American College of Radiology ACR Appropriateness Criteria®

Headache

Variant 1: Sudden onset severe headache that reaches maximal severity within one hour. Initial imaging.

	Appropriateness								F	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT head without IV contrast	Usually appropriate	Moderate	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	9	9	0	0	0	0	1	0	0	1	17
		References		Study	Quality										
		17 (26797666)			M										
		16 (25862794)			2										
		11 (30007749)		4											
		12 (29274685)			4										
CTA head with IV contrast	May be appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	6	6	1	0	0	0	6	6	4	1	0
		References		Study	Quality										
		11 (30007749)			4										
		12 (29274685)			4										
CTV head with IV contrast	Usually not appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	3	3	6	3	5	0	3	1	1	0	0
		References		Study	Quality										
		11 (30007749)			4										
MRV head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	8	4	3	1	2	1	0	0	0
		References		Study	Quality										

		11 (30007749)			4										
MRV head without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	8	4	3	1	1	2	0	0	0
		References		Study	Quality										
		11 (30007749)		-	4										
CT head with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	15	1	1	0	0	0	1	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	14	2	1	0	0	1	0	0	0
Arteriography cervicocerebral	Usually not appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	15	1	1	0	1	0	1	0	0
		References 11 (30007749)			Quality										
		11 (30007749)		4											
		12 (29274685)		4											
MRA head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	11	3	4	0	0	0	0	0	0
		References		Study	Quality										
		11 (30007749)			4										
MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	1	1	0	1	1	0	0	0
MRI head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	11	4	1	2	0	0	0	0	0
		References		Study	/ Quality										
		19 (16628051)			2										
MRI head without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	12	1	4	0	1	0	0	0	0
		References		Study	/ Quality										
		11 (30007749)			4										
		12 (29274685)		4											

MRA head with IV contrast	Usually appropr	_	Expert Consensus	O 0 mSv	'	O 0 mSv [ped]	1	1	15	0	1	1	1	0	0	0	0
MRV head with IV contrast	Usually appropr		Limited	O 0 mSv	'	O 0 mSv [ped]	1	1	10	4	2	0	1	2	0	0	0
			References			Study	Quality										
			11 (30007749)				4										
MRI head with IV contrast	Usually appropr		Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	1	1	16	0	1	0	1	0	0	0	0

Variant 2: Primary migraine or tension-type headache. Normal neurologic examination. Initial imaging.

D 1	Appropri	ateness	COE	A L LA DDI	D I DDI	3.6.11			F	inal '	Tabu	latio	ns			
Procedure	Categ		SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CTA head with IV contrast	Usually approp		Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	14	2	1	0	2	0	0	0	0
CT head with IV contrast	Usually approp		Expert Consensus	≎≎≎ 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	13	2	1	1	1	1	0	0	0
CT head without IV contrast	Usually approp		Limited	≎≎≎ 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	15	0	1	1	0	0	0	1	0
			References		Study	Quality										
			26 (15606567)			3										
CT head without and with IV contrast	Usually approp	4	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	12	1	1	1	2	0	1	1	0
Arteriography cervicocerebral	Usually approp		Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	15	3	0	0	1	0	0	0	0
MRA head without IV contrast	Usually approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	2	2	0	0	0	0	0

MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	2	1	0	1	0	1	0	0
MRI head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	16	0	2	0	0	0	0	0	0
		References		Study	Quality										
		26 (15606567)			3										
		24 (27441999)			4										
MRI head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	0	2	1	0	0	0	0	0
MRV head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	3	1	0	1	1	0	0	0
CTV head with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	1	1	14	2	1	1	1	0	0	0	0
MRV head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	4	0	0	1	1	0	0	0
MRA head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	2	0	1	1	0	0	0	0
MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	2	1	0	0	2	0	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	0	2	1	0	1	0	0

Variant 3: Primary trigeminal autonomic cephalalgias (eg, cluster headache). Initial imaging.

ъ .	Appropriateness	COF	A L L DDI	D I DDI	D 4:	34.11			F	inal '	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	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]	8	8	0	0	1	1	2	0	2	5	7
		References		Study	/ Quality										

							1									
			34 (26857820)			4										
			33 (26092512)			4										
			31 (17210806)			4										
			30 (30074553)			2										
MRI head without IV contrast	May approj		Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	7	0	2	2	7	0	0	0	0
CTA head with IV contrast	Usuall approp		Limited	��� 1-10 mSv	0	1	1	10	3	2	1	2	1	0	0	0
			References		Study	Quality										
			34 (26857820)			4										
			33 (26092512)			4										
			31 (17210806) 30 (30074553)			4										
			31 (17210806) 30 (30074553)			2										
CT head with IV contrast		`			0	1	1	12	2	1	0	2	1	1	0	0
CT head without IV contrast	Usuall approp		Expert Consensus	��� 1-10 mSv	888 0 2	1	1	15	0	2	0	0	0	1	0	0
CT head without and with IV contrast	Usuall approp		Expert Consensus	��� 1-10 mSv	0	1	1	12	2	1	0	2	1	0	0	1
Arteriography cervicocerebral	Usuall approp		Expert Consensus	��� 1-10 mSv	0	1	1	14	3	2	0	0	0	0	0	0
MRA head without IV contrast	Usuall approp	priate Consensus mSv		O 0 mSv [ped]	1	1	11	2	2	3	0	0	0	0	0	
	<u> </u>		References		Study	Quality					_					
			34 (26857820)			4										
		1														

4

2

33 (26092512)

31 (17210806)

30 (30074553)

MRV head without IV contrast I I was live at the consensus [ped]	0 0	0	
MRV head without IV contrast Usually not			
appropriate Limited O 0 mSv [ped] 1 1 3 3 0 1	1 0	0	0
References Study Quality			
34 (26857820) 4			
33 (26092512) 4			
31 (17210806) 4			
30 (30074553)			
CTV head with IV contrast Usually not appropriate Limited Limited Section 1-10 mSv [ped] 1 1 1 12 4 3 0 0 0	0 0	0	0
References Study Quality	•		
34 (26857820) 4			
33 (26092512) 4			
31 (17210806) 4			
30 (30074553) 2			
MRV head without and with IV Usually not appropriate Limited O 0 mSv [ped] 1 1 1 1 2 2 2 1 1 1	1 0	0	0
References Study Quality	•		
34 (26857820) 4			
33 (26092512) 4			
31 (17210806) 4			
30 (30074553)			
MRA head with IV contrast Usually not appropriate Expert Consensus O 0 mSv [ped] 1 1 1 4 2 1 0 2	0 0	0	0
MRV head with IV contrast Usually not appropriate Limited O 0 mSv [ped] 1 1 1 2 4 0 1	1 0	0	0
References Study Quality			
34 (26857820) 4			
33 (26092512) 4			

		31 (17210806)				4										
		 30 (30074553)				2										
MRI head with IV contrast	Usually appropr	Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	1	1	16	0	1	1	0	0	0	0	0

Variant 4: Headache with features of intracranial hypertension (eg, papilledema, pulsatile tinnitus, visual symptoms worse on Valsalva). Initial imaging.

D 1	Appropri	ateness	COE	A L L DDI	D I DDI	3.6 11			F	inal '	Tabu	latio	ns			
Procedure	Categ	gory	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usua approp		Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	1	1	1	1	5	5	5
			References		Study	Quality										
	_		37 (12893694)			3		_							_	
CT head without IV contrast	Usua approp		Limited	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	7	7	0	1	0	0	0	2	8	2	6
			References		Study	Quality										
			37 (12893694)			3		_								
MRI head without IV contrast	Usua approp		Strong	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	2	2	6	3	6
			References		Study	Quality										
			35 (22309765)			2										
			41 (22268442)			2										
			42 (2409390)			4		_								
MRV head without IV contrast	May approp		Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	0	7	9	1	0	0
			References		Study	Quality										
			38 (23615489)		2											
CTV head with IV contrast	May approp		Strong	��� 1-10 mSv	���� 3- 10 mSv [ped]	6	6	0	0	1	2	4	8	3	1	0

		References		Study	Quality										
		39 (26084237)	ı		2										
		38 (23615489)	ı		2										
		40 (30762716)			4										
MRV head without and with IV contrast	May be appropriate	e Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	0	7	8	1	1	0
		References		Study	Quality										
		38 (23615489)			2										
MRV head with IV contrast	May be appropriate	e Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	1	0	0	6	10	1	0	0
		References		Study	Quality										
		38 (23615489)			2										
CTA head with IV contrast	Usually no appropriate		��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	14	1	1	1	1	0	0	0	0
CT head with IV contrast	Usually no appropriate		��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	16	0	1	0	0	0	1	0	0
CT head without and with IV contrast	Usually no appropriate		��� 1-10 mSv		1	1	16	0	1	0	0	1	0	0	0
Arteriography cervicocerebral	Usually no appropriate		��≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	14	2	1	1	1	0	0	0	0
MRA head without IV contrast	Usually no appropriate		O 0 mSv	O 0 mSv [ped]	1	1	15	0	1	2	0	0	0	0	0
MRA head without and with IV contrast	Usually no appropriate		O 0 mSv	O 0 mSv [ped]	1	1	12	0	2	1	2	1	1	0	0
MRA head with IV contrast	Usually no appropriate		O 0 mSv	O 0 mSv [ped]	1	1	12	0	2	0	3	1	1	0	0
MRI head with IV contrast	Usually no appropriate		O 0 mSv	O 0 mSv [ped]	1	1	14	1	2	0	0	0	0	1	0

Variant 5: Headache with features of intracranial hypotension (eg, positional, worse when upright, better when lying down). Initial imaging.

ъ .	Appropriateness	COL	A L L DDI	D I DDI	D (1	3.6.11			F	inal '	Гаbu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	9	0	0	1	0	1	0	3	2	12
MRI thoracic spine without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	1	0	0	0	9	4	3	0	1
MRI thoracic spine without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	1	1	0	0	12	3	1	0	0
MRI thoracic spine with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	5	1	0	0	8	4	0	0	0
CTV head with IV contrast	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	2	2	9	2	4	2	1	0	1	0	0
CTA head with IV contrast	Usually not appropriate	Expert Consensus	୫୫୫ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	11	1	4	1	0	1	1	0	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	୫୫୫ 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	15	1	1	0	0	0	1	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	୫୫୫ 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	14	1	1	0	0	0	0	1	1
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	16	0	1	0	0	1	0	0	0
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	୫୫୫ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	15	1	2	0	0	0	0	1	0
MRA head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	4	0	1	1	1	0	0

MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	1	2	0	0	0	0	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	0	2	3	2	0	0	0	0
MRV head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	0	2	1	3	0	1	0	0
MRV head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	0	2	1	3	0	1	0	0
MRA head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	4	0	1	1	1	0	0
MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	0	2	0	3	1	1	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	1	2	0	0	1	0	0	0

Variant 6: Headache with new onset or pattern during pregnancy or peripartum period. Initial imaging.

	Appropri	ateness	COT			D 1 DD1		3.5 31			I	inal '	Tabu	latio	ns		
Procedure	Categ	ory	SOE	Adults RR	RL .	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI head without IV contrast	Usua approp		te		′	O 0 mSv [ped]	8	8	0	0	0	0	0	1	5	6	7
			References		Study	Quality											
			47 (26291282)				3										
			50 (33775330)				4										
			30 (30074553)				2										
CT head without IV contrast	Usua approp		Moderate	��� 1-10 mSv	0	��� 0.3- 3 mSv [ped]	7	7	2	0	0	0	2	3	4	2	6
		References			Study	Quality											
			17 (26797666)				M										

		15 (250 (270 4)													
		16 (25862794)			2										
		11 (30007749)			4										
		12 (29274685)			4				ı		ı	1			
MRV head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	2	0	0	0	3	8	5	0	1
		References		Study	Quality										
		12 (29274685)			4										
CTV head with IV contrast	May be appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	5	5	2	0	0	1	10	5	0	0	0
		References		Study	Quality			•	•	•	•	•	•	•	
		12 (29274685)			4										
CTA head with IV contrast	Usually not appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	14	2	0	0	1	1	0	0	0
		References		Study	Quality		•	•				•	•	•	
		11 (30007749)		-	4										
		12 (29274685)			4										
CT head with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	14	1	3	0	0	1	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv		1	1	14	0	4	0	0	1	0	0	0
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	15	2	2	0	0	0	0	0	0
MRA head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	13	1	2	0	1	1	0	0	0
		References		Study	Quality										
		12 (29274685)			4										
MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	2	2	0	2	0	0	1	0

MRI head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	1	1	0	0	0	1	0	0
MRV head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	0	1	0	2	0	2	0	0
MRA head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	2	0	2	0	0	0	0
MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	0	2	0	1	1	1	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	2	0	0	0	1	0	0	0

Variant 7: Headache with one or more of the following "red flags": increasing frequency or severity, fever or neurologic deficit, history of cancer or immunocompromise, older age (>50 years) of onset, or posttraumatic onset. Initial imaging.

D 1	Appropri	ateness	COF	4 1 14 DD		D I DDI	D 41	3.7.11			F	inal '	Tabu	latio	ns		
Procedure	Categ	gory	SOE	Adults RR	aL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usua approp		Limited	O 0 mSv	′	O 0 mSv [ped]	9	9	0	1	1	0	0	0	0	6	11
			References			Study	Quality										
			53 (19068162)				4										
			37 (12893694)				3										
CT head without IV contrast	Usua approp		Limited	⊛⊛⊕ 1-10 mSv	0	��� 0.3- 3 mSv [ped]	7	7	1	0	0	1	1	2	7	2	5
			References			Study	Quality						•				
			56 (24228072)				4										
MRI head without IV contrast	Usua approp		Limited	O 0 mSv	<i>'</i>	O 0 mSv [ped]	7	7	0	0	0	0	0	2	9	3	5
			References			Study	Quality		•								
			53 (19068162)				4										
			37 (12893694)				3										

MRV head without IV contrast	Usually		Limited	O 0 mSv	O 0 mS [ped]		2	2	9	1	3	2	2	0	1	0	1
			References		S	Study Q	uality										
			53 (19068162)			4											
CTA head with IV contrast	Usually		ate Ellilited mSv		0 \$\$\$\$ 10 mS [ped]	V	1	1	10	1	2	3	3	0	0	0	0
			References		S	Study Q	uality										
			56 (24228072)			4											
CT head with IV contrast	Usually		Expert Consensus	��� 1-10 mSv	0	,	1	1	14	2	1	0	0	0	1	0	0
CT head without and with IV contrast	Usually		Expert Consensus	��� 1-10 mSv	0	V	1	1	14	1	2	0	0	0	1	0	0
Arteriography cervicocerebral	Usually		Expert Consensus			3- V	1	1	15	2	1	0	0	0	1	0	0
MRA head without IV contrast	Usually		Expert Consensus	O 0 mSv	O 0 mS [ped]		1	1	11	1	2	2	2	0	1	0	0
MRA head without and with IV contrast	Usually		Expert Consensus	O 0 mSv	O 0 mS [ped]		1	1	11	1	2	1	2	0	1	1	0
CTV head with IV contrast	Usually		Expert Consensus	��� 1-10 mSv	0	V	1	1	11	0	3	3	1	1	0	0	0
MRV head without and with IV contrast	Usually		Limited	O 0 mSv	O 0 mS [ped]		1	1	11	1	3	1	0	1	0	0	1
		References			S	Study Q	uality										
		53 (19068162)				4											
MRA head with IV contrast	Usually appropr		Limited	O 0 mSv	O 0 mS [ped]		1	1	13	1	1	2	2	0	0	0	0
			References		Study Quality												
			56 (24228072)		4												

MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	3	2	0	0	0	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	3	1	0	0	0	1	0	0

Variant 8: Headache without any of the following "red flags": sudden onset ("thunderclap"), features of intracranial hypertension or hypotension, new onset or pattern during pregnancy or peripartum period, increasing frequency or severity, fever or neurologic deficit, history of cancer or immunocompromise, older age (greater than 50 years of age) of onset, or post-traumatic onset. Initial imaging.

n .	Appropriateness	COL	4.1.14 DD	, D 1 DD1	D (1	3.5 11			F	inal '	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRI	L Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CTA head with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	14	2	1	1	0	0	1	0	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	15	1	1	0	0	0	1	0	0
CT head without IV contrast	Usually not appropriate	Limited	Limited		1	1	14	1	1	0	0	2	0	0	0
		References			Quality										
		26 (15606567)	26 (15606567)		3										
		60 (11345271)			4										
		61 (-3195131)			4										
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	15	2	0	0	0	1	0	0	0
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	16	1	0	1	0	1	0	0	0
MRA head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	3	1	1	0	0	1	0	0
MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	2	1	1	0	0	1	0	0

MRI head without IV contrast	Usuall approp		Limited	O 0 mSv	O 0 mSv [ped]	1	1	14	3	0	0	1	0	0	0	0
		References 60 (11345271)			Study	Quality 4										
MRI head without and with IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	17	0	0	0	0	0	0	1	0
MRV head without IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	1	0	2	0	1	0	0
CTV head with IV contrast	Usuall approp		Expert Consensus	��� 1-10 mSv	0	1	1	14	2	1	1	0	0	1	0	0
MRV head without and with IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	1	0	2	0	1	0	0
MRA head with IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	2	1	1	0	0	1	0	0
MRV head with IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	0	1	2	0	1	0	0
MRI head with IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	2	0	0	0	0	1	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.