.

	Equipment	Plane	TR/TE (ms)	Thickness (mm)	Flip angle
T1w-images in-phase; opposed phase	1.5 T scanners	Axial	155–180 / 4.3–4.8; 2.02–2.37	5	70–80
	3T scanner *		3.97 / 2.46–1.23	2	9
T2-SSFSE	1.5 T scanners	Axial	916–1200 / 88–95	5	90–180
	3T scanner		1000 / 94	4.6	135
DWI	1.5 T scanners	Axial	3200–15000 / 60–78.2	5	90
	3T scanner		55 / 6100	4.8	90
3DT1GE-FS**	1.5 T scanners	Axial	4.1–4.5 / 1.9–2.2	2.2-3	10–12
	3T scanner		3.97/1.23	2	9

*Dixon-vibe in/opp phases

** Dynamic contrast-enhanced T1-weighted imaging included unenhanced and gadolinium-enhanced images acquired in the arterial (≈20 s after contrast injection), portal venous (60–65 s after injection), and delayed venous phases (100–110 s after injection) in the axial plane. Unenhanced images were obtained using a 3D T1-weighted breath-hold fat-suppressed gradient-echo sequence. Dynamic contrast-enhanced images were acquired with a spoiled gradient-recalled echo sequence (VIBE or LAVA) before and after the administration of extracellular gadolinium (gadobutrol 1mmol/mL, Gadovist, Bayer Schering Pharma AG) using a power injector at 0.1 mL/kg body weight, undiluted at 2 mL/s followed by a 20 mL saline flush at the same rate.

Supplementary Table 1. Technical characteristics of liver MRI sequences.

Abbreviations: SSFSE: single-shot fast spin-echo; DWI: diffusion-weighted imaging; B values used for DWI were 50-400-800 for Aera Siemens and 0-600 for GE. 3DT1GE-FS: 3D T1-weighted gradient-echo with fat suppression.

	Gwet's AC1 (95%CI)
Local Recurrence	0.86 (0.83–0.88)
NIH Recurrence	0.58 (0.53–0.63)
Any Type of Recurrence	0.48 (0.43–0.53)

Supplementary Table 2. Intra-reader agreement for HCC recurrence.

Abbreviations: NIH: new intrahepatic; CI: confidence interval.

Type of recurrence	Protocol	Overall Reported Observations present
Local recurrence	AMRI	90
	CMRI	122
New intrahepatic lesion	AMRI	105
	CMRI	354
Any-type recurrence	AMRI	190
	CMRI	438

Supplementary Table 3. Pooled observations reported by all readers, by type of recurrence in each Magnetic Resonance set

Abbreviations: AMRI: Abbreviated non-contrast MRI; CMRI: conventional liver MRI

AMRI	**Local Recurrence**							
	Yes (True positive)				**No (True negative)**			
	Group	**Class**	**Experienced**		**McNemar test (p-value)**	**Experienced**		**McNemar test (p-value)**
			Yes	**No**		**Yes**	**No**	
	Novice	**Yes**	10	6	0.1573	10	25	0.2170
		No	2	46		17	456	
	New Intrahepatic Recurrence							
	Yes (True positive)				**No (True negative)**			
	Group	**Class**	**Experienced**		**McNemar test (p-value)**	**Experienced**		**McNemar test (p-value)**
			Yes	**No**		**Yes**	**No**	
	Novice	**Yes**	20	9	0.8084	6	27	0.0027
		No	8	63		9	430	
	Any type Recurrence							
	Yes (True positive)				**No (True negative)**			
	Group	**Class**	**Experienced**		**McNemar test (p-value)**	**Experienced**		**McNemar test (p-value)**
			Yes	**No**		**Yes**	**No**	
	Novice	**Yes**	44	8	0.0343	14	29	0.1086
		No	19	77		18	363	
CMRI	**Local Recurrence**							
	Yes (True positive)				**No (True negative)**			
	Group	**Class**	**Experienced**		**McNemar test (p-value)**	**Experienced**		**McNemar test (p-value)**
			Yes	**No**		**Yes**	**No**	

Novice	**Yes**	17	16	0.0606	18	14	<0.0001
	No	7	24		15	461	
New Intrahepatic Recurrence							
		Yes (True positive)			**No (True negative)**		
Group	**Class**	**CMRI**		**McNemar test (p-value)**	**CMRI**		**McNemar test (p-value)**
		Yes	**No**		**Yes**	**No**	
Novice	**Yes**	73	4	0.1088	54	21	<0.0001
	No	10	13		65	332	
Any type Recurrence							
		Yes (True positive)			**No (True negative)**		
Group	**Class**	**CMRI**		**McNemar test (p-value)**	**CMRI**		**McNemar test (p-value)**
		Yes	**No**		**Yes**	**No**	
Novice	**Yes**	111	15	0.2207	63	15	<0.0001
	No	9	13		51	295	

Supplementary Table 4. Comparison of sensitivities (true positive) and specificities (true negatives) between novice and expert readers for non-contrast MRI and standard contrast-enhanced liver MRI.
Abbreviations: AMRI: abbreviated magnetic resonance imaging; CMRI: contrast-enhanced magnetic resonance imaging

Round 1

To increase the reader's confidence in categorizing an AMRI as positive, the number of sequences where the observation should be identified is	Median
1	2
2	6
>2	9
The interpretation of AMRI as positive for the detection of tumor recurrence should be limited to lesions with a size of:	
Any size	3
10 mm or greater	8
15 mm or greater	6
20 mm or greater	5
Size of observations does not influence observation detection	1
Size of observations does influence on observation detection on:	
AMRI	9
DWI only	6
T2 only	6
T1-GE only	6
The technical quality of the T2 sequence is not optimal in images from a 1.5T scanner.	4
The technical quality of the T1-GE fat-sat sequence is not optimal in images from a 1.5T scanner.	2
The technical quality of the DWI sequence is not optimal in images from a 1.5T scanner.	5
For the detection of tumor recurrence, 3T equipment should be used in the AMRI protocols.	7
In highly heterogeneous livers, DWI image quality is not optimal.	7

In highly heterogeneous livers, T2 image quality is not optimal.	7
In highly heterogeneous livers, T1-GE image quality is not optimal.	6
Lack of contrast-enhanced sequences reduces the confidence of radiologists in detecting observations:	
Only in less-experienced radiologists	2
Only in more-experienced radiologists	3
In all radiologists regardless of experience	9

ROUND 2

Question	Dispersion
To increase the reader's confidence in categorizing an AMRI as positive, the number of sequences where the observation should be identified is	
1	No
>2	No
The interpretation of AMRI as positive for the detection of tumor recurrence should be limited to lesions with a size of:	
10 mm or greater	Yes
Size of observations does not influence observation detection	No
Size of observations does influence on observation detection on:	
AMRI	No
The technical quality of the T1-GE fat-sat sequence is not optimal in images from a 1.5T scanner.	Yes
For the detection of tumor recurrence, 3T equipment should be used in the AMRI protocols.	Yes
In highly heterogeneous livers, DWI image quality is not optimal.	No

In highly heterogeneous livers, T2 image quality is not optimal.	No
Lack of contrast-enhanced sequences reduces the confidence of radiologists in detecting observations:	
Only in less-experienced radiologists	Yes
Only in more-experienced radiologists	Yes
In all radiologists regardless of experience	No

ROUND 3

Question	Appropriateness
To increase the reader's confidence in categorizing an AMRI as positive, the number of sequences where the observation should be identified is	
1	Inappropriate
>2	Appropriate
The interpretation of AMRI as positive for the detection of tumor recurrence should be limited to lesions with a size of:	
Size of observations does not influence observation detection	Inappropriate
Size of observations does influence on observation detection on:	
AMRI	Appropriate
In highly heterogeneous livers, DWI image quality is not optimal.	Appropriate
In highly heterogeneous livers, T2 image quality is not optimal.	Appropriate
Lack of contrast-enhanced sequences reduces the confidence of radiologists in detecting observations:	
In all radiologists regardless of experience	Appropriate

Supplementary Table 5. Select consensus sources of disagreement and for improvement of AMRI detection of HCC recurrence and inter-observer reliability. The selection of consensus statements was based on a two-step selection based on appropriateness and level of disagreement. In the first round of selection, statements that achieved a median of 1-3 or 7-9 would be appropriate in a positive or negative direction and would be retained as recommendations. In the second round of selection, we focused on the level of disagreement. Disagreement was considered present when ≥2 panelists rated appropriateness at different extremes of the scale (1-3 and 7-9).

First round Table: Gold (selected for 1st round): Median 7–9 or Median 1-3; Grey (excluded): Median 4–6;
Second round Table: Gold (selected for 2st round): No dispersion; Grey (excluded): dispersion
The depicted interquartile range is a measure of statistical dispersion
The round 3 Table is the final selection of statements.