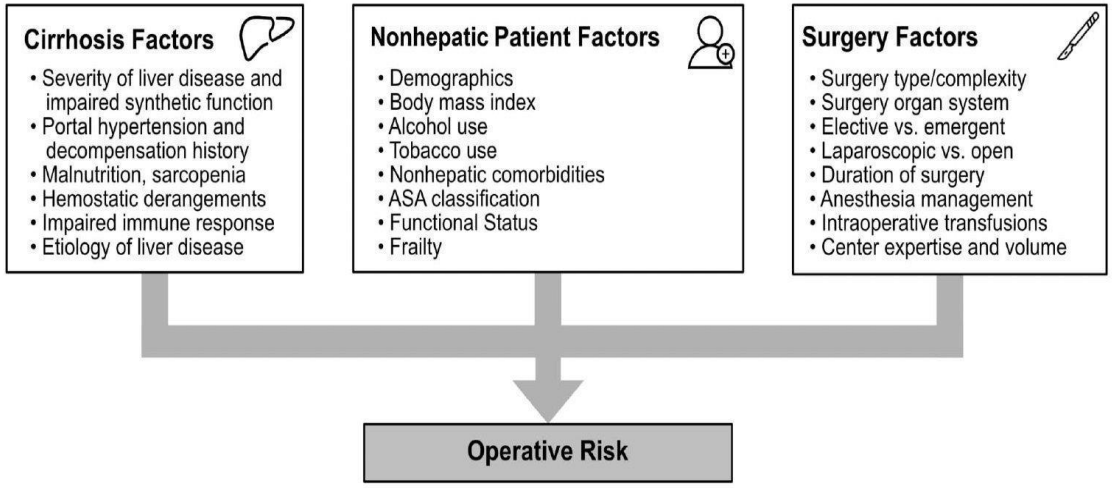
Perioperative Risk Assessment and Management in Patients With Cirrhosis
ACG 2025 Clinical Guideline

By Rabih Ghazi, MD

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Preoperative Risk Assessment

- Individualized risk estimation is best achieved by combining:
  - Cirrhosis-specific risk models (MELD, CTP, Mayo, VOCAL-Penn).
  - Liver-related factors, non–liver-related comorbidities, and surgery-specific factors.
  - Clinical judgement and individual patient circumstances.
- Patients with low MELD (6–9), CTP A (5–6), and no CSPH or prior decompensation have minimal excess risk of surgical adverse events.
- Consider preoperative transplant evaluation if the projected 90-day postoperative mortality risk is >15% (using tools such as the VOCAL-Penn Score).



Optimization of Cirrhosis

- Hepatic decompensation and manifestations of CSPH are strongly associated with adverse postoperative outcomes.
- Optimize ascites and hepatic encephalopathy, ensure adequate variceal screening/prophylaxis, screen for HCC, and initiate SBP prophylaxis (if indicated) prior to surgery.
- Treat reversible hepatic disease drivers (e.g. HBV, HCV, autoimmune hepatitis) before elective surgery if possible.
- **If chronic liver disease but unclear fibrosis stage**
  - Consider FIB-4 and/or elastography prior to surgery.
- **If compensated cirrhosis but unclear presence of CSPH**
  - Liver stiffness measurement, platelet counts, and cross-sectional imaging to identify portosystemic collaterals and complications of portal hypertension is suggested.
- **If TIPS is indicated regardless of surgery (e.g. refractory ascites)**
  - Preoperative TIPS is suggested to ↓ postoperative morbidity and mortality.

VOCAL-Penn
Cirrhosis Surgical Risk Score

Age	MASLD
Albumin	ASA Score
Total Bilirubin	Emergency
Platelets	**Surgery Type**
BMI≥30	

Mahmud N, Fricker Z, Hubbard RA, et al. Risk Prediction Models for Post-Operative Mortality in Patients With Cirrhosis. *Hepatology*. 2021;73(1):204-218. doi:10.1002/hep.31558

Mahmud, N., Fricker, Z. P., McElroy, L. M., Qayed, E., Wong, R. J., & Ioannou, G. N. (2025). ACG Clinical Guideline: Perioperative Risk Assessment and Management in Patients With Cirrhosis. The American Journal of Gastroenterology, 120(9), 1968–1984. https://doi.org/10.14309/ajg.0000000000003616

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Optimization of Non-Cirrhotic Patient Factors

- Assess and optimize frailty and sarcopenia.
  - Consider prehabilitation programs.
- Assess and optimize nutritional status.
  - High-calorie (30–35 kcal/kg/day). and high-protein intake (1.25–1.5 g/kg/day).
  - Ideally for at least ≥2 weeks preoperatively.
  - Consider nutritional consult and nasoenteric feeding if needed to achieve these goals.
- Encourage alcohol and tobacco cessation preoperatively.
- Assess and optimize non-hepatic comorbidities.

Optimization of Hemostasis

- Hemostatic state is not accurately reflected by INR, PT, aPTT, and platelet count.
  - INR is not independently associated with procedural bleeding.
  - Use of vitamin K or blood products to correct INR does not reduce bleeding risk.
- Viscoelastic testing (e.g., thromboelastography=TEG) is preferred to guide perioperative coagulation management.
- If severe thrombocytopenia (platelets <50,000/µL) and planned invasive procedure
  - Thrombopoietin (TPO) receptor agonists are recommended to ↓ perioperative transfusions & risk of bleeding.

Surgical Considerations

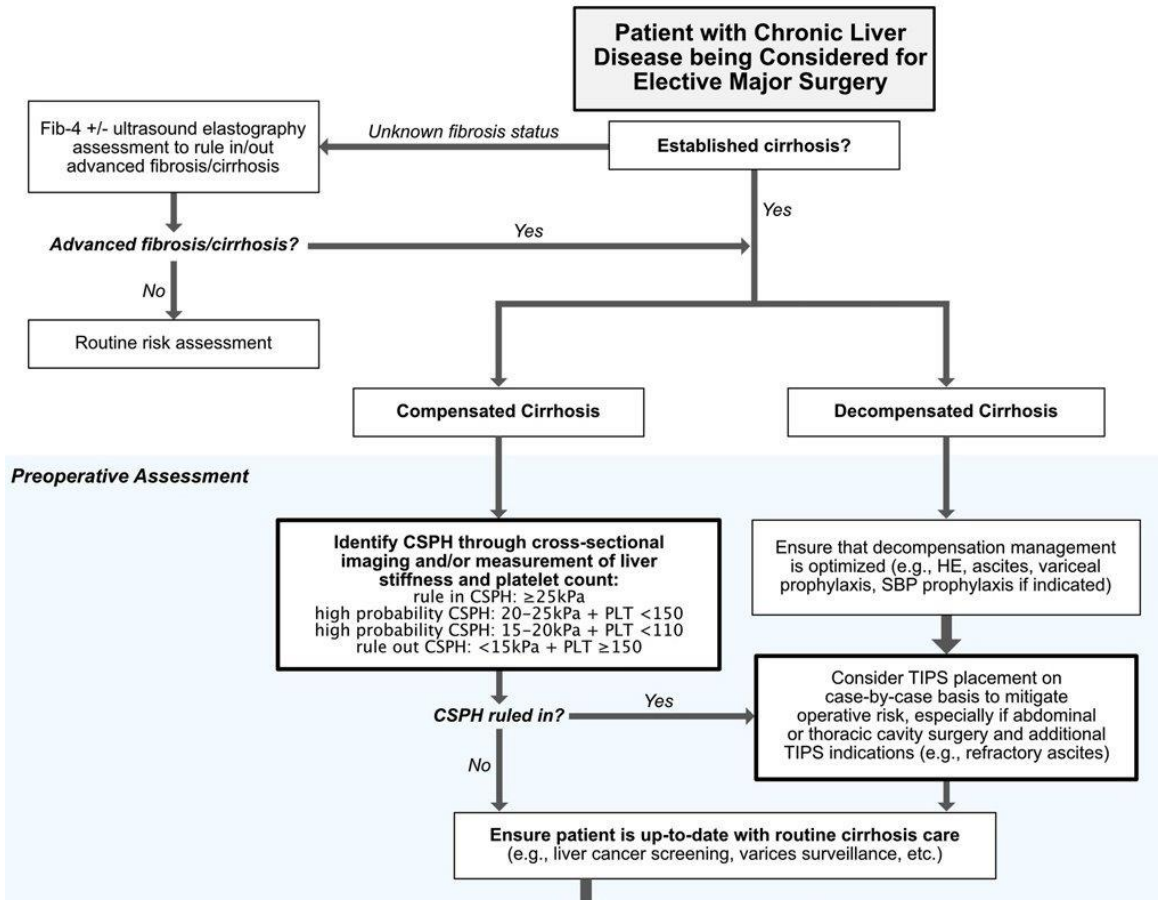
- Referral to high-volume liver or transplant centers for elective major surgery may improve outcomes.
- **Hernia repair**
  - Preoperative optimization of ascites ↓ risk of hernia complications (incarceration, spontaneous rupture) requiring emergent repair.
- **Cholecystectomy**
  - Laparoscopic cholecystectomy is favored in CTPA–B.
  - CTP C is generally prohibitive → consider alternative drainage strategies (percutaneous or endoscopic).
- **Bariatric surgery**
  - Can be safely performed in selected patients with compensated cirrhosis.
  - Laparoscopic sleeve gastrectomy is preferred.
  - In liver transplant candidates, sleeve gastrectomy before or at transplantation may be considered based on center expertise.

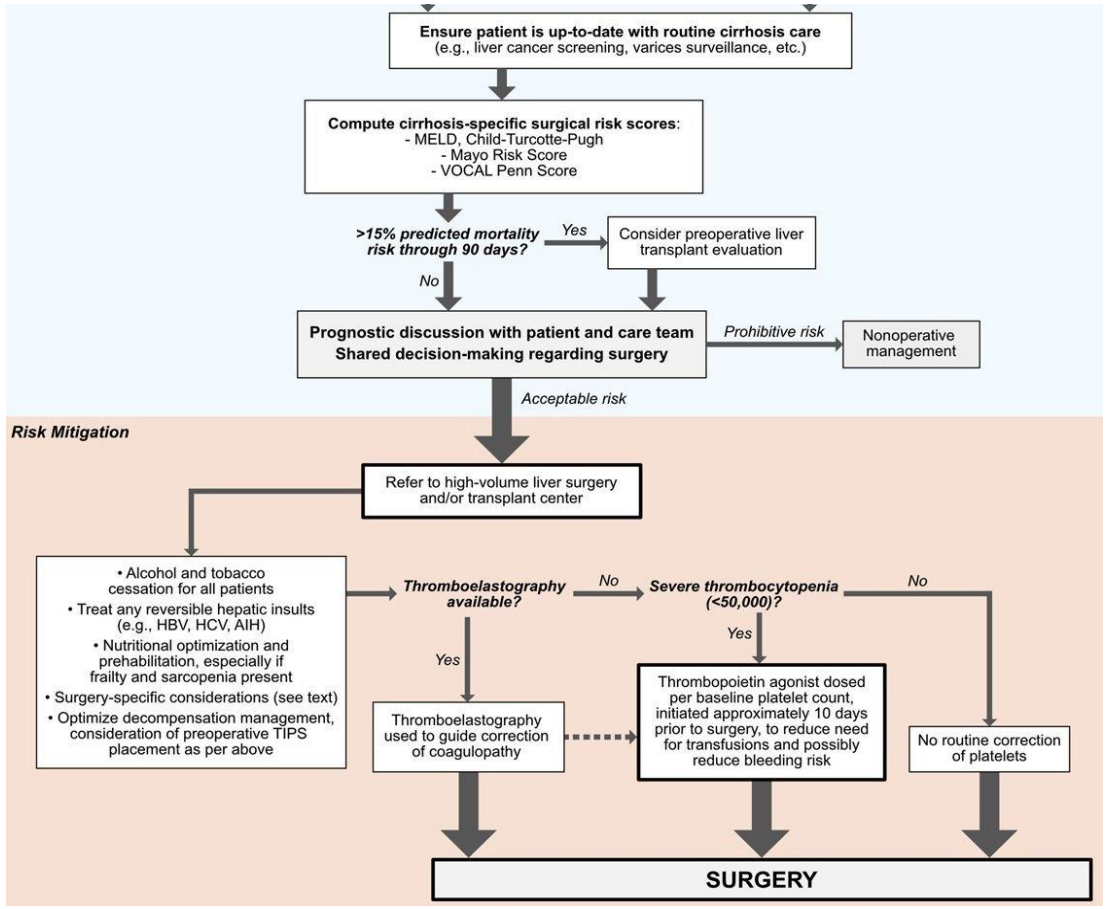
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Abbreviations: MELD: Model for End-Stage Liver Disease | CTP: Child-Turcotte-Pugh | CSPH: Clinically Significant Portal Hypertension | SBP: Spontaneous Bacterial Peritonitis | HCC: Hepatocellular Carcinoma | TIPS: Transjugular Intrahepatic Portosystemic Shunt

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