American College of Radiology
ACR Appropriateness Criteria®

Cerebrovascular Disease-Child

Variant 1: Child age older than 6 months. Emergent imaging for clinical presentation suggestive of acute nonsickle–cell related stroke. New focal fixed or worsening neurologic defect lasting less than 24 hours from last seen normal state. No contraindications to emergent intervention. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	1	0	0	0	0	1	2	15

References	Study Quality
20 (19039041)	4
6 (20054007)	4
18 (19216043)	4
16 (20445969)	4
17 (20113901)	4
19 (20625171)	4
22 (12743660)	2
23 (21975501)	4
24 (25063989)	3
21 (16841210)	3
25 (28705823)	4

CT head without IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	8	8	1	0	0	0	0	2	4	6	6

References	Study Quality
16 (20445969)	4

MRA head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	2	0	0	0	0	2	3	6	5

References	Study Quality
17 (20113901)	4
26 (15703900)	4
27 (21220720)	3

CTA head with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	1	0	0	0	7	10	0	0	0

References	Study Quality
17 (20113901)	4

MRI head perfusion with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	2	0	1	0	7	7	1	0	0

References	Study Quality
29 (17066483)	3
17 (20113901)	4
19 (20625171)	4

MRI head perfusion without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	1	0	2	13	3	0	1	0

References	Study Quality
29 (17066483)	3
17 (20113901)	4
19 (20625171)	4

MRI head without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	1	0	0	9	5	2	1	0	0

References	Study Quality
20 (19039041)	4
6 (20054007)	4
18 (19216043)	4
16 (20445969)	4
17 (20113901)	4

		19 (20625171)	4												
		22 (12743660)	2												
		23 (21975501)	4												
		24 (25063989)	3												
		21 (16841210)	3												
		25 (28705823)	4												
MRA head with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	6	2	6	2	1	1	0	0	0
		References	Study Quality												
		17 (20113901)	4												
		26 (15703900)	4												
		27 (21220720)	3												
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	9	4	1	2	1	0	1	0	1
		References	Study Quality												
		16 (20445969)	4												
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	10	3	3	0	1	0	1	0	1
		References	Study Quality												
		16 (20445969)	4												
CT head perfusion with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	10	2	5	1	0	0	0	0	0
		References	Study Quality												
		28 (22209434)	4												
Arteriography cervicocerebral	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	5	1	0	0	0	0	0	0
		References	Study Quality												
		30 (24483252)	4												
		31 (9799310)	4												

MRI head with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	10	3	4	1	0	0	0	0	0

References	Study Quality
20 (19039041)	4
6 (20054007)	4
18 (19216043)	4
16 (20445969)	4
17 (20113901)	4
19 (20625171)	4
22 (12743660)	2
23 (21975501)	4
24 (25063989)	3
21 (16841210)	3
25 (28705823)	4

Variant 2: Child. Clinical presentation suggestive of acute stroke, not a candidate for emergent intervention. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	1	0	0	0	0	1	2	15

References	Study Quality
20 (19039041)	4
6 (20054007)	4
18 (19216043)	4
16 (20445969)	4
17 (20113901)	4
19 (20625171)	4
22 (12743660)	2
23 (21975501)	4

		24 (25063989)	3												
		21 (16841210)	3												
CT head without IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	8	8	1	0	1	0	2	1	3	6	5
		References	Study Quality												
		16 (20445969)	4												
MRA head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	0	2	1	7	3	4
		References	Study Quality												
		17 (20113901)	4												
		26 (15703900)	4												
		27 (21220720)	3												
CTA head with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	1	0	0	1	12	4	0	0	0
		References	Study Quality												
		17 (20113901)	4												
MRI head without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	0	0	7	5	3	1	1	0
		References	Study Quality												
		20 (19039041)	4												
		6 (20054007)	4												
		18 (19216043)	4												
		16 (20445969)	4												
		17 (20113901)	4												
		19 (20625171)	4												
		22 (12743660)	2												
		23 (21975501)	4												
		24 (25063989)	3												
		21 (16841210)	3												

MRI head perfusion with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	1	0	5	7	3	1	0	0

References	Study Quality
29 (17066483)	3
17 (20113901)	4
19 (20625171)	4

MRI head perfusion without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	1	0	2	11	3	1	1	0

References	Study Quality
29 (17066483)	3
17 (20113901)	4
19 (20625171)	4

MRA head with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	4	4	2	1	0	0	0	0

References	Study Quality
17 (20113901)	4
26 (15703900)	4
27 (21220720)	3

MRI head with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	8	4	5	1	0	0	0	0	0

References	Study Quality
20 (19039041)	4
6 (20054007)	4
18 (19216043)	4
16 (20445969)	4
17 (20113901)	4
19 (20625171)	4
22 (12743660)	2
23 (21975501)	4
24 (25063989)	3
21 (16841210)	3

CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	11	3	2	0	1	1	0	0	1
	References			Study Quality											
	16 (20445969)			4											
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	4	1	0	0	0	0	0	0
	References			Study Quality											
	16 (20445969)			4											
CT head perfusion with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	12	5	0	1	0	0	0	0	0
	References			Study Quality											
	28 (22209434)			4											
Arteriography cervicocerebral	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	3	2	0	0	0	0	1	0
	References			Study Quality											
	30 (24483252)			4											
	31 (9799310)			4											
US duplex Doppler transcranial	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 3: Child. Clinical presentation suggestive of acute stroke, known or suspected arteriopathy, or moyamoya. Not a candidate for emergent treatment. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRA head without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	0	0	3	1	3	10
MRI head without IV contrast	Usually appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	0	0	0	2	1	15
	References			Study Quality											

		45 (15703904)		4												
		44 (24558166)		M												
		15 (29364767)		1												
CTA head with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	1	0	0	1	6	8	2	0	0
CT head without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	6	6	0	0	0	0	6	9	2	0	1
		References		Study Quality												
		43 (9885601)		2												
MRI head without and with IV contrast	May be appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	5	5	1	0	0	4	8	3	2	0	0
		References		Study Quality												
		45 (15703904)		4												
		44 (24558166)		M												
		15 (29364767)		1												
MRI head perfusion with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	0	0	2	8	5	1	1	0
		References		Study Quality												
		39 (22462697)		4												
		46 (24335546)		2												
		48 (24335813)		4												
		49 (24055185)		3												
		47 (29581340)		3												
MRI head perfusion without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	1	0	2	11	4	0	1	0
		References		Study Quality												
		39 (22462697)		4												
		46 (24335546)		2												
		48 (24335813)		4												
		49 (24055185)		3												

		47 (29581340)		3											
CT head perfusion with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		3	3	7	1	3	1	5	1	0	1	0
		References		Study Quality											
		28 (22209434)		4											
MRA head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	7	1	6	3	0	1	0	0	0
MRI head with IV contrast	Usually not appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	2	2	8	2	5	3	0	0	0	0	0
		References		Study Quality											
		45 (15703904)		4											
		44 (24558166)		M											
		15 (29364767)		1											
US duplex Doppler transcranial	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	10	5	2	1	0	0	0	0	0
		References		Study Quality											
		43 (9885601)		2											
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	5	1	1	0	0	0	0	0
		References		Study Quality											
		43 (9885601)		2											
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	3	3	0	0	1	0	0	0
SPECT or SPECT/CT brain perfusion	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	1	5	0	1	0	0	0	0
		References		Study Quality											
		39 (22462697)		4											

Variant 4: Child. Known or suspected cervicocranial arterial dissection based on clinical or imaging findings. 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 and neck without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	1	1	6	10
References				Study Quality											
52 (21979145)				4											
50 (25987283)				4											
53 (19351813)				3											
CTA head and neck with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	0	0	1	0	0	3	1	9	5
References				Study Quality											
52 (21979145)				4											
50 (25987283)				4											
MRA head and neck without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	1	1	0	0	0	1	1	8	7
References				Study Quality											
52 (21979145)				4											
53 (19351813)				3											
CT head without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	6	6	1	0	0	2	3	12	0	0	0
References				Study Quality											
52 (21979145)				4											
43 (9885601)				2											
Arteriography cervicocerebral	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	1	0	0	2	5	8	0	2	0
References				Study Quality											

		52 (21979145)	4												
		53 (19351813)	3												
MRI head and neck without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	1	0	0	1	4	8	4	0	0
		References	Study Quality												
		52 (21979145)	4												
		50 (25987283)	4												
		53 (19351813)	3												
MRA head and neck with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	2	0	0	0	1	1	5	4	5
		References	Study Quality												
		52 (21979145)	4												
		53 (19351813)	3												
MRI head and neck with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	1	0	0	5	5	4	1	2	0
		References	Study Quality												
		52 (21979145)	4												
		50 (25987283)	4												
		53 (19351813)	3												
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	5	7	6	0	0	0	0	1	0
		References	Study Quality												
		52 (21979145)	4												
		43 (9885601)	2												
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	7	5	5	1	0	0	0	0	1
		References	Study Quality												
		52 (21979145)	4												
		43 (9885601)	2												

US duplex Doppler transcranial and carotid artery	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	3	4	0	0	0	0	1	0

Variant 5: Child. Clinical presentation suggestive of acute stroke, known or suspected central nervous system vasculitis. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRA head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	2	2	3	3	9
	References		Study Quality												
	17 (20113901)		4												
MRI head without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	1	2	9	6
CTA head with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	1	3	7	4	4
	References		Study Quality												
	17 (20113901)		4												
MRI head without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	0	1	9	4	4
CT head without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	6	6	1	0	0	2	5	9	1	0	0
	References		Study Quality												
	56 (15986347)		4												
MRA head with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	1	0	0	0	6	10	1	0	0
	References		Study Quality												
	17 (20113901)		4												
Arteriography cervicocerebral	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	1	0	0	2	7	6	2	0	0

		References			Study Quality										
		17 (20113901)			4										
MRI head with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	3	0	2	3	6	3	1	0	0
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	6	5	6	0	0	1	0	0	1
		References			Study Quality										
		56 (15986347)			4										
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	5	4	1	0	0	0	1	0
		References			Study Quality										
		56 (15986347)			4										
US duplex Doppler transcranial	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 6: Child. Nontraumatic intraparenchymal hemorrhage (hematoma) found on CT or MRI. Unknown etiology. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRA head without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	9	0	2	0	0	0	1	1	4	11
CTA head with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	0	1	0	0	0	2	6	3	7
Arteriography cervicocerebral	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	1	0	0	0	0	2	10	2	3
		References			Study Quality										
		61 (26795616)			4										
		60 (22816607)			4										

MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	1	1	9	4	3
	References		Study Quality												
	24 (25063989)		3												
MRA head with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	5	7	5	1	0
MRI head without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	1	0	1	2	6	3	5	0	0
	References		Study Quality												
	24 (25063989)		3												
MRI head with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	2	0	0	2	6	5	2	1	0
	References		Study Quality												
	24 (25063989)		3												
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	7	2	7	1	1	0	0	0	0
	References		Study Quality												
	59 (24156863)		4												
CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	7	4	5	0	1	0	1	1	0
	References		Study Quality												
	59 (24156863)		4												
US duplex Doppler transcranial	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	6	1	0	1	0	0	0	0
	References		Study Quality												
	59 (24156863)		4												

Variant 7: Child. Nontraumatic subarachnoid hemorrhage (SAH) detected by noncontrast CT. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRA head without IV contrast	Usually appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	9	9	0	0	2	0	0	1	2	2	12
References				Study Quality											
67 (24326447)				Good											
51 (24156864)				4											
68 (9933265)				M											
CTA head with IV contrast	Usually appropriate	Moderate	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	0	0	0	0	0	0	2	8	8
References				Study Quality											
66 (21990495)				Good											
65 (22143927)				2											
Arteriography cervicocerebral	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	1	1	1	3	4	1	8
References				Study Quality											
51 (24156864)				4											
60 (22816607)				4											
MRA head with IV contrast	May be appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	4	9	3	2	0
References				Study Quality											
67 (24326447)				Good											
51 (24156864)				4											
68 (9933265)				M											
MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	0	0	1	11	5	0	0	0

		References		Study Quality												
		63 (19357386)		4												
		60 (22816607)		4												
MRI head without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	1	11	5	0	0	1
		References		Study Quality												
		63 (19357386)		4												
		60 (22816607)		4												
MRI head with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	8	1	5	3	1	0	0	0	0
		References		Study Quality												
		63 (19357386)		4												
		60 (22816607)		4												
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	6	4	6	1	0	1	1	0	0
		References		Study Quality												
		59 (24156863)		4												
CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	9	3	5	1	0	0	0	0	0
		References		Study Quality												
		59 (24156863)		4												
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	2	6	2	0	1	0	0	0
		References		Study Quality												
		59 (24156863)		4												
US duplex Doppler transcranial	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 8: Child. Clinical presentation suggestive of acute stroke, known or suspected high-flow vascular anomaly. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA head with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	1	0	0	0	0	1	3	7	7
CT head without IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	8	8	0	0	0	0	0	2	6	3	7
		References		Study Quality											
		59 (24156863)		4											
MRA head without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	8	0	1	0	0	0	1	1	7	9
MRI head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	1	1	3	5	8
		References		Study Quality											
		24 (25063989)		3											
MRI head without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	4	11	1	1	1
		References		Study Quality											
		24 (25063989)		3											
MRA head with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	4	1	5	8	0	0
Arteriography cervicocerebral	May be appropriate (Disagreement)	Expert Opinion	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	5	4	4	2	0	0	0	3	0
		References		Study Quality											
		59 (24156863)		4											
		71 (24286156)		2											
MRI head with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	5	3	5	2	3	0	0	0	0
		References		Study Quality											

		24 (25063989)		3											
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	6	6	6	0	0	0	0	0	0
		References		Study Quality											
		59 (24156863)		4											
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	9	1	0	0	0	0	0	0
		References		Study Quality											
		59 (24156863)		4											
US duplex Doppler transcranial	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0

Variant 9: Child. Clinical presentation suggestive of acute stroke, known or suspected low-flow vascular anomaly. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	1	0	3	4	10
		References		Study Quality											
		75 (26272978)		4											
CT head without IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	7	7	2	0	0	0	3	3	4	4	3
		References		Study Quality											
		61 (26795616)		4											
MRI head without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	2	3	6	5	1	1
		References		Study Quality											
		75 (26272978)		4											

CTA head with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	6	2	5	1	1	3	0	0	0
MRA head without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	5	2	6	0	1	0	2	0	2
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	7	3	4	0	3	0	0	1	1
	References		Study Quality												
	61 (26795616)		4												
MRA head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	6	2	5	1	3	1	0	0	0
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	9	4	4	1	0	0	0	0	0
	References		Study Quality												
	61 (26795616)		4												
MRI head with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	4	2	3	1	0	1	0	0
	References		Study Quality												
	75 (26272978)		4												
Arteriography cervicocerebral	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	2	4	1	0	0	0	0	0
	References		Study Quality												
	61 (26795616)		4												
US duplex Doppler transcranial	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 10: Child. Clinical presentation suggestive of acute stroke, known or suspected cortical vein or dural venous sinus thrombosis. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRV head with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	0	0	1	3	3	11
	References		Study Quality												
	80 (22948810)		4												
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	1	1	0	0	1	1	3	5	7
	References		Study Quality												
	77 (23212594)		4												
	80 (22948810)		4												
	81 (25938564)		2												
MRV head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	2	7	3	7
	References		Study Quality												
	80 (22948810)		4												
CTV head with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	0	1	0	0	1	2	2	5	8
CT head without IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	7	7	0	0	0	0	0	5	5	3	5
	References		Study Quality												
	77 (23212594)		4												
	80 (22948810)		4												
	79 (20437556)		1												
MRI head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	1	0	1	4	3	7	0	3
	References		Study Quality												
	77 (23212594)		4												
	80 (22948810)		4												
	81 (25938564)		2												

CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	6	1	5	1	4	0	1	0	0

References	Study Quality
77 (23212594)	4
80 (22948810)	4
79 (20437556)	1

CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	4	2	2	1	0	1	0	0

References	Study Quality
77 (23212594)	4
80 (22948810)	4
79 (20437556)	1

Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	4	3	1	1	0	0	2	0
MRI head with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	3	3	0	3	2	0	0	0

References	Study Quality
77 (23212594)	4
80 (22948810)	4
81 (25938564)	2

US duplex Doppler transcranial	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 11: Child. Clinical presentation suggestive of acute stroke, sickle cell disease. New focal fixed or worsening neurologic defect. Initial imaging.

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

		References		Study Quality												
		39 (22462697)		4												
		84 (8733975)		4												
		26 (15703900)		4												
		44 (24558166)		M												
		85 (24914136)		1												
MRI head without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	0	1	1	0	3	13
CT head without IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	7	7	0	0	0	0	0	1	11	3	3
		References		Study Quality												
		26 (15703900)		4												
CTA head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	6	5	2	2	2	1	0	0	0
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	6	5	5	1	1	0	0	1	0
		References		Study Quality												
		26 (15703900)		4												
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	5	2	2	0	0	1	1	0
		References		Study Quality												
		26 (15703900)		4												
Arteriography cervicocerebral	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	9	4	2	0	3	1	0	0	0
		References		Study Quality												
		26 (15703900)		4												
MRI head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	8	5	4	0	0	0	1	0	0

MRA head with IV contrast	Usually not appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	2	2	6	6	1	3	2	0	0	0	0

References	Study Quality
39 (22462697)	4
84 (8733975)	4
26 (15703900)	4
44 (24558166)	M
85 (24914136)	1

MRI head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	9	4	3	1	0	1	0	0	0
US duplex Doppler transcranial	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	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.**