

**American College of Radiology
ACR Appropriateness Criteria®**

Chronic Liver Disease

Variant 1: Chronic liver disease. Diagnosis and staging of liver fibrosis. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MR elastography abdomen	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	0	0	2	9	3
		References		Study Quality											
		25 (25305349)		4											
		24 (19022517)		4											
		26 (28965721)		3											
US shear wave elastography abdomen	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	0	0	1	9	4
		References		Study Quality											
		37 (18095306)		2											
		38 (18836992)		3											
		26 (28965721)		3											
MRI abdomen without and with IV contrast	May be appropriate	Strong	0 0 mSv	0 0 mSv [ped]	6	6	0	0	1	0	6	6	0	0	1
		References		Study Quality											
		28 (22566123)		2											
		29 (22278368)		Good											
		30 (21879400)		2											
MRI abdomen without IV contrast	May be appropriate	Strong	0 0 mSv	0 0 mSv [ped]	5	5	0	0	2	1	10	1	0	0	0

CT abdomen without IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	6	1	4	2	1	0	0	0	0
		References	Study Quality												
		21 (24261358)	4												
		22 (23169796)	3												
CT abdomen without and with IV contrast	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	3	3	4	2	8	0	0	0	0	0	0
		References	Study Quality												
		23 (23192205)	3												
		21 (24261358)	4												
		22 (23169796)	3												
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	12	2	0	0	0	0	0	0	0

Variant 2: Chronic liver disease. No prior diagnosis of hepatocellular carcinoma (HCC). Screening and surveillance for HCC.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI abdomen without and with IV contrast	Usually appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	8	8	1	0	0	0	1	2	3	5	4
		References	Study Quality												
		51 (18069697)	2												
		55 (20616602)	4												
		46 (20732773)	1												
		47 (22526270)	2												
		52 (15719410)	3												
		53 (23218794)	2												
		54 (22553295)	2												

US abdomen	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	2	3	3	3	5	
		References	Study Quality													
		55 (20616602)	4													
		13 (28620797)	4													
		10 (29624699)	4													
MRI abdomen without and with hepatobiliary contrast	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	7	7	1	0	0	0	2	2	5	3	3	
		References	Study Quality													
		57 (24475864)	3													
		58 (29629800)	4													
		56 (28886231)	4													
CT abdomen with IV contrast multiphase	May be appropriate (Disagreement)	Expert Opinion	☢☢☢☢ 10-30 mSv		5	5	0	1	2	1	1	3	4	2	0	
		References	Study Quality													
		46 (20732773)	1													
		47 (22526270)	2													
		45 (19802612)	3													
US duplex Doppler abdomen	May be appropriate (Disagreement)	Expert Opinion	0 0 mSv	0 0 mSv [ped]	5	5	1	0	1	6	0	2	1	2	1	
MRI abdomen without IV contrast	May be appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	4	4	1	0	3	5	5	1	1	0	0	
CT abdomen without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	5	3	5	2	1	0	0	0	0	
		References	Study Quality													
		45 (19802612)	3													
CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	3	3	3	2	9	0	0	0	0	0	0	

MR elastography abdomen	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	4	2	7	0	2	1	0	0	0
		References		Study Quality											
		50 (24636468)		4											
US shear wave elastography abdomen	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	1	4	7	1	2	0	1	0	0
		References		Study Quality											
		71 (23345944)		4											
		70 (21330078)		3											
US abdomen with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	0	2	9	1	1	1	0	0	0
		References		Study Quality											
		69 (23137926)		4											
		14 (18834687)		3											
		67 (18779929)		3											
		68 (16953832)		3											
FDG-PET/CT skull base to mid-high	Usually not appropriate	Limited	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	9	3	4	0	0	0	0	0	0
		References		Study Quality											
		49 (10845666)		3											

Variant 3: Chronic liver disease. Previous diagnosis of HCC. Post-treatment monitoring for HCC.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations									
							1	2	3	4	5	6	7	8	9	
MRI abdomen without and with IV contrast	Usually appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	6	10
CT abdomen without and with IV contrast	Usually appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	8	8	0	0	0	0	0	1	2	10	1	

		References	Study Quality													
		72 (17259838)	2													
		73 (15671002)	2													
MRI abdomen without and with hepatobiliary contrast	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	1	2	2	3	7	1	
		References	Study Quality													
		57 (24475864)	3													
		78 (28859233)	4													
CT abdomen with IV contrast multiphase	Usually appropriate	Strong	☼☼☼☼ 10-30 mSv		8	8	0	0	0	0	0	2	5	9	0	
		References	Study Quality													
		72 (17259838)	2													
		73 (15671002)	2													
MRI abdomen without IV contrast	May be appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	5	5	0	1	1	5	6	1	0	0	0	
US abdomen with IV contrast	May be appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	5	5	0	0	2	2	9	0	0	1	0	
US abdomen	May be appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	4	4	0	0	8	6	0	2	0	0	0	
CT abdomen without IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	4	4	4	4	0	0	0	0	0	
		References	Study Quality													
		74 (25153274)	4													
MR elastography abdomen	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	4	2	9	1	0	0	0	0	0	
		References	Study Quality													
		50 (24636468)	4													
US shear wave elastography abdomen	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	3	5	8	0	0	0	0	0	0	
		References	Study Quality													

82 (23558071)	4
71 (23345944)	4
70 (21330078)	3

US duplex Doppler abdomen	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	3	3	2	1	6	4	1	1	1	0	0
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	5	5	2	2	2	0	0	0	0

References	Study Quality
76 (23615075)	4

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.