American College of Radiology
ACR Appropriateness Criteria®

Brain Tumors

Variant 1: Adult. Primary brain tumor screening. Genetic risk factors.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	1	0	0	1	3	2	10
	References			Study Quality											
	24 (28620005)			4											
	25 (34633580)			4											
MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	1	0	1	9	5	0	0	0
	References			Study Quality											
	26 (28572266)			4											
	25 (34633580)			4											
MRI complete spine without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	1	2	3	8	1	0	0	0
	References			Study Quality											
	21 (34806136)			4											
	24 (28620005)			4											
CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	13	1	0	1	0	0	2	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	14	1	1	1	0	0	0	0	0

CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	2	0	0	0	0	2	0	0
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	0	1	1	0	0	0	0	0
MRI head perfusion with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	0	1	0	0	0	1	0	0
MR spectroscopy head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	0	1	1	0	0	0	0	0
MRI complete spine without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	0	2	0	0	0	1	0
FDG-PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	0	0	0	0	1	0	0
MRI head without IV contrast with DTI	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	0	2	0	1	0	0	0
MRI complete spine with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	0	1	0	1	0	0	1
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	3	1	0	0	0	0	0	0
MRI head perfusion without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	0	1	0	0	0	1	0	0
Fluciclovine PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	15	1	0	0	1	0	0	0	0
DOTATATE PET/CT brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	11	1	1	2	0	0	1	1	0

References	Study Quality
22 (35961372)	4
23 (30777201)	2

FDG-PET/MRI brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	15	1	0	0	0	0	1	0	0

Fluciclovine PET/MRI brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	15	1	0	0	1	0	0	0	0
DOTATATE PET/MRI brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	11	1	1	2	0	0	1	1	0

References	Study Quality
22 (35961372)	4
23 (30777201)	2

Variant 2: Adult. Secondary or metastatic brain tumor screening. Extracranial malignancy.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	1	0	0	2	2	11

References	Study Quality
32 (32065345)	4
31 (29799956)	2
30 (37245883)	4
29 (-3197191)	4

MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	1	1	2	11	1	0	0	0

References	Study Quality
29 (-3197191)	4
30 (37245883)	4

MRI complete spine without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	0	2	0	2	5	7	0	0	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	12	3	1	0	0	0	0	0	0

CT head without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	12	2	1	2	0	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	3	1	0	0	1	0	0	0
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	1	1	0	0	0	0	0
MRI head perfusion with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	1	0	0	0	1	0	0
MR spectroscopy head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	0	2	1	0	0	0	0
MRI complete spine without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	3	0	0	0	0	0	0
FDG-PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	1	0	0	2	0	1	0	0
MRI head without IV contrast with DTI	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	2	0	0	2	1	0	0	0
MRI complete spine with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	1	0	0	1	0	0	1
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	3	1	0	0	0	0	0	0
MRI head perfusion without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	1	0	2	0	0	0	0
Fluciclovine PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	14	1	0	1	0	1	0	0	0
DOTATATE PET/CT brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	11	3	2	0	0	0	0	0	0

References	Study Quality
11 (35854930)	4

FDG-PET/MRI brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	1	0	0	2	0	1	0	0
Fluciclovine PET/MRI brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	14	1	0	1	0	1	0	0	0
DOTATATE PET/MRI brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	11	3	2	0	0	0	0	0	0

References	Study Quality
11 (35854930)	4

Variant 3: Adult. Suspected intra-axial brain tumor based on prior imaging. Pretreatment evaluation.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	0	0	1	1	1	12

References	Study Quality
56 (32048719)	4
55 (36334295)	1
54 (26250565)	4
53 (33802292)	4
52 (36381650)	4
33 (28486641)	4

MRI head perfusion with IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	5	3	6	2	0

References	Study Quality
51 (37105676)	2
50 (36549990)	2
49 (37246748)	2
48 (32678438)	2
47 (29098571)	1

References	Study Quality
46 (37010573)	2
45 (31371360)	2
44 (30777220)	2

MRI functional (fMRI) head without IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	2	6	3	2	2	1	

References	Study Quality
4 (34060940)	Good
42 (32653026)	2
43 (28980887)	Good

MRI head without IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	6	6	1	0	0	2	4	5	2	2	0	

References	Study Quality
59 (37468750)	1
58 (28751449)	2
57 (35198981)	Good
33 (28486641)	4

MRI head without IV contrast with DTI	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	4	7	3	0	2	

References	Study Quality
2 (31494311)	2
3 (31192130)	4
60 (35626069)	4
61 (30277427)	2

MRI head perfusion without IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	7	4	5	0	0	

References	Study Quality
51 (37105676)	2
50 (36549990)	2
49 (37246748)	2
48 (32678438)	2
47 (29098571)	1

References	Study Quality
46 (37010573)	2
45 (31371360)	2
44 (30777220)	2

MR spectroscopy head without IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	5	5	1	0	0	4	6	2	2	1	0

References	Study Quality
41 (33811494)	Good
40 (26471274)	Good
39 (29459844)	4
38 (35655732)	4

MRI complete spine without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	0	1	0	1	12	2	0	0	0
Fluciclovine PET/CT brain	May be appropriate	Strong	☢☢☢☢ 10-30 mSv		5	5	0	1	0	5	8	2	0	0	0

References	Study Quality
8 (36549916)	2
9 (37341842)	1
37 (29730279)	2
35 (30519867)	4

Fluciclovine PET/MRI brain	May be appropriate	Strong	☢☢☢ 1-10 mSv		5	5	0	1	0	4	9	2	0	0	0

References	Study Quality
37 (29730279)	2
35 (30519867)	4
9 (37341842)	1
8 (36549916)	2

FDG-PET/MRI brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		2	2	7	3	4	1	1	0	0	0	0

References	Study Quality
36 (31426864)	2
35 (30519867)	4

DOTATATE PET/MRI brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		2	2	8	4	4	0	0	0	0	0	0
	References		Study Quality												
	34 (35695763)		4												
CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	12	3	1	0	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	12	1	2	2	0	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	3	1	0	0	0	0	0	0
MRI complete spine without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	1	3	0	1	0	1	0	0
FDG-PET/CT brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	9	3	3	1	0	0	0	0	0
	References		Study Quality												
	36 (31426864)		2												
	35 (30519867)		4												
MRI complete spine with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	1	0	0	1	0	0	1
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	2	0	0	1	0	0	0
DOTATATE PET/CT brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	9	4	3	0	0	0	0	0	0
	References		Study Quality												
	34 (35695763)		4												

Variant 4: Adult. Suspected extra-axial brain tumor on prior imaging. Pretreatment evaluation.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	1	0	0	0	2	1	12

References	Study Quality
63 (27432671)	4
62 (33459822)	4

DOTATATE PET/CT brain	May be appropriate	Strong	☢☢☢ 1-10 mSv		6	6	0	0	1	1	4	6	3	1	0

References	Study Quality
69 (32442855)	4
68 (28450556)	2
67 (37287577)	4
66 (35885570)	4
65 (35275019)	2

DOTATATE PET/MRI brain	May be appropriate	Strong	☢☢☢ 1-10 mSv		6	6	0	0	1	1	5	5	3	1	0

References	Study Quality
69 (32442855)	4
68 (28450556)	2
67 (37287577)	4
66 (35885570)	4
65 (35275019)	2

MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	1	0	1	14	0	0	0	0

References	Study Quality
32 (32065345)	4
62 (33459822)	4
63 (27432671)	4

MRI complete spine without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	1	1	1	7	6	0	0	0
	References			Study Quality											
	64 (37535461)			4											
MRI functional (fMRI) head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	3	1	2	4	4	1	0	1	0
	References			Study Quality											
	70 (25957723)			2											
CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	5	3	4	3	1	0	0	0	0
	References			Study Quality											
	62 (33459822)			4											
	63 (27432671)			4											
MRI head perfusion with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	5	1	3	1	6	0	0	0	0
	References			Study Quality											
	72 (35155210)			2											
	71 (33504729)			4											
MRI head without IV contrast with DTI	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	5	1	3	0	6	1	0	0	0
	References			Study Quality											
	70 (25957723)			2											
MRI head perfusion without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	5	1	4	3	3	0	0	0	0
	References			Study Quality											
	72 (35155210)			2											
	71 (33504729)			4											
CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	12	2	2	0	0	0	0	0	0

CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	2	2	0	0	0	0	0	0
MR spectroscopy head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	1	0	2	0	0	0	0
MRI complete spine without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	2	0	1	0	0	0	0
FDG-PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	3	1	0	0	2	0	0	0
MRI complete spine with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	1	1	1	0	0	0	1
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	1	1	0	0	0	0	0	0
Fluciclovine PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	11	2	2	0	0	1	0	0	0
FDG-PET/MRI brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	11	2	1	0	0	2	0	0	0
Fluciclovine PET/MRI brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	11	2	2	0	0	1	0	0	0

Variant 5: Adult. Known history of brain tumor. Posttreatment surveillance.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	0	0	0	2	0	13

References	Study Quality
63 (27432671)	4
62 (33459822)	4
56 (32048719)	4

		55 (36334295)		1												
		54 (26250565)		4												
		53 (33802292)		4												
		33 (28486641)		4												
MRI head perfusion with IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	4	4	4	3	1	
		References		Study Quality												
		76 (27502247)		Good												
		72 (35155210)		2												
		71 (33504729)		4												
		56 (32048719)		4												
		54 (26250565)		4												
		48 (32678438)		2												
MRI head perfusion without IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	7	4	1	4	0	
		References		Study Quality												
		76 (27502247)		Good												
		72 (35155210)		2												
		71 (33504729)		4												
		56 (32048719)		4												
		54 (26250565)		4												
		48 (32678438)		2												
MRI head without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	2	1	0	2	3	7	0	1	0	
		References		Study Quality												
		63 (27432671)		4												
		62 (33459822)		4												
		56 (32048719)		4												
		54 (26250565)		4												

MRI complete spine without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	2	0	1	4	7	1	1	0	0
DOTATATE PET/MRI brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	7	1	6	1	1	0	0	0	0
DOTATATE PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		2	2	7	2	6	1	0	0	0	0	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	14	1	1	0	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	12	1	2	0	1	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	1	1	0	0	0	0	0	0
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	0	1	2	0	0	0	0
MR spectroscopy head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	4	1	0	0	0	0	0	0
MRI complete spine without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	4	0	0	1	0	0	0	0
FDG-PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	4	2	0	0	0	0	0	0
MRI head without IV contrast with DTI	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	0	0	2	1	0	0	0
MRI complete spine with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	2	1	1	2	0	0	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	3	1	0	0	0	0	0	0
Fluciclovine PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	10	3	3	0	0	0	0	0	0

FDG-PET/MRI brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	10	4	2	0	0	0	0	0	0
Fluciclovine PET/MRI brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	10	3	3	0	0	0	0	0	0

Variant 6: Adult. Known history of brain tumor. New or enlarging lesion on posttreatment surveillance. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	1	0	0	0	2	2	11

References	Study Quality
74 (37774317)	4

MRI head perfusion with IV contrast	Usually appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	1	2	0	8	4	1

References	Study Quality
1 (28332014)	4
80 (27187209)	4
76 (27502247)	Good

MRI head perfusion without IV contrast	Usually appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	1	3	2	7	2	1

References	Study Quality
1 (28332014)	4
76 (27502247)	Good
80 (27187209)	4

FDG-PET/CT brain	May be appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	2	6	3	5	0	0

References	Study Quality
7 (28341716)	2
35 (30519867)	4

		76 (27502247)		Good												
DOTATATE PET/CT brain	May be appropriate	Strong	☢☢☢ 1-10 mSv		6	6	0	0	1	1	6	4	3	1	0	
		References		Study Quality												
		11 (35854930)		4												
		15 (35661809)		2												
		66 (35885570)		4												
		69 (32442855)		4												
		77 (31868239)		2												
		78 (31898311)		4												
FDG-PET/MRI brain	May be appropriate	Strong	☢☢☢ 1-10 mSv		6	6	0	0	0	2	6	3	5	0	0	
		References		Study Quality												
		7 (28341716)		2												
		35 (30519867)		4												
		76 (27502247)		Good												
DOTATATE PET/MRI brain	May be appropriate	Strong	☢☢☢ 1-10 mSv		6	6	0	0	1	1	6	4	3	1	0	
		References		Study Quality												
		11 (35854930)		4												
		15 (35661809)		2												
		66 (35885570)		4												
		69 (32442855)		4												
		77 (31868239)		2												
		78 (31898311)		4												
MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	1	0	4	9	2	0	0	0	
		References		Study Quality												
		54 (26250565)		4												
		56 (32048719)		4												

MR spectroscopy head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	1	1	7	4	2	1	0

References	Study Quality
1 (28332014)	4

MRI head without IV contrast with DTI	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	5	5	1	1	1	5	8	0	0	0	0

References	Study Quality
40 (26471274)	Good
81 (26450533)	2

Fluciclovine PET/CT brain	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv		3	3	5	1	3	2	4	1	0	0	0

References	Study Quality
10 (37055222)	4
79 (36577872)	4

Fluciclovine PET/MRI brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		3	3	5	1	3	2	4	1	0	0	0

References	Study Quality
10 (37055222)	4
79 (36577872)	4

CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	14	1	1	0	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	12	1	1	2	0	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	1	1	0	0	0	0	0	0
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	0	1	1	1	0	0	0
MRI complete spine without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	1	0	1	0	0	0	0

MRI complete spine without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	1	0	1	0	1	0	0
MRI complete spine with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	1	0	0	0	1	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	2	0	0	0	0	0	0

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.**