no evidence exists for superiority of one tool over another. ASCO guidelines recommend GA-guided management for all patients ≥65 receiving systemic cancer therapy

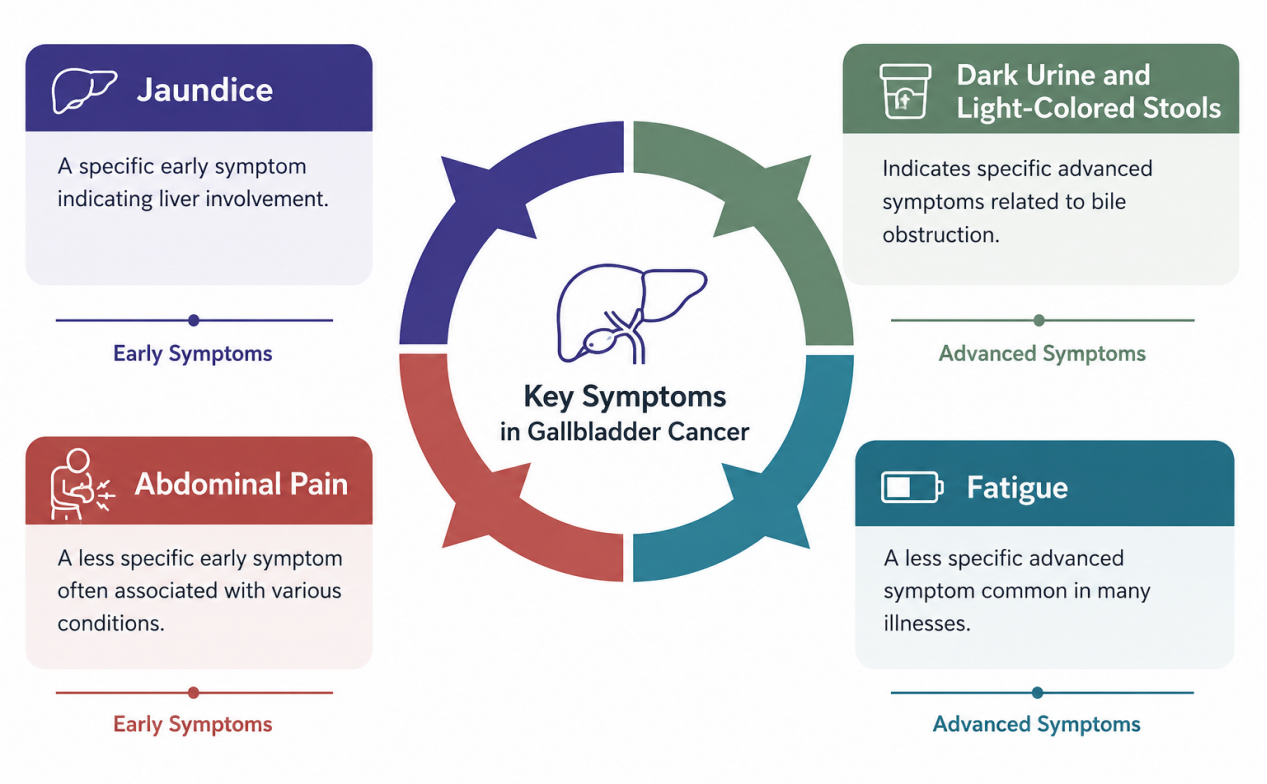
**** ACP is covered with no patient copay when performed during the AWV; 99497 covers the first 30 minutes, 99498 each additional 30 minutes**

Subtle Early Signs in Older Adults (>65)

SIGN/SYMPTOM[2,14,15,20]	CLINICAL SIGNIFICANCE[2,15,21,22]
Right upper quadrant pain that changes character in a patient with known gallstones	New, persistent, or escalating pain unresponsive to standard management should **not be assumed** to be benign biliary colic; it warrants **cross-sectional imaging** to exclude malignancy
Unexplained weight loss and anorexia	**The most common systemic signs of GBC**; in older adults they are too often **attributed to aging or diet** rather than investigated as an oncologic warning
New obstructive jaundice (dark urine, acholic stools, rising bilirubin)	Suggests **bile-duct involvement** and portends **poor prognosis**; requires **urgent imaging** and specialist referral, not outpatient observation
Asymmetric or focal gallbladder wall thickening >1 cm on ultrasound	**A major red flag** distinct from the diffuse thickening of cholecystitis; mandates **CT/MRI within 1-2 weeks** and surgical-oncology referral
Palpable RUQ mass or hepatomegaly (Courvoisier sign)	May reflect **advanced local disease or liver involvement**; warrants **urgent imaging** and surgical-oncology evaluation
Gallbladder polyp ≥1 cm or porcelain gallbladder	**High-risk lesions**; size thresholds should not be oversimplified, as **smaller polyps** with risk factors can **still harbor malignancy** and warrant specialist input
Incidental gallbladder cancer found on pathology after cholecystectomy	**About half of GBC** is a 'histologic surprise'; pathology review after every cholecystectomy is **essential**, and T1b or greater disease requires **hepatobiliary referral** for re-resection

ABBREVIATIONS: GBC = gallbladder cancer; CT = computed tomography; MRI = magnetic resonance imaging; RUQ = right upper quadrant

Symptoms of Gallbladder Cancer Throughout Disease Progression



Geriatric Risk Factors

FACTOR	RISK SIGNAL	NOTES
Age ≥65	Patients ≥65 account for **60.9%** of new GBC cases globally (projected 70.4% by 2040); independent predictor of incidental GBC (OR **1.08** per year)[23,24]	The core Medicare population bears the overwhelming **majority of GBC burden**; peak prevalence at **ages 80-90**[6,8]
Female sex	Females account for **~two-thirds** of cases and deaths; female-to-male incidence ratio **1.24-2.86** across groups[8,25]	Likely mediated by **estrogen effects** on gallstone formation, higher parity, and obesity[8,9]
Chronic gallstone disease (cholelithiasis)	RR **7.26** (95% CI 4.33-12.2); PAF **27.9%**; present in **70-90%** of GBC cases[2,26]	Only **0.5-3%** of gallstone patients develop GBC, but changing symptoms in longstanding stones **warrant suspicion**[1,2]
Obesity (BMI ≥30) and central obesity	Obesity RR **1.70** (1.44-2.01); central obesity RR **2.03** (1.23-3.35), the largest global PAF (29.7%)[26,27]	**Modifiable**; risk is stronger in women (+6% per kg/m^2 above 25)[8,26]

FACTOR	RISK SIGNAL	NOTES
Diabetes mellitus	Independent risk factor OR **2.7** (95% CI 1.2-6.4 vs gallstone controls); also **worsens survival**[28]	The **most common comorbidity** in US community-oncology GBC patients (18.6-20%)[29]
Biliary tract infection/chronic inflammation	Hospitalization-requiring biliary infection RR **31.7** (24.8-40.6); ***Salmonella Typhi* carriage** RR **4.87** (3.33-7.11)[26,30]	**Previous cholecystitis** is an independent predictor of incidental GBC (OR 1.37; p=0.045)[31,32]
Porcelain gallbladder, polyps ≥1 cm, pancreaticobiliary maljunction	**Pancreaticobiliary maljunction** present in **5-10%** of GBCs; high individual risk[1,33]	**Prophylactic cholecystectomy** is recommended for pancreaticobiliary maljunction[2]
Primary sclerosing cholangitis	Approximately **2%** lifetime incidence of GBC[2,34]	Warrants **ongoing biliary surveillance** in primary care[34]
Race/ethnicity (AI/AN, Hispanic/ Latino, non-Hispanic Black)	AI/AN ~**3x** non-Hispanic White incidence; rising non-Hispanic Black incidence (+1.4-2.1%/yr)[11]	Plan-level demographics vary; minority and frail patients are at **higher risk of undertreatment**[11]

ABBREVIATIONS: GBC = gallbladder cancer; OR = odds ratio; CI = confidence interval; RR = relative risk; PAF = population-attributable fraction; BMI = body mass index; AI/AN = American Indian/Alaska Native

CLINICAL PEARL: CHRONIC *SALMONELLA TYPHI* CARRIAGE AS A GBC RISK FACTOR

Chronic *S. Typhi* carriage confers a 4- to 5-fold increased risk of gallbladder cancer (meta-analytic OR 4.28, 95% CI 1.84–9.96; summary RR 4.6–5.0 depending on detection method).[30,35] The mechanism is **well-characterized**: *S. Typhi* forms **biofilms on gallstones**, produces β-glucuronidase that reactivates hepatically conjugated carcinogens, and activates MAPK/AKT signaling with resultant TP53 mutations and c-MYC amplification.[36] In the US, **typhoid is rare** (~400–450 confirmed cases/year, ~85–90% travel-associated), and only **1–5%** of infections progress to **chronic carriage**, producing a small but largely **undetected carrier pool**, since most are **asymptomatic** with no recalled acute illness.[37] Carriage rates are highest in women, **adults over 50**, and those with **cholelithiasis**, mirroring the peak GBC demographic.[35] **Identifying asymptomatic carriers** relies on **serial stool cultures** (to detect intermittent shedding) and **Vi serology** (to detect anti-Vi IgG antibodies), with molecular testing or bile sampling reserved for equivocal cases.[21] Eradicating the carrier state requires eliminating bacteria **from their primary reservoir**, the **biliary tract**, via prolonged, high-dose antibiotics (**4–6 weeks**, and up to 12 weeks) rather than the 1- to 2-week courses used for acute typhoid; **ciprofloxacin** is first-line given its excellent gallbladder penetration, with high-dose **amoxicillin** or **trimethoprim-sulfamethoxazole** as alternatives.[20,22] Eradication is difficult in older adults because **gallstone biofilms reduce antibiotic efficacy**; cholecystectomy plus antimicrobials may be required but **does not guarantee clearance**.[39] The clinical implication for US geriatric practice is **not** mass screening but **heightened suspicion in older patients with gallstones** and a history of travel to or immigration from **endemic regions** (South/Southeast Asia, Latin America, sub-Saharan Africa), where chronic carriage, cholelithiasis, and age converge to **amplify GBC risk multiplicatively**.[35]

Diagnostic Thresholds (NCCN v1.2026 & AJCC 8th-Edition TNM)

Gallbladder cancer diagnosis follows one of **three presentation pathways**: incidental discovery during/after **cholecystectomy** (~50% of cases), identification of a mass on **imaging**, or **presentation with jaundice** or metastatic disease.[2,15] Detection of early-stage disease remains difficult; tumors are commonly **discovered incidentally** at surgery or on pathologic examination of the gallbladder specimen.[15] When GBC is suspected preoperatively, the NCCN Biliary Tract Cancers Guidelines (v1.2026) recommend multiphasic abdomen/pelvis **CT or MRI with IV contrast** (MRI preferred for gallbladder masses and bile duct involvement), chest CT, LFTs, surgical consultation, and consideration of baseline CEA and CA 19-9 (tumor markers are baseline only and should not be used to confirm diagnosis).[15] Tissue/pathology confirmation **establishes the diagnosis**; **core biopsy** is preferred over fine-needle aspiration.[15] Staging laparoscopy should be considered, particularly for **T3 or higher tumors**, poorly differentiated tumors, or margin-positive cholecystectomy specimens.[15]

For **incidental GBC found on pathologic review**, the NCCN algorithm stratifies management by **T stage**: **T1a** with negative margins may be observed; **T1b or greater** (and T1a with positive margins) requires cross-sectional imaging restaging and hepatobiliary surgical referral for consideration of re-resection (hepatic resection + lymphadenectomy ± bile duct excision).[15] Routine histopathological examination of **all cholecystectomy specimens** is supported by the 0.3–1.0% incidence of incidental GBC across meta-analyses (pooled 0.6%, 95% CI 0.5–0.8% across 436,636 patients).[40]

AJCC 8th-Edition TNM Staging: Gallbladder Carcinoma

Staging uses the **AJCC 8th edition** (2017), which introduced two key changes from the 7th edition: (**1**) subdivision of T2 **by tumor location** into **T2a** (peritoneal side) and **T2b** (hepatic side), and (**2**) reclassification of N stage by number of positive nodes rather than anatomic location (N1 = 1–3 nodes; N2 = ≥4 nodes).[15,41] The T2a/T2b distinction is **clinically critical**: hepatic-side (T2b) tumors carry **higher rates of vascular invasion** (51% vs 19%), **nodal metastasis** (40% vs 17%), and **worse 5-year survival** (42.6% vs 64.7%) compared to peritoneal-side (T2a) tumors in the landmark Shindoh et al. multicenter study that prompted this reclassification.[42] A 2022 meta-analysis confirmed significantly **worse overall survival** for T2b versus T2a (HR 2.18, 95% CI 1.67–2.86).[43]

T STAGE	DEFINITION
Tis	Carcinoma in situ
T1a	Invades lamina propria
T1b	Invades muscular layer
T2a	Invades perimuscular connective tissue, peritoneal side (without serosal involvement)
T2b	Invades perimuscular connective tissue, hepatic side (without liver extension)
T3	Perforates serosa and/or directly invades liver and/or one adjacent organ/structure
T4	Invades main portal vein or hepatic artery, or ≥2 extrahepatic organs

N STAGE	DEFINITION
N0	No regional lymph node metastasis
N1	1–3 positive regional lymph nodes
N2	≥4 positive regional lymph nodes

AJCC STAGE	T	N	M
0	Tis	N0	M0
I	T1	N0	M0
IIA	T2a	N0	M0
IIB	T2b	N0	M0
IIIA	T3	N0	M0
IIIB	T1–3	N1	M0
IVA	T4	N0–1	M0

AJCC STAGE	T	N	M
IVB	Any T	N2	M0
IVB	Any T	Any N	M1

Resectability and Prognosis

Only **~10–20%** of non-incidental GBC patients present with resectable disease; **complete R0 resection** is the only potentially curative treatment.[2] **Predicted 5-year overall survival** by AJCC 8th edition stage in a National Cancer Database validation (n = 7,743) **was**: stage I, **62.5%**; stage II, **50.2%**; stage IIIA, **25.7%**; stage IIIB, **22.1%**; stage IVA, **15.7%**; stage IVB, **6.7%** (C-index 0.832).[44] Notably, **only 50.7%** of patients had any **lymph node sampling**, and only 24.5% of those met the recommended ≥6 lymph node threshold = **a quality gap** relevant to geriatric patients who may be **undertreated**.[44]

Prognostic Nomogram (Elderly)

A SEER-based nomogram specifically for **elderly GBC patients** (n = 4,241, age ≥65) incorporating TNM stage, age, histologic grade, surgical method, chemotherapy, and tumor size demonstrated C-indices of **0.763** (training), **0.756** (internal validation), and **0.786** (external validation) for cancer-specific survival, **outperforming conventional TNM staging alone**.[45]

Imaging Pitfalls

Preoperative imaging diagnostic failure is highest for **peritoneal-side tumors and lesions <2 cm**; in a multicenter analysis of 293 patients, only **56%** of GBC was successfully diagnosed preoperatively on **imaging alone**.[46] Peritoneal-side location (OR 0.13 for diagnostic failure vs hepatic-side) and tumor size ≥2 cm (OR 0.11) were independently associated with **lower odds of diagnostic failure** → small peritoneal-side tumors are the **most frequently missed**.[46] Combining CT with MRI/MRCP or EUS reduced diagnostic failure **from 65.1%** (CT alone) to **17.4%**.[46] Routine ultrasound **cannot be used for staging** and can **miss early tumors** or mistake them for polyps, sludge, or chronic cholecystitis.[2]

Diagnostic/Staging Tool Summary

TEST/SYSTEM	DIAGNOSTIC CRITERION	NOTES
NCCN Biliary Tract Cancers workup (v1.2026)[15]	Diagnostic evaluation	**H multiphasic CT/MRI** (MRI preferred for GB masses); chest CT; LFTs; baseline CEA/CA 19-9; surgical consult; consider staging laparoscopy
AJCC 8th-edition TNM (2017)[15,41]	Anatomic staging (**0–IVB**)	T by depth of invasion with T2a/T2b **location distinction**; N by number of **positive nodes** (**N1**: 1–3, **N2**: ≥4)
Incidental GBC pathway[2,15]	Post-cholecystectomy management	T1a/negative margins → **observe**; T1b+ → **restaging imaging** + **hepatobiliary referral** for re-resection

TEST/SYSTEM	DIAGNOSTIC CRITERION	NOTES
Resectability assessment[2,44]	Surgical candidacy	**~10–20% resectable** at presentation; R0 resection is the **only curative option**; **≥6 LN** sampling recommended
Elderly GBC nomogram (Wen et al. 2022)[45]	Geriatric-specific prognostication	SEER-based (n = 4,241); C-index **0.763–0.786**; **incorporates**: TNM, age, grade, surgery, chemo, tumor size

ABBREVIATIONS: NCCN = National Comprehensive Cancer Network; CT = computed tomography; MRI = magnetic resonance imaging; GB = gallbladder; LFTs = liver function tests; CEA = carcinoembryonic antigen; CA 19-9 = carbohydrate antigen 19-9; AJCC = American Joint Committee on Cancer; TNM = tumor-node-metastasis; GBC = gallbladder cancer; R0 = microscopically margin-negative resection; LN = lymph node; SEER = Surveillance, Epidemiology, and End Results

Clues to Dig Deeper

CLINICAL CLUE	WHY IT MATTERS	NEXT DIAGNOSTIC STEP
Changing biliary symptoms in a patient with longstanding gallstones	**New weight loss**, persistent pain, or **jaundice** in 'known gallstones' is the classic missed signal for GBC[15,47]	**Cross-sectional imaging** (CT or MRI) and **expedited specialist evaluation** rather than continued watchful waiting[15,48]
Asymmetric or focal gallbladder wall thickening >1 cm	**Distinct from** the diffuse thickening of **cholecystitis**; a major radiographic **red flag** for malignancy[49]	MRI or CT **within 1-2 weeks** and surgical-oncology referral[15,48]
Unexplained weight loss >5% in 6 months with persistent RUQ pain	Systemic signs of GBC are frequently **misattributed to frailty** or diet[2,47]	Cross-sectional imaging and oncology evaluation **within 1-2 weeks**[2,15]
New obstructive jaundice	Suggests **bile-duct involvement** and poor prognosis; needs prompt drainage planning[2,15]	**Urgent imaging** and gastroenterology/ interventional radiology for biliary decompression[15]
Incidental gallbladder cancer on cholecystectomy pathology	Half of GBC is found only **on pathology**; T1b+ disease needs **re-resection**[15]	Hepatobiliary surgery referral **within 1-2 weeks**; review margins and T stage[15]
Gallbladder polyp ≥1 cm, documented growth ≥2 mm or porcelain gallbladder	High-risk lesions where size thresholds should **not be oversimplified;**[2,21] polyp growth **≥2 mm** red flag for removal	**Surgical referral** for consideration of cholecystectomy; **do not** simply observe large, growing or risk-laden polyps[15,21]

CLINICAL CLUE	WHY IT MATTERS	NEXT DIAGNOSTIC STEP
Elevated CA 19-9 or CEA with biliary symptoms	Markers are not diagnostic but should **prompt further workup** when symptoms are present[15,50]	Expedited **cross-sectional imaging** and specialist evaluation[15,50]

ABBREVIATIONS: GBC = gallbladder cancer; CT = computed tomography; MRI = magnetic resonance imaging; RUQ = right upper quadrant; CA 19-9 = carbohydrate antigen 19-9; CEA = carcinoembryonic antigen

Common Oversights

OVERSIGHT/SHORTCUT[2,14,47]	WHY IT MATTERS — WHAT TO DO INSTEAD[2,15,48]
Assuming RUQ pain in 'known gallstones' is always benign biliary colic	Early GBC **mimics gallstone disease**; new weight loss, persistent pain, or jaundice should **trigger cross-sectional imaging** rather than continued symptomatic management
Overlooking asymmetric or focal wall thickening >1 cm on ultrasound	Diffuse thickening **suggests cholecystitis**, but focal/asymmetric thickening >1 cm is a **red flag for malignancy** requiring CT/MRI and **surgical-oncology referral**
Ascribing unexplained weight loss and anorexia to aging or diet	These are the most common **systemic signs of GBC**; investigate them as oncologic warnings rather than documenting generalized frailty
Relying on ultrasound alone to exclude malignancy	Routine ultrasound misses early tumors and **peritoneal-side or <2 cm lesions**; pursue MRI/CT when suspicion exists
Watchful waiting for suspicious gallbladder findings	GBC progresses aggressively and **delay can shift** a curable cancer to an incurable one; refer suspicious findings **promptly**
Skipping pathology review after a 'routine' cholecystectomy	**About half** of GBC is found only on pathology; review is mandatory, and T1b+ incidental disease requires **hepatobiliary re-resection referral**
Oversimplifying gallbladder polyp size and documented growth thresholds	**Not all polyps need surgery**, but smaller polyps with risk factors and/or **documented polyp growth** (≥2 mm) can signal malignancy; **individualize** rather than applying a single cutoff
Missing early signs of metastasis	Localized pain can be mistaken for inflammation while **liver invasion** or **hepatoduodenal lymphadenopathy** goes unrecognized → assess for spread when red flags appear
Using chronologic age or ECOG alone to judge fitness	These poorly capture **physiologic reserve** in older adults; a geriatric assessment is a **stronger predictor** of surgical mortality and chemotherapy toxicity than stage alone

ABBREVIATIONS: RUQ = right upper quadrant; GBC = gallbladder cancer; CT = computed tomography; MRI = magnetic resonance imaging; ECOG = Eastern Cooperative Oncology Group performance status

Key Differentials in Elderly

PRESENTATION	DIFFERENTIAL[2,15,17,48]	KEY TESTS[2,15,51]
RUQ pain with gallstones on ultrasound	**Symptomatic cholelithiasis**; chronic cholecystitis; **GBC**; choledocholithiasis	Reassess for focal wall thickening **>1 cm**, mass, or weight loss; **CT/MRI** if atypical features
Gallbladder wall thickening on imaging	Acute/chronic **cholecystitis** (diffuse); **GBC** (asymmetric/focal >1 cm); adenomyomatosis	**Contrast MRI/CT**; surgical-oncology referral if **focal or >1 cm**
Obstructive jaundice	Choledocholithiasis; **GBC**; cholangiocarcinoma; pancreatic head cancer; benign stricture	**MRI/MRCP**; cross-sectional staging; ERCP for decompression and tissue
Gallbladder mass or polyp	**Cholesterol polyp**; adenoma; adenomyomatosis; **GBC**; metastasis	Size assessment (**≥1 cm high risk**); growth assessment (**≥2 mm high risk**); shape (**broad base** and/or abnormal shape); contrast imaging; surgical referral
Unexplained weight loss in an older adult with biliary symptoms	**GBC**; pancreaticobiliary malignancy; benign cachexia; depression; malabsorption	**Cross-sectional imaging**; tumor markers as baseline; nutritional assessment
Acute fever, jaundice, RUQ pain (Charcot triad)	**Acute cholangitis** (may be obstructing GBC); choledocholithiasis; biliary sepsis	**Urgent labs and imaging**; emergent biliary decompression

ABBREVIATIONS: RUQ = right upper quadrant; GBC = gallbladder cancer; CT = computed tomography; MRI = magnetic resonance imaging; MRCP = magnetic resonance cholangiopancreatography; ERCP = endoscopic retrograde cholangiopancreatography; CA 19-9 = carbohydrate antigen 19-9; CEA = carcinoembryonic antigen

Comorbidity Screening

CONDITION	PREVALENCE/ ASSOCIATION[2,19,28,52]	SCREENING APPROACH[15,17,19,53]
Cholelithiasis/ chronic cholecystitis (K80.-, K81.-)	Present in **70-90%** of GBC cases	**In longstanding gallstones**, new weight loss, persistent pain, or wall thickening >1 cm should **prompt advanced imaging**

CONDITION	PREVALENCE/ ASSOCIATION[2,19,28,52]	SCREENING APPROACH[15,17,19,53]
Diabetes mellitus (E11.-)	**Most common comorbidity** in community-oncology GBC patients (**18.6-20%**); independent risk and prognostic factor (OR 2.7)	**Optimize glycemic control**; monitor for hypoglycemia during obstruction or chemotherapy; adjust doses for **renal impairment**
Hypertension (I10)	**More prevalent in GBC** than in benign gallbladder disease	**Perioperative BP optimization**; watch orthostatic hypotension and fall risk during therapy
Malnutrition/ cachexia (R64, E44)	**Weight loss** is the most common systemic sign; **nutritional depletion** predicts surgical mortality and chemotherapy toxicity	G8 nutritional items trigger **dietitian referral** when abnormal; **track albumin and weight**
Obstructive jaundice (K83.1, R17)	Portends **poor prognosis**; common at presentation	Requires **biliary drainage** (ERCP or percutaneous) **before** systemic therapy; may be definitive palliation in frail elders
Cognitive impairment	**Affects**: decision-making capacity, oral chemotherapy adherence, and symptom reporting	**Mini-Cog** (**0-2** = high likelihood of impairment) within CGA; document a health-care proxy
Polypharmacy	Common in older adults with **multiple comorbidities**	**Medication reconciliation** and deprescribing review within the CGA to limit interactions and fall risk

ABBREVIATIONS: GBC = gallbladder cancer; OR = odds ratio; BP = blood pressure; G8 = Geriatric 8 screening tool; ERCP = endoscopic retrograde cholangiopancreatography; CGA = Comprehensive Geriatric Assessment

⚠ RED FLAG — EMERGENCY/ACTIVATE CRISIS RESPONSE

These emergency conditions require **immediate intervention**:

- **Acute cholangitis** (Charcot triad/Reynolds pentad): Fever, jaundice, and RUQ pain ± hypotension and altered mental status = **high mortality** without source control[15,54]
  - → **IV antibiotics and fluid resuscitation**; emergent biliary decompression (ERCP preferred, percutaneous if ERCP unavailable); ICU admission if hemodynamically unstable
- **Biliary sepsis**: Tachycardia, hypotension, fever, and leukocytosis in the setting of **biliary obstruction**[53,54]
  - → **Emergent ERCP** or percutaneous transhepatic drainage; broad-spectrum antibiotics; vasopressors and ICU care as needed
- **Massive GI hemorrhage from tumor erosion**: Hematemesis or melena from GBC eroding into the duodenum or hepatic artery = hemodynamic instability[14]
  - → **Emergent endoscopy**; interventional radiology for angioembolization if endoscopy fails; surgical consultation; massive transfusion protocol if indicated
- **Acute bowel obstruction from peritoneal carcinomatosis**: Abdominal distension, vomiting, absent bowel sounds, and air-fluid levels on imaging[55]
  - → NPO, nasogastric decompression, IV fluids; surgical consultation for possible decompression or diversion; palliative goals-of-care discussion in advanced disease

⚠ RED FLAG — URGENT (SAME- OR NEXT-DAY)

These urgent conditions require expedited evaluation and intervention:

- **New-onset obstructive jaundice**: Rising bilirubin, dark urine, and acholic stools indicating biliary obstruction[2,15]
  - → Gastroenterology or interventional radiology referral for **biliary drainage** (ERCP or percutaneous); cross-sectional imaging for staging; biliary decompression before initiating systemic therapy
- **Asymmetric or focal gallbladder wall thickening >1 cm on ultrasound**: Focal or irregular thickening carries high suspicion for malignancy versus diffuse thickening in cholecystitis[41]
  - → Contrast-enhanced CT or MRI **within 1–2 weeks**; surgical-oncology referral if malignancy suspected
- **Incidental gallbladder cancer (T1b or greater) on cholecystectomy pathology**: Incidentally discovered GBC beyond the mucosa requires **oncologic re-resection** for adequate staging and margin clearance[2]
  - → Hepatobiliary surgery referral **within 1–2 weeks** for consideration of radical re-resection including liver-bed excision and lymphadenectomy
- **Unexplained weight loss >5% with persistent RUQ pain and known gallstones**: Weight loss is the most common systemic sign of GBC; new constitutional symptoms in longstanding cholelithiasis raise concern for malignant transformation[2,14]
  - → Cross-sectional imaging and oncology evaluation **within 1–2 weeks**; nutritional assessment and baseline tumor markers
- **New hepatomegaly or palpable gallbladder mass** (Courvoisier sign): Painless jaundice with a palpable gallbladder suggests malignant biliary obstruction (GBC, cholangiocarcinoma, or pancreatic head cancer)[14]
  - → **Urgent cross-sectional imaging** (CT or MRI); surgical-oncology referral; biliary drainage if jaundiced

3 MEAT DOCUMENTATION ESSENTIALS

Gallbladder cancer documentation translates an aggressive, often advanced malignancy into **a record that supports continuity**, **accurate complexity**, and **goal-concordant care**. The most common gaps are documenting nonspecific "gallbladder disease" (**K82.8**/**K82.9**) when a mass, tumor, or lesion has been identified instead of the **specific C-code**, prematurely using a **personal-history code** (**Z85.09**) while the patient is still in active treatment, and **omitting metastatic-site codes** (**C78.7** liver, **C78.00–C78.02** lung) that capture the true disease burden and support accurate oncology referral.[4] Each gap **understates clinical complexity** and impedes coordination with surgical and medical oncology. The MEAT framework below ties **each element into appropriate clinical action**:

***Case vignette**: A female patient, 78, with a long history of cholelithiasis presents for a chronic-care visit reporting several months of worsening right upper quadrant discomfort, a 6 kg unintentional weight loss, and reduced appetite. **Past medical history**: type 2 diabetes, hypertension. Ultrasound shows focal gallbladder wall thickening of 1.4 cm. She lives alone, walks slowly with occasional unsteadiness, and manages **eight daily medications**. Because she has a **suspicious gallbladder mass**, the accurate code is **C23** (malignant neoplasm of gallbladder) once malignancy is confirmed, not **K82.8** (other specified diseases of gallbladder).*

MONITOR: "Weight: 72 kg, down 6 kg over several months. **Functional status**: ambulatory with slow gait and unsteadiness; lives alone. G-8 = 13 → geriatric vulnerability flagged. Progressive RUQ pain unresponsive to prior gallstone management, with weight loss and anorexia. **Ultrasound**: focal wall thickening 1.4 cm → **red-flag finding** distinct from diffuse cholecystitis thickening. **Comorbidities**: type 2 diabetes (**E11.-**), hypertension (**I10**). **Polypharmacy**: eight medications → reconciliation initiated."

EVALUATE: "Contrast-enhanced MRI abdomen ordered (preferred for gallbladder masses) plus chest CT and LFTs for staging; baseline CA 19-9 and CEA as reference markers, not diagnostic. Expedited hepatobiliary surgical-oncology referral arranged; biopsy is not necessary if a suspicious mass is identified → proceed to definitive resection. Full CGA initiated → chronologic age and ECOG alone **poorly capture reserve**; GA predicts toxicity risk and reveals reversible geriatric problems. CARG toxicity calculator to be completed before any systemic therapy."

ASSESS: "Suspected malignant neoplasm of gallbladder (**C23**), to be documented as active disease once tissue-confirmed; avoid **K82.8** once a mass is identified. **Associated**: diabetes (**E11.-**) and hypertension (**I10**) affecting treatment tolerance. Unintentional weight loss (**R63.4**)/ malnutrition risk (**R64**) → predicts surgical mortality and chemotherapy toxicity. G-8 = 13 → CGA completed; polypharmacy = **deprescribing review** indicated. PHQ-2 screened."

TREAT: "**Oncology-directed**: coordinate resectability assessment with hepatobiliary surgery; R0 resection is the **only curative option**, but **intensity aligned with GA** rather than stage alone. For unresectable disease, systemic therapy or clinical trial preferred; best supportive care if goals do not support treatment. **PCP co-management**: optimize glycemic and BP control perioperatively; evaluate medications for orthostasis and overtreatment risk. **Dietitian referral** for nutritional depletion. Fall-risk assessment → PT referral and home safety evaluation. **ACP documented**: surrogate identified, goals assessed in context of prognosis; early palliative care if disease proves advanced. Return in 2–3 weeks for imaging and surgical-oncology consultation, or sooner for new symptoms."

Clinical Documentation Elements

- **Document the specific malignancy with a C-code** (**C23** for gallbladder primary) rather than nonspecific "gallbladder disease" (**K82.8**/**K82.9**) once a mass, tumor, or lesion is identified on imaging or pathology → nonspecific codes **understate complexity** and impede oncology referral[2,4]
- **Keep the active cancer code (C23) in place throughout the treatment continuum**: surgery, systemic therapy, and surveillance → reserve **Z85.09** (personal history of malignant neoplasm of other digestive organs) **only after** oncology documents completed treatment with no evidence of disease[4]
- **Code every metastatic site alongside the primary**: liver (**C78.7**), lung (**C78.00–C78.02**), peritoneum (**C78.6**) → reflects **full disease burden**, supports accurate risk adjustment, and justifies palliative-care referral[4,47]

- **Document stage using the AJCC 8th-edition TNM system**, including the clinically critical T2a (peritoneal-side) vs T2b (hepatic-side) distinction and nodal status (**N1** = 1–3 regional nodes vs **N2** = ≥4 regional nodes) → T2 substage determines **extent of surgical resection** and prognosis[15,41]
- **Record functional reserve from a geriatric assessment** (G-8 or VES-13 screen, full CGA findings) and document fit/unfit/frail classification with applicable frailty codes (**R54**, **R26.-**, **R63.4**) → GA is a stronger **predictor of surgical mortality** and **chemotherapy toxicity** than stage or ECOG alone; guides treatment intensity decisions[15,17,19]
- **Code each comorbidity at every applicable encounter**: diabetes (**E11.-**) affects **perioperative glycemic management** and **hypoglycemia risk** during obstruction; hypertension (**I10**) requires perioperative optimization and orthostasis monitoring; malnutrition/cachexia (**R64**, **E44.-**) predicts surgical mortality and **chemotherapy intolerance**; obstructive jaundice (**K83.1**) requires biliary drainage before systemic therapy and may be the **sole palliative intervention** in frail patients[15]
- **Document the CARG chemotherapy toxicity score before systemic therapy** and record the rationale for any **treatment de-escalation** or omission in frail older adults → CARG predicts grade 3–5 toxicity risk better than physician estimation or performance status; supports shared decision-making and medicolegal documentation[15,17,19]
- **Document advance care planning** (CPT 99497/99498), patient goals, surrogate decision-maker, and palliative-care involvement at each stage transition, especially when disease is advanced or unresectable → early palliative care integration **improves symptom control**, reduces aggressive end-of-life interventions, and **aligns treatment with patient values**[19,53]

Reframing Common Documentation Shortcuts

INSTEAD OF...[15,19]	DOCUMENT...[4,15,17]
'Gallbladder disease' (K82.8) when a mass is seen	'Malignant neoplasm of gallbladder (**C23**), gallbladder adenocarcinoma, active disease' once tissue **confirms malignancy**
'History of gallbladder cancer' during active treatment	'Malignant neoplasm of gallbladder (**C23**), active disease, on systemic therapy' → reserve **Z85.09** for after treatment with **no evidence of disease**
'Metastatic cancer'	'Gallbladder primary (**C23**) with liver metastasis (**C78.7**)' → list **each metastatic site** to reflect true disease burden
'Gallbladder cancer, stage advanced'	'Gallbladder adenocarcinoma, AJCC 8th ed. **T2b N1 M0**; hepatic-side tumor with 1-3 positive regional nodes'

INSTEAD OF...[15,19]	DOCUMENT...[4,15,17]
'Patient is frail'	'G8 score 11 (frailty risk); CGA shows impaired gait speed, weight loss, and polypharmacy → informs **de-escalated surgical plan**'
'Weight loss, likely age-related'	'Unintentional 6 kg (>5%) weight loss with anorexia and RUQ pain → **investigated as oncologic warning**; cross-sectional imaging ordered'
'On chemo'	'**Adjuvant capecitabine** per BILCAP; CARG toxicity score reviewed; **dose-reduced** for intermediate risk; monitoring for hand-foot syndrome and diarrhea'
'Jaundiced'	'New obstructive jaundice (**K83.1**) → **urgent biliary drainage** via ERCP arranged before systemic therapy'

ABBREVIATIONS: AJCC = American Joint Committee on Cancer; CGA = Comprehensive Geriatric Assessment; G8 = Geriatric 8 screening tool; RUQ = right upper quadrant; ERCP = endoscopic retrograde cholangiopancreatography; CARG = Cancer and Aging Research Group; BILCAP = adjuvant capecitabine for biliary tract cancer trial

DOCUMENTATION REMINDER IS COMPREHENSIVE CODING

Every GBC encounter should document the **specific malignancy code** (**C23**, kept active through treatment) rather than nonspecific gallbladder disease, the **stage** (AJCC 8th-edition TNM with **T2a**/**T2b** and nodal detail), every **metastatic site** (**C78.7** liver, **C78.00-C78.02** lung), the **comorbidity and functional burden** (diabetes, hypertension, malnutrition, geriatric-assessment findings), and the **goals of care** including palliative-care involvement.[4,15,32,41,53] Accurate, specific documentation reflects the patient's **true clinical complexity** and supports coordinated oncology care.

4 TREATMENT AND REFERRAL QUICK GUIDE

GBC treatment is stage-dependent and follows the NCCN Biliary Tract Cancers Guidelines (v1.2026), but in a Medicare Advantage geriatric population the goal **shifts from maximizing survival** at all costs to **optimizing outcomes relative to functional reserve and patient goals**.[15,19] Complete R0 surgical resection is the **only potentially curative treatment**, yet only **~10%** of patients present with resectable disease.[1,18] Fewer than 20% of patients with non-incidental GBC are potential candidates for surgery.[2,14] **The PCP's highest-value contributions** are recognizing changing biliary symptoms early, referring suspicious findings promptly **rather than observing**, ensuring a geriatric assessment informs treatment intensity, managing comorbidities perioperatively, and integrating palliative care to prevent high-cost emergency visits for end-stage biliary complications.[15,56]

Therapy Escalation Criteria

TRIGGER[2,15,17,57]	ACTION*[15,19,58,59]
Suspicious gallbladder finding (focal wall thickening >1 cm, mass, polyp ≥1 cm)	**Order contrast MRI/CT** and refer to hepatobiliary surgical oncology promptly → do not 'watch and wait'
Incidental gallbladder cancer on pathology, T1a with negative margins	**Observation alone (rationale documented)**; simple cholecystectomy is curative for T1a with clear margins
Incidental GBC, T1b or greater, or T1a with positive margins	**Hepatobiliary referral within 1-2 weeks** for radical (extended) cholecystectomy with en bloc hepatic resection (segments IVB+V) and regional lymphadenectomy
Locoregionally advanced but resectable disease	Multidisciplinary review; consider **neoadjuvant systemic therapy** (NCCN category 2B) to exclude rapid progression before radical surgery
Resected disease (R0)	Adjuvant **capecitabine** for 6 months (NCCN category 1; ASCO moderate-strength), based on **BILCAP**
R1 resection or node-positive disease	**Adjuvant systemic therapy preferred**; consider chemoradiation; benefit greatest in node-positive disease
Unresectable or metastatic disease	First-line cisplatin/gemcitabine + **durvalumab** (TOPAZ-1) or + **pembrolizumab** (KEYNOTE-966); NCCN category 1
Disease progression on first-line therapy	**Subsequent-line FOLFOX** (preferred); consider **biomarker-directed therapy** for actionable mutations (FGFR, HER2, BRAF, dMMR/MSI-H, NTRK)
Older adult before any cancer-directed therapy	**Complete G8/VES-13 screen and CGA**; calculate CARG toxicity score; de-escalate or omit therapy when frailty is intermediate-to-severe
Unresectable/advanced disease (Stage IV, advanced III)	**Avoid futile resection**; palliative biliary stenting (ERCP), palliative radiation, and early palliative care/hospice integration
Obstructive jaundice before systemic therapy	**Biliary decompression** (ERCP or percutaneous) before initiating chemotherapy

ABBREVIATIONS: GBC = gallbladder cancer; CT = computed tomography; MRI = magnetic resonance imaging; NCCN = National Comprehensive Cancer Network; BILCAP = adjuvant capecitabine for biliary tract cancer trial; FOLFOX = fluorouracil/leucovorin/oxaliplatin; FGFR = fibroblast growth factor receptor; HER2 = human epidermal growth factor receptor 2; BRAF = v-raf murine sarcoma viral oncogene homolog B; dMMR/MSI-H = mismatch-repair deficient/microsatellite instability-high; NTRK = neurotrophic tyrosine receptor kinase; G8 = Geriatric 8 screening tool; VES-13 = Vulnerable Elders Survey-13; CGA = Comprehensive Geriatric Assessment; CARG = Cancer and Aging Research Group; ERCP = endoscopic retrograde cholangiopancreatography; R0/R1 = margin-negative/microscopically positive resection; ASCO = American Society of Clinical Oncology; FDA = US Food and Drug Administration
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

NCCN Biliary Tract Cancers (v1.2026)–Aligned Treatment by Stage and Profile

Classical GBC treatment is **stage-**, **resectability-**, and **fitness-stratified**, and cure is achievable only with **complete surgical resection**.[15,19] For patients with **incidental T1a disease**, observation after simple cholecystectomy is **curative when margins are clear**.[2,15] For **T1b or greater**, radical cholecystectomy with en bloc hepatic resection (segments IVB+V) and regional lymphadenectomy is the **standard surgical approach**, with **T2b** (hepatic-side) tumors carrying **higher residual-disease** and **recurrence risk** than **T2a** (peritoneal-side).[2,15] After **R0 resection**, the NCCN lists adjuvant capecitabine as the preferred regimen (category 1), based on the **BILCAP trial** showing median OS 51.1 vs 36.4 months (per-protocol HR 0.75, p=0.028), with long-term follow-up confirming an adjusted HR of 0.74.[15,58–60] For **unresectable or metastatic disease**, first-line cisplatin/gemcitabine + durvalumab (**TOPAZ-1**: OS 12.9 vs 11.3 months, HR 0.74; 48-month OS rate 11.8% vs 4.3%) or + pembrolizumab (**KEYNOTE-966**: OS 12.7 vs 10.9 months, HR 0.83) are both NCCN category 1 preferred options.[15,57,61] **In older adults**, treatment decisions hinge on **geriatric assessment findings**: doublet/triplet regimens carry **grade 3–4 adverse events** in **74–75%** of patients (**TOPAZ-1**), and single-agent therapy or supportive care should be considered when frailty is identified.[15,19,61]

SETTING/STAGE	PREFERRED OPTION(S)*[15,57,59,61]	KEY NOTES*[2,15,17,58]
T1a, negative margins (incidental)	Observation; simple cholecystectomy is curative	No further resection needed **when margins are clear**
T1b or greater (resectable)	**Radical cholecystectomy** + en bloc hepatic resection (segments IVB+V) + regional lymphadenectomy ± bile duct excision	**NCCN category 2A**; T2b (hepatic-side) carries higher residual-disease and recurrence risk
Resected, adjuvant	**Capecitabine** 1,250 mg/m^2 twice daily, days 1–14 of a 21-day cycle, for 8 cycles (~6 months)	**BILCAP**: median OS 51.1 vs 36.4 mo; per-protocol HR 0.75 (p=0.028); long-term adjusted HR 0.74
First-line, unresectable/ metastatic	**Cisplatin/gemcitabine** + **durvalumab** (preferred); or + pembrolizumab; cisplatin/gemcitabine alone	**TOPAZ-1**: OS 12.9 vs 11.3 mo (HR 0.74), benefit sustained at 4 years; **KEYNOTE-966**: OS 12.7 vs 10.9 mo (HR 0.83)
Subsequent-line	**FOLFOX** (preferred); FOLFIRI; regorafenib (2B); nivolumab (2B) if no prior checkpoint inhibitor	**Modest benefit**; weigh toxicity against goals in frail patients
Biomarker-directed (later-line)	Targeted therapy for **FGFR fusions**, HER2, BRAF, dMMR/MSI-H, NTRK fusions	Requires next-generation sequencing; consider in **fit patients** with actionable alterations
Frail older adults	Single-agent (gemcitabine or capecitabine) **with dose reduction**, or supportive care	Use **CARG score**; doublet/triplet regimens carry grade 3–4 AEs in **74–75%** (**TOPAZ-1**)

SETTING/STAGE	PREFERRED OPTION(S)*[15,57,59,61]	KEY NOTES*[2,15,17,58]
Unresectable/Stage IV	**Palliative biliary stenting** (ERCP); palliative radiation; best supportive care	Aggressive resection offers **no survival benefit** and harms quality of life when unresectable

ABBREVIATIONS: NCCN = National Comprehensive Cancer Network; BILCAP = adjuvant capecitabine for biliary tract cancer trial; OS = overall survival; HR = hazard ratio; FOLFOX = fluorouracil/leucovorin/oxaliplatin; FOLFIRI = fluorouracil/leucovorin/irinotecan; FGFR = fibroblast growth factor receptor; HER2 = human epidermal growth factor receptor 2; BRAF = v-raf murine sarcoma viral oncogene homolog B; dMMR/MSI-H = mismatch-repair deficient/microsatellite instability-high; NTRK = neurotrophic tyrosine receptor kinase; CARG = Cancer and Aging Research Group; AEs = adverse events; ERCP = endoscopic retrograde cholangiopancreatography; FDA = US Food and Drug Administration
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

CLINICAL PEARL — FUNCTIONAL RESERVE AND GOALS > AGE OR STAGE ALONE

Treat gallbladder cancer by functional reserve and goals, not chronologic age or stage alone.[17,19] Chronologic age and ECOG status are **poor indicators** of an older adult's **physiologic reserve**; a Comprehensive Geriatric Assessment (CGA) is a **stronger predictor** of surgical mortality and chemotherapy toxicity than tumor stage.[17,19] The **GAP70+ trial** showed that **CGA-guided management reduced serious chemotherapy toxicity without compromising survival** in patients ≥70, and adjuvant **chemotherapy benefit** in elderly patients with resected GBC **is limited** outside specific node-positive subgroups.[17,56] The **highest-yield primary care contributions** are early referral of suspicious findings and goal-concordant, geriatric-informed treatment planning.[15,17,19]

Non-Pharmacologic and Supportive Care

INTERVENTION	TARGET/RECOMMENDATION[15,17,62]	NOTES[19,27,53,56]
Comprehensive Geriatric Assessment	G8/VES-13 screen then **full CGA before treatment** in adults **≥65**	**Covers**: function, cognition, nutrition, comorbidity, polypharmacy, mood, social support
Nutritional optimization	**Dietitian referral** when G8 nutrition items are abnormal or weight loss is present	Low albumin, total cholesterol, and triglycerides at diagnosis predict **worse survival**
Early palliative care integration	**Introduce at diagnosis** of advanced disease, alongside cancer-directed care	Older adults often prioritize **quality of life** and remaining at home over marginal survival
Patient-reported outcome measures (PROMs)	Integrate into the EHR to **monitor**: pain, jaundice, and nausea **in real time**	Supports proactive symptom control and **reduces avoidable ED visits**

INTERVENTION	TARGET/RECOMMENDATION[15,17,62]	NOTES[19,27,53,56]
Advance care planning	**Document**: directives, surrogate, and goals at diagnosis and when goals change	Central to **goal-concordant care** in advanced GBC
Modifiable risk-factor counseling	**Weight management and physical activity**; manage diabetes	Approximately **74.6%** of GBC globally is attributable to modifiable risk factors

ABBREVIATIONS: G8 = Geriatric 8 screening tool; VES-13 = Vulnerable Elders Survey-13; CGA = Comprehensive Geriatric Assessment; GBC = gallbladder cancer; EHR = electronic health record; ED = emergency department; PROMs = patient-reported outcome measures

Medication Safety and Key Interactions

DRUG/CLASS	INTERACTION/TOXICITY*	CLINICAL ACTION*
Capecitabine (adjuvant; approved)	**Hand-foot syndrome** (~20%), diarrhea, fatigue; grade 3 toxicity in **~44%**; real-world 49% dose reduction, 35% discontinuation[59]	Monitor for hand-foot syndrome and diarrhea; dose-reduce per tolerance; caution with DPD deficiency and renal impairment[59]
Cisplatin/gemcitabine doublet (approved)	Myelosuppression, nephrotoxicity, neuropathy, nausea; **grade 3-4 AEs** in ~74-75% within immunotherapy combinations[2,61]	**Renal-function-based dosing**; **substitute carboplatin** if cisplatin-ineligible; antiemetic prophylaxis[15,61]
Durvalumab (approved, first-line BTC)	**Immune-related adverse events** (colitis, pneumonitis, hepatitis, endocrinopathies)[63,64]	Monitor for immune-related toxicity; **manage per checkpoint-inhibitor protocols**[61,64]
Pembrolizumab (approved, first-line BTC)	**Immune-related adverse events** as a class effect[57]	**Baseline** and **on-treatment monitoring** for immune-related toxicity[57,64]
Targeted agents — pemigatinib, ivosidenib, entrectinib for GBC; biomarker-directed)	**Class-specific toxicities**; require next-generation sequencing to identify **actionable targets**[15,65]	Use only with a confirmed actionable alteration; confirm current labeling before prescribing: **off-label for GBC**[2,15]

DRUG/CLASS	INTERACTION/TOXICITY*	CLINICAL ACTION*
High-dose/repeated antiemetics and opioids	Sedation, constipation, delirium, and **fall risk** in older adults[19]	**Use lowest effective doses**; reconcile medications; monitor cognition and bowel function[19]
Polypharmacy in older adults	**Drug-drug interactions with chemotherapy**; cumulative anticholinergic and sedative burden[17,19]	Medication reconciliation **each visit**; deprescribe where possible within the CGA[19,66]

ABBREVIATIONS: AEs = adverse events; DPD = dihydropyrimidine dehydrogenase; BTC = biliary tract cancer; GBC = gallbladder cancer; CGA = Comprehensive Geriatric Assessment; FDA = US Food and Drug Administration
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

When to Refer

CRITERION[15,19,54,67]	SPECIALIST[15,19]	URGENCY[15,17,54]
Acute cholangitis or biliary sepsis	Emergency department/ interventional GI	**Emergent**
Tumor perforation, GI hemorrhage, or bowel obstruction	Emergency department/ surgery	**Emergent**
New-onset obstructive jaundice	Gastroenterology/ interventional radiology	**Urgent** (same-day to days)
Focal gallbladder wall thickening >1 cm or mass	Hepatobiliary surgical oncology	Expedited (within 1-2 weeks)
Incidental GBC (T1b+) on pathology	Hepatobiliary surgical oncology	Expedited (within 1-2 weeks)
Unexplained weight loss + persistent RUQ pain with gallstones	Imaging then oncology	Expedited (within 1-2 weeks)
Confirmed GBC needing systemic therapy	Medical oncology	Expedited
Adults ≥65 before cancer-directed treatment	Geriatric oncology/geriatrics	Routine-to-expedited
Malnutrition/abnormal G8 nutrition items	Dietitian	Routine
Advanced or unresectable disease	Palliative care; hospice when appropriate	Routine-to-expedited

CRITERION[15,19,54,67]	SPECIALIST[15,19]	URGENCY[15,17,54]

ABBREVIATIONS: GI = gastrointestinal; GBC = gallbladder cancer; RUQ = right upper quadrant; G8 = Geriatric 8 screening tool

Follow-Up Timing

CATEGORY	FREQUENCY[15,17,64]	MONITORING*[15,19,64]
Post-resection surveillance	Per NCCN; typically imaging and clinical review **every 6 months** for 2 years, then **annually**	**Cross-sectional imaging**; LFTs; symptom assessment; CA 19-9 trend where it was elevated
On adjuvant capecitabine	Each cycle (**every 3 weeks**) during the ~6-month course	**Hand-foot syndrome**, diarrhea, fatigue; CBC and renal function; **dose adjustment** as needed
On first-line immunotherapy + chemotherapy	**Each cycle** and per checkpoint-inhibitor protocol	**Immune-related adverse events**; CBC, LFTs, thyroid and other endocrine function
Obstructive jaundice/biliary stent	**After stenting** and as symptoms dictate	**Bilirubin trend**; watch for stent occlusion and **cholangitis**
Comorbidity control	**Each visit**	**Glycemic control**, blood pressure, nutrition and weight; adjust during obstruction or chemotherapy
Geriatric reassessment	**Before treatment** and when status changes	**Repeat CGA domains**; CARG score before each new systemic regimen
Goals of care/ palliative	**At diagnosis** of advanced disease and when goals change	**PROMs** for pain, jaundice, and nausea; advance care planning documented

ABBREVIATIONS: NCCN = National Comprehensive Cancer Network; LFTs = liver function tests; CA 19-9 = carbohydrate antigen 19-9; CBC = complete blood count; CGA = Comprehensive Geriatric Assessment; CARG = Cancer and Aging Research Group; PROMs = patient-reported outcome measures; FDA = US Food and Drug Administration
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

Comorbidity Management

COMORBIDITY	PRIMARY CARE APPROACH[15,17,19,68]	CAUTION*[15,17,19,56]
Diabetes mellitus (E11.-)	**Optimize glycemic control**; coordinate during obstruction and chemotherapy	Independent risk and prognostic factor; **monitor hypoglycemia** with reduced intake; adjust for renal impairment
Hypertension (I10)	**Perioperative BP optimization**; reassess during therapy	Watch **orthostatic hypotension** and **fall risk** during dehydration or chemotherapy
Malnutrition/ cachexia (R64, E44)	**Dietitian referral**; nutritional support before surgery and during therapy	Predicts surgical mortality and chemotherapy toxicity; **track albumin and weight**
Obstructive jaundice (K83.1)	**Biliary drainage** (ERCP/percutaneous) **before** systemic therapy	May be **definitive palliation in frail elders**; untreated jaundice precludes chemotherapy
Cognitive impairment	**Mini-Cog** within CGA; document a health-care proxy; written medication instructions	**Affects**: capacity, oral chemotherapy adherence, and symptom reporting
Polypharmacy	**Medication reconciliation and deprescribing review** within the CGA	Drug interactions with chemotherapy; cumulative **fall and cognitive risk**
Frailty	**G8/VES-13 then CGA**; CARG score **before** systemic therapy	**Stronger predictor of outcomes than stage**; drives surgical and chemotherapy de-escalation

ABBREVIATIONS: BP = blood pressure; ERCP = endoscopic retrograde cholangiopancreatography; CGA = Comprehensive Geriatric Assessment; G8 = Geriatric 8 screening tool; VES-13 = Vulnerable Elders Survey-13; CARG = Cancer and Aging Research Group; FDA = US Food and Drug Administration
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

Cost-Smart Options

BRAND (EST. COST)[69–72]	GENERIC/ ALTERNATIVE (EST. COST)*[73–75]	EST. SAVINGS	COST-SMART TIP[76–78]
Radical cholecystectomy + hepatic resection (~$35,000–$55,000 hospitalization)	Observation after simple cholecystectomy for T1a with negative margins (**~$8,000–$15,000** already performed)	**~$20,000–$40,000** per avoided re-resection	**T1a with clear margins** needs **no further surgery**; **~14%** of GBC surgeries are **futile** → **avoid** re-referral when pathology confirms T1a R0
Futile radical surgery in unresectable/locally advanced GBC (~$35,000–$55,000 + perioperative mortality up to 7%)	Neoadjuvant systemic therapy to exclude rapid progression, then reassess (**~$5,000–$15,000** for 2–3 months)	**~$20,000–$40,000** per avoided futile surgery	**NCCN** (**2B**): neoadjuvant therapy first for locally advanced disease to rule out rapid progression before committing to major surgery
Adjuvant IV 5-FU/ leucovorin (~$2,000–$4,000 drug + ~$12,000–$18,000 infusion charges over 6 months)	**Generic** capecitabine oral (**~$1,600–$4,800 total**; no infusion visits)	**~$10,000–$15,000** per course in infusion savings	NCCN category 1 adjuvant standard; **oral route eliminates infusion visits**; OOP **~$48/fill** at integrated pharmacies; monitor for HFS and diarrhea
First-line GemCis + durvalumab (Imfinzi ~$12,000/dose × ~16 doses + generics = ~$200,000–$250,000)	Cisplatin/gemcitabine alone (**all generics**: **~$24,000–$40,000** total)	**~$160,000–$210,000** per course	Immunotherapy adds **~$131,000** for **0.26 QALY** (ICER **~$505,000/ QALY**); **GemCis alone** remains NCCN category 1; discuss value with oncology

BRAND (EST. COST)[69–72]	GENERIC/ ALTERNATIVE (EST. COST)*[73–75]	EST. SAVINGS	COST-SMART TIP[76–78]
First-line GemCis + pembrolizumab (Keytruda ~$15,000/ dose × ~16 doses + generics = ~$250,000–$290,000)	GemCis alone (**~$24,000–$40,000**) or + durvalumab (**~$200,000–$250,000**)	**~$40,000–$50,000** vs durvalumab; **~$210,000–$250,000** vs GemCis alone	Durvalumab **~$11,961/mo** vs pembrolizumab **~$15,043/mo** (Medicare ASP); both NCCN category 1; durvalumab has longer follow-up (4-year OS data)
Standard-dose doublet/triplet in frail older adults (grade 3–4 AEs 74–75%; rehospitalization ~$5,000–$25,000+)	CARG-guided de-escalation: **single-agent** or **supportive care alone**	Variable; potentially **$10,000–$50,000+** per prevented hospitalization	**GAP70+**: GA-guided care cut grade 3–5 toxicity from **71%** to **51%** without harming survival; high CARG score = **omit** or **dose-reduce** to avoid low-value toxicity
Aggressive resection for unresectable/Stage IV GBC (~$35,000–$55,000 + high morbidity)	Palliative biliary stenting (ERCP **~$3,000–$8,000**) + best supportive care	**~$27,000–$47,000** per avoided futile surgery	NCCN: **do not resect unresectable GBC**; ERCP stenting is lower-cost definitive palliation in frail elders
Late biliary-complication ED/ICU admissions (~$5,000–$25,000+ per admission)	Early palliative care + proactive PCP symptom monitoring (**~$500–$1,500/year**)	Variable; **$10,000+** per prevented hospitalization	Inpatient palliative care saves **~$1,293** (**−13.4%**) per hospitalization; early integration prevents avoidable ED visits for biliary crises

BRAND (EST. COST)[69–72]	GENERIC/ ALTERNATIVE (EST. COST)*[73–75]	EST. SAVINGS	COST-SMART TIP[76–78]

ABBREVIATIONS: GBC = gallbladder cancer; R0 = microscopically margin-negative resection; NCCN = National Comprehensive Cancer Network; IV = intravenous; 5-FU = fluorouracil; OOP = out-of-pocket; HFS = hand-foot syndrome; GemCis = gemcitabine/cisplatin; QALY = quality-adjusted life-year; ICER = incremental cost-effectiveness ratio; ASP = average sales price; AEs = adverse events; CARG = Cancer and Aging Research Group; GA = geriatric assessment; ERCP = endoscopic retrograde cholangiopancreatography; ED = emergency department; ICU = intensive care unit; PCP = primary care provider; FDA = US Food and Drug Administration
***Costs are approximate US estimates and vary by institution, payer, and region. Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

Patient Education and Adherence

GBC education touchpoints should cover, in plain language, why changing biliary symptoms in someone with known gallstones warrant **prompt evaluation** rather than watchful waiting, that about half of gallbladder cancers are **found only on pathology after gallbladder surgery** so pathology review matters, what staging and resectability mean for treatment options, the **rationale for a geriatric assessment** and for matching treatment intensity to functional reserve and personal goals, the toxicity and adherence expectations of oral capecitabine and of immunotherapy combinations, and the role of **early palliative care** for symptom control and staying at home.[1,2,15,19,53,64]

DOCUMENTATION REMINDER — 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**: Explain that GBC is often **found incidentally** after cholecystectomy; cover histologic type, stage, and that **early disease may be cured** by surgery while **advanced disease** is treated for **symptom control**[1,2]
- **Warning symptoms and when to seek emergency care**: Fever with jaundice and RUQ pain (Charcot triad); new or worsening jaundice; sudden severe abdominal pain with distension; signs of biliary sepsis[1,2,15]
- **Why changing biliary symptoms matter**: New weight loss, persistent pain, or worsening symptoms with known gallstones should **not be attributed to** "just gallstones" → prompt imaging is warranted, **not watchful waiting**[1,16]
- **Treatment toxicity awareness**: Hand-foot syndrome and diarrhea with capecitabine (dose reduction is standard, not failure); **immune-related AEs** with durvalumab/pembrolizumab (new rash, diarrhea, dyspnea, endocrine symptoms = **same-day contact**); myelosuppression and nephrotoxicity with cisplatin/gemcitabine[2,64]
- **Geriatric assessment and treatment-intensity rationale**: GA-guided dose adjustments reduce toxicity **without compromising survival** → functional reserve and goals, not age or stage alone, determine the plan[15,17,19]
- **Palliative care as part of the plan, not giving up**: Palliative care **controls symptoms** alongside cancer treatment, supports quality of life, and helps patients remain at home; **it is not hospice**[19,53]
- **Advance care planning**: Surrogate, code status, goals of care; revisit when status changes (progression, hospitalization, functional decline)[19]
- **Caregiver assessment**: Document caregiver understanding of warning symptoms, medication schedule, and follow-up; screen for **caregiver burden**; refer to social work if strain identified[19]

Quality Metrics Tie-In

No GBC-specific HEDIS or MIPS measures are active in MY2026, but GBC management intersects **multiple cross-cutting quality domains**: depression screening, geriatric safety (falls, medication reconciliation), care transitions, and advance care planning. GBC's high **depression prevalence** (37% at diagnosis in hepatobiliary carcinoma), 30-day readmission rates of **~14–16%** after hepatobiliary surgery, polypharmacy prevalence (**61%** with **≥5 medications** in older adults with advanced cancer), and treatment-related hospitalization make cross-cutting national measures **directly applicable to any PCP managing a GBC patient in a value-based program**.[52,77,79–81]

MEASURE	STANDARD	APPLICABILITY TO GBC*
HEDIS CBP: Controlling High Blood Pressure	**Denominator**: adults 18–85 with hypertension **Numerator**: BP 140/90 mmHg **Exclusions**: hospice, ESRD, inpatient palliative care	**Hypertension more prevalent in GBC** than benign gallbladder disease; perioperative BP optimization critical **before** radical cholecystectomy; chemotherapy and obstruction cause hypotension risk[52,82]
HEDIS COA: Care for Older Adults- Medication Review	**Denominator**: MA enrollees ≥66, continuously enrolled **Numerator**: 2 sub-measures documented annually: (**1**) functional status assessment, (**2**) medication review, **Exclusions**: hospice, ESRD	**61%** of older cancer patients on **≥5 medications**; 25% have ≥1 major drug-drug interaction; **capecitabine and cisplatin/ gemcitabine** require **interaction screening**; reconcile **every visit**[19,81]
HEDIS COA: Care for Older Adults- Functional Status Assessment	**Denominator**: enrollees ≥66 **Numerator**: functional status assessment documented annually **Exclusions**: hospice, ESRD	**G-8/ECOG satisfy this sub-measure**; GA-guided care cut grade 3–5 toxicity (**71% → 51%**) without harming survival; functional reserve **predicts outcomes better** than stage in GBC[19,56]
HEDIS TRC: Transitions of Care Patient	**Denominator:** enrollees ≥18 with inpatient discharge **Numerator:** 4 sub-measures within 30 days: (**1**) notification of inpatient admission, (**2**) receipt of discharge information, (**3**) patient engagement after discharge, (**4**) medication reconciliation post-discharge **Exclusions:** hospice	30-day readmission **~14–16%** after hepatobiliary surgery; comorbidity burden doubles readmission odds; **PCP follow-up within 7 days** reduces risk[80,83]
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	Depression prevalence **37%** in hepatobiliary carcinoma; **independently predicts survival** (CES-D ≥16, p=0.03); poorly controlled pain amplifies risk[79,84]

MEASURE	STANDARD	APPLICABILITY TO GBC*
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	Palliative care increases **advance directive documentation**; CPT 99497/99498 billable during AWV[53]
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	Early palliative care **reduces readmissions** (OR 0.39) and **90-day expenditure** (−$3,037) in advanced GI cancer; elderly with **≥2 comorbidities** have highest readmission mortality (5%)[77,80]

ABBREVIATIONS: BP = blood pressure; HEDIS = Healthcare Effectiveness Data and Information Set; CBP = Controlling High Blood Pressure; ESRD = end-stage renal disease; GBC = gallbladder cancer; COA = Care for Older Adults; MA = Medicare Advantage; TRC = Transitions of Care; PCP = primary care provider; DMS-E = Utilization of the PHQ-9 to Monitor Depression Symptoms for Adolescents and Adults; PHQ-9 = Patient Health Questionnaire-9; CES-D = Center for Epidemiologic Studies Depression Scale; ACP = advance care planning; AWV = Annual Wellness Visit; CPT = Current Procedural Terminology; PCR = Plan All-Cause Readmission; GI = gastrointestinal; GA = geriatric assessment; G-8 = Geriatric 8 screening tool; ECOG = Eastern Cooperative Oncology Group; OR = odds ratio; FDA = US Food and Drug Administration
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

5 CODING REMINDERS AND CASE EXAMPLES

Coding Specificity

ELEMENT	DOCUMENTATION REQUIREMENT[4,15,17,19,85]
Specific malignancy code	Use **C23** (gallbladder primary) once a mass/tumor is identified; **do not** code nonspecific 'gallbladder disease' (**K82.8**/**K82.9**)
Active vs history coding	Keep **C23** active throughout the treatment continuum; reserve **Z85.09** for after **treatment is complete** with no evidence of disease
Metastatic site coding	Code each metastatic site **alongside C23**: Liver (**C78.7**), lung (**C78.00-C78.02**) to reflect the full disease burden
Site specificity	Use **C23** when the gallbladder is the known primary; avoid **C24.9** (biliary tract, unspecified) unless the site truly cannot be determined

ELEMENT	DOCUMENTATION REQUIREMENT[4,15,17,19,85]
AJCC TNM staging	Document stage including the **T2a** (peritoneal-side) vs **T2b** (hepatic-side) distinction and nodal status (**N1** vs **N2**)
Comorbidities — frequently undercoded	Diabetes (**E11.-**), hypertension (**I10**), malnutrition/cachexia (**R64**, **E44**), obstructive jaundice (**K83.1**) when addressed
Carcinoma in situ vs invasive	Use **D01.5** for carcinoma in situ/high-grade dysplasia (not HCC-mapped); reserve **C23** for **invasive malignancy**
Functional status	Document geriatric-assessment findings (**G8**/**VES-13**, **CGA**) that inform **treatment intensity** and complexity

ABBREVIATIONS: ICD-10 = International Classification of Diseases, 10th Revision; HCC = Hierarchical Condition Category; AJCC = American Joint Committee on Cancer; TNM = tumor-node-metastasis; CGA = Comprehensive Geriatric Assessment; G8 = Geriatric 8 screening tool; VES-13 = Vulnerable Elders Survey-13

Annual Clinical Review and Confirmation

- **Annual review**: An active gallbladder cancer diagnosis remains current and must be **reassessed and documented** with MEAT **each year** → AJCC stage with T substratification (T2a/T2b), N category (N1/N2), M status, disease status, treatment phase, metastatic sites, and comorbidity and functional burden[4,15]
- **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**
- **Site-code verification**: Before accepting **C24.9** (biliary tract, unspecified), confirm primary site from pathology and imaging: gallbladder → **C23**; extrahepatic/cystic duct → **C24.0/C24.8**; intrahepatic cholangiocarcinoma → **C22.1**; each follows a **distinct treatment algorithm** despite mapping to the same HCC[4,12]
- **Active disease vs. history**: **Z85.09** (personal history of digestive-organ malignancy) applies only after oncology has documented **no evidence of disease** and closed surveillance; a patient on active treatment, adjuvant therapy, or post-resection surveillance **retains the active code** (**C23**); do not transition to **Z85.09** while any cancer-directed therapy or imaging surveillance is ongoing[4]
- **Stage and treatment confirmation**: Re-document the current AJCC stage, T substratification, treatment status (neoadjuvant, surgical, adjuvant, palliative), and metastatic-site codes (**C78.7** liver, **C78.00–C78.02** lung) at **each annual review** → T-stage substratification drives the **re-resection decision** and adjuvant therapy selection[15]
- **Comorbidity carry-forward**: Confirm that treatment-shaping comorbidities = diabetes (**E11.-**), hypertension (**I10**), malnutrition (**E44.-**), obstructive jaundice (**K83.1**), weight loss (**R63.4**), frailty (**R54**), and functional limitations (**R26.-**, **R41.-**) remain on the problem list and are **independently coded each year** they are addressed[4,17]

- **HCC mapping context**: Under CMS-HCC V28, gallbladder primary **C23** maps to **HCC 20** (Lung and Other Severe Cancers, CNA RAF 1.136); liver metastasis **C78.7** maps to **HCC 17** (Metastatic Cancer/Acute Leukemia)[12,13]
- **Avoid rollover**: **Do not** copy forward a prior note **without updating**: the primary-site code and specificity, active-disease status, current stage and T substratification, treatment phase and modifications, metastatic sites, surveillance findings, geriatric assessment scores, and the comorbidity burden that documents treatment-intensity rationale[15]

Good Documentation — EHR Tips

- **[EHR TIP — Smartphrase]** Build a **.gbc_visit dot phrase** that **auto-populates**: site-specific malignancy code (**C23** gallbladder, **C24.0** extrahepatic bile duct, **C24.8** overlapping biliary), AJCC stage with T substratification (**T2a/T2b**), N category (**N1/N2**), M status, disease status (active/remission/history), current treatment regimen, metastatic-site codes (**C78.7** liver, **C78.00** lung), and treatment-shaping comorbidities (**E11.-**, **I10**, **K80.-**, **E44.-**). Separate **.gbc_survivor phrase** for post-resection: stage at diagnosis, last imaging date/result, CA 19-9 trend, and surveillance schedule. Eliminates **nonspecific K82.8 coding** and supports MEAT in a single paste
- **[EHR TIP — Alert]** "**Specificity Check**" = flags **K82.8** or **C24.9** when pathology-confirmed gallbladder primary exists elsewhere in chart. "**Active vs. History Guard**" = flags **Z85.09** while antineoplastic therapy remains on **active medication list or surveillance imaging is ongoing**. "**Staging Prompt**" = requires T substratification (**T2a** vs. **T2b**) before staging is finalized, as this distinction drives the re-resection decision
- **[EHR TIP — Best Practice]** Pin site-specific **C23 with stage** (e.g., "Gallbladder adenocarcinoma, **C23**, AJCC T2b N1 M0, active disease, on adjuvant capecitabine"), **not** "gallbladder disease." Code comorbidities individually (**E11.65**, **I10**, **R63.4**, **E44.-**). Link **all metastatic-site codes** (**C78.7**, **C78.00–C78.02**) to the active **C23** problem. Reserve **Z85.09** only after oncology has documented no evidence of disease and closed surveillance
- **[EHR TIP — Workflow] Fire BPA when**: G8/VES-13 not completed in patient ≥65 **before cancer-directed treatment**; baseline LFTs/hepatic function panel **absent before systemic therapy**; staging laparoscopy not documented **before definitive resection** of gallbladder mass; advance care planning **undocumented** at diagnosis of unresectable disease; biomarker testing (MGPT) **not ordered** for unresectable/metastatic disease; CA 19-9 surveillance **overdue** per protocol; no MEAT encounter in 6 months. Flag **K82.8** or **C24.9 persisting >30 days** for specificity upgrade
- **[EHR TIP — Order Set]** "**GBC Active Workup**": CBC, hepatic function panel, CA 19-9, CEA, contrast MRI abdomen, multiphasic CT abdomen/pelvis, chest CT, biomarker panel (if unresectable/metastatic), G8 screen (if ≥65), CARG toxicity score (if systemic therapy planned), advance care planning. "**GBC Post-Resection Surveillance**": imaging every 3–6 months for 2 years then every 6–12 months for up to 5 years, CA 19-9 if previously elevated, LFTs, weight/nutritional status, comorbidity review, geriatric reassessment

Brief Case Examples

SUCCESS: RED FLAG RECOGNIZED, PROMPT REFERRAL, GERIATRIC-INFORMED CARE

SCENARIO

A 78-year-old female with longstanding cholelithiasis presenting with worsening **RUQ pain over several months**, 6 kg unintentional weight loss, and anorexia. Ultrasound shows **focal gallbladder wall thickening of 1.4 cm**. **PMH**: type 2 diabetes, hypertension. Lives alone, walks slowly, eight daily medications.

Documentation: "Focal gallbladder wall thickening 1.4 cm → **red flag for malignancy**; contrast MRI abdomen and chest CT ordered, baseline CA 19-9/CEA drawn. Expedited **hepatobiliary surgical-oncology referral**. **K80.20**: Cholelithiasis, chronic. **E11.65**: Type 2 diabetes → optimized perioperatively. **I10**: Hypertension → optimized perioperatively. **R63.4**: Unintentional weight loss → dietitian referral. G8 score 11 → **full CGA ordered**. Polypharmacy review completed. Pathology confirmed adenocarcinoma. **C23**: Active malignant neoplasm of gallbladder (adenocarcinoma, [pathology date]). Staging laparoscopy planned. CARG score calculated to guide adjuvant decision-making. **Advance care planning documented**: directives, surrogate, goals reviewed. Care coordinated across surgical oncology, geriatric oncology, endocrinology, and nutrition. Return [interval] or sooner for new symptoms."

Outcome: C23 (HCC 20) + E11.65 + I10 + R63.4 mapped with full clinical course documented. **MEAT elements present**: focal wall thickening identified as malignancy red flag, urgent imaging and tumor markers ordered at index visit, hepatobiliary referral within days, tissue diagnosis confirmed and coded as active **C23**, geriatric assessment (G8 with CGA) **informing treatment intensity**, CARG score guiding adjuvant decision, comorbidities coded and linked to perioperative optimization, polypharmacy reviewed, nutritional status addressed, advance care planning completed, and multidisciplinary coordination documented. No avoidable emergency visit during workup.

PITFALL: BENIGN ASSUMPTION, DELAYED REFERRAL, NONSPECIFIC CODING

SCENARIO

Same patient as above. Presents for routine follow-up with identical findings.

Documentation as written: "78-year-old with gallbladder disease, some weight loss likely age-related. Continue symptomatic management; recheck in a few months. Gallbladder disease (**K82.8**)."

Consequence: (**1**) Focal wall thickening >1 cm, a major malignancy red flag, **was not distinguished** from diffuse cholecystitis thickening and **treated as benign**. (**2**) Unintentional weight loss attributed to aging rather than investigated; weight loss and anorexia are the **most common systemic signs of GBC**. (**3**) "Recheck in a few months" replaced urgent imaging and referral, **allowing a potentially curable cancer to progress**. (**4**) **K82.8** used instead of the specific malignancy code, understating complexity. (**5**) No geriatric assessment, comorbidity optimization, advance care planning, or multidisciplinary coordination documented.

RAF Impact: Until **C23** is documented, the active malignancy (**HCC 20**, CNA RAF 1.136) is invisible; larger harm is clinical: watchful waiting with a focal gallbladder mass can shift **resectable disease to unresectable**, fundamentally altering prognosis.

Fix: Corrected documentation: "Focal gallbladder wall thickening >1 cm with unintentional weight loss → cross-sectional imaging and hepatobiliary referral now, not watchful waiting. **C23**: Active

malignant neoplasm of gallbladder (confirmed adenocarcinoma [date]). **E11.65**: Type 2 diabetes → perioperative optimization. **I10**: Hypertension → perioperative optimization. **R63.4**: Unintentional weight loss → nutritional assessment. G8 score [value] → CGA if ≤14. **Advance care planning**: directives, surrogate, goals documented. Return [interval] or sooner for new symptoms." **Coding after fix**: **C23** (**HCC 20**) + **E11.65** + **I10** + **R63.4** replaces **K82.8** = malignancy-specific, active-disease coding with **full clinical picture preserved** and geriatric complexity accounted for.

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