

Permanent biliary metallic stent	Usually not appropriate	Limited	N/A	N/A	1	1	0	0	0	0	0	0	0	0	0	0	0
		References		Study Quality													
		7 (21872710)		3													
		11 (21684464)		4													
Removable biliary covered stent	May be appropriate	Expert Consensus	N/A	N/A	4	4	0	0	0	0	0	0	0	0	0	0	0
Endoscopic US-guided biliary drainage (EUS-BD)	May be appropriate	Limited	N/A	N/A	4	4	0	0	0	0	0	0	0	0	0	0	0
		References		Study Quality													
		12 (26020052)		4													

Variant 2: Initial therapeutic procedure for a patient with elevated bilirubin and suspected sclerosing cholangitis.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Endoscopic internal biliary catheter (removable plastic stent)	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		39 (10483999)		2											
		38 (3584158)		4											
		35 (21241424)		4											
Percutaneous internal/external biliary catheter	May be appropriate	Limited	N/A	N/A	6	6	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		35 (21241424)		4											
		37 (3876737)		3											
Surgery	Usually not appropriate	Strong	N/A	N/A	2	n/a	0	0	0	0	0	0	0	0	0
		References		Study Quality											

[illegible]

Variant 3: Initial therapeutic procedure for a liver transplant recipient with elevated bilirubin and suspected biliary anastomotic stenosis or bile leak, with no dilated ducts.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Endoscopic internal biliary catheter (removable plastic stent)	Usually appropriate	Strong	N/A	N/A	8	8	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		49 (21280189)		2											
		48 (16116539)		4											
		50 (18702031)		2											
		51 (29026597)		Good											

		52 (24587819)	1													
		56 (23432435)	4													
Percutaneous internal/external biliary catheter	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	0	0	0	0	0
		References	Study Quality													
		49 (21280189)	2													
		46 (26689137)	4													
		56 (23432435)	4													
Surgery	Usually not appropriate	Strong	N/A	N/A	3	n/a	0	0	0	0	0	0	0	0	0	0
		References	Study Quality													
		58 (11907771)	2													
		46 (26689137)	4													
		59 (2799642)	2													
Medical management only	Usually not appropriate	Limited	N/A	N/A	2	2	0	0	0	0	0	0	0	0	0	0
		References	Study Quality													
		46 (26689137)	4													
Permanent biliary metallic stent	Usually not appropriate	Limited	N/A	N/A	1	1	0	0	0	0	0	0	0	0	0	0
		References	Study Quality													
		52 (24587819)	1													
Removable biliary covered stent	May be appropriate	Limited	N/A	N/A	5	5	0	0	1	0	6	2	0	0	0	0
		References	Study Quality													
		52 (24587819)	1													
Endoscopic US-guided biliary drainage (EUS-BD)	Usually not appropriate	Expert Consensus	N/A	N/A	3	3	0	0	0	0	0	0	0	0	0	0

Variant 4: Initial therapeutic procedure for a patient with bile leak and dilated bile ducts following laparoscopic cholecystectomy.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Endoscopic internal biliary catheter (removable plastic stent)	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	0	0	0	0
		References	Study Quality												
		61 (23322833)	4												
		62 (20575884)	4												
		67 (24954866)	4												
		66 (19220666)	2												
Percutaneous internal/external biliary catheter	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	0	0	0	0
		References	Study Quality												
		61 (23322833)	4												
		68 (14759778)	2												
		69 (18922456)	4												
Surgery	May be appropriate	Limited	N/A	N/A	4	n/a	0	0	0	0	0	0	0	0	0
		References	Study Quality												
		67 (24954866)	4												
		68 (14759778)	2												
		69 (18922456)	4												
Medical management only	Usually not appropriate	Expert Consensus	N/A	N/A	1	1	0	0	0	0	0	0	0	0	0
Permanent biliary metallic stent	Usually not appropriate	Expert Consensus	N/A	N/A	1	1	0	0	0	0	0	0	0	0	0
Removable biliary covered stent	Usually not appropriate	Limited	N/A	N/A	1	1	0	0	0	0	0	0	0	0	0
		References	Study Quality												
		71 (24661988)	4												

Endoscopic US-guided biliary drainage (EUS-BD)	Usually not appropriate	Expert Consensus	N/A	N/A	1	1	0	0	0	0	0	0	0	0	0
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Variant 5: Initial therapeutic procedure for a patient with dilated bile ducts and suspected biliary sepsis or acute cholangitis.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Endoscopic internal biliary catheter (removable plastic stent)	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	0	0	0	0

References	Study Quality
79 (1371206)	3
80 (9336514)	4
81 (28834389)	1

Percutaneous internal/external biliary catheter	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	0	0	0	0
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References	Study Quality
69 (18922456)	4
77 (28419764)	4

Surgery	Usually not appropriate	Limited	N/A	N/A	2	n/a	0	0	0	0	0	0	0	0	0
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References	Study Quality
79 (1371206)	3
80 (9336514)	4

Medical management only	Usually not appropriate	Expert Consensus	N/A	N/A	2	2	0	0	0	0	0	0	0	0	0
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Permanent biliary metallic stent	Usually not appropriate	Limited	N/A	N/A	1	1	0	0	0	0	0	0	0	0	0
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References	Study Quality
81 (28834389)	1

Medical management only	Usually not appropriate	Limited	N/A	N/A	3	3	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		89 (26322156)		4											
Percutaneous biliary metallic stent	May be appropriate	Strong	N/A	N/A	5	5	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		95 (26290631)		4											
		96 (22415652)		1											
		97 (16650542)		4											
		90 (26911896)		4											
		98 (20467870)		1											
		99 (21034892)		1											
Removable biliary covered stent	May be appropriate	Strong	N/A	N/A	5	5	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		90 (26911896)		4											
		98 (20467870)		1											
		99 (21034892)		1											
Endoscopic US-guided biliary drainage (EUS-BD)	May be appropriate	Strong	N/A	N/A	4	4	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		104 (21963067)		3											
		105 (23523301)		2											
		106 (23021167)		3											
		107 (22810111)		1											

Variant 7: Initial therapeutic procedure for a patient with hilar biliary obstruction from malignant etiology (eg, Klatskin tumor).

Endoscopic US-guided biliary drainage (EUS-BD)	Usually not appropriate	Limited	N/A	N/A	3	3	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		134 (26811666)		4											
		135 (27129552)		2											

Appendix Key

A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

Appropriateness Category: The panel's recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

SOE: Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References:** The citation number and PMID for the reference(s) associated with the recommendation.
- **Study Quality:** The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

RRL: Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

Rating: The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Median: The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Final tabulations: A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at www.acr.org/ac.