American College of Radiology ACR Appropriateness Criteria®

Dementia

Variant 1: Adult. Mild cognitive impairment not meeting criteria for dementia. Initial imaging.

	Appropriateness								F	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6		8	9
MRI head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	2	3	1	8
		References		Study	Quality		•								-
		11 (16880360)			4										
		22 (19460794)			3										
		25 (23954175)			3										
		24 (21969707)			3										
		23 (20139996)			4										
		13 (18631949)			4										
CT head without IV contrast	Usually appropriate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	7	7	0	0	0	0	1	2	8	3	2
FDG-PET/CT brain	Usually appropriate	Strong	��� 1-10 mSv	⊕⊕⊕⊕ 3- 10 mSv [ped]	7	7	0	0	0	1	3	0	10	0	2
		References		Study	Quality										
		11 (16880360)			4										
		12 (18287270)			3										
		13 (18631949)			4										
		14 (32734458)			1										
		15 (34252877)			1										
		9 (31628215)			1										

Amyloid PET/CT brain	Usually appropriate	Strong	��� 1-10 mSv		7	7	0	0	0	0	5	2	6	1	2
		References		Study	y Quality									•	
		4 (19587325)			3										
		3 (21764791)			2										
		7 (29889941)			2										
		5 (38306055)			2										
		6 (29018162)			2										
		8 (30915522)			2										
		9 (31628215)			1										
MRI head without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	1	1	2	3	6	3	0	0	0
Tau PET/CT brain	May be appropriate (Disagreement)	Expert Opinion	≎≎≎ 1-10 mSv		5	5	1	1	1	1	4	6	2	0	0
		References		Study	y Quality										
		27 (37690109)			2										
		26 (33852534)			2										
		10 (-3198414)			4										
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	6	1	4	2	0	1	0	0	0
		References		Study	y Quality										
		19 (21807094)			4										
		21 (22189566)			3										
		20 (31357150)			2										
MR spectroscopy head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	5	0	3	4	1	1	0	0	0
		References		Study	y Quality				·						
		18 (24035276)			2										
		16 (16443495)			4										
		17 (18445744)			4										

CT head with IV contrast	Usually not appropriate	Expert Consensus	ଫଫଫ 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	13	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	1	1	1	0	0	0	0	0
SPECT or SPECT/CT brain striatal	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	11	2	3	0	0	0	0	0	0
SPECT or SPECT/CT brain perfusion	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	11	2	3	0	0	0	0	0	0

Variant 2: Adult. Cognitive impairment with memory deficits. Suspect Alzheimer disease with typical clinical presentation. Initial imaging.

n 1	Appropriateness	GOT.	4 1 1/ DDI	D I DDI	D //	3.5.11			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 IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	1	3	0	9
		References		Study	Quality										
		46 (24331205)			1										
		24 (21969707)			3										
		23 (20139996)			4										
		13 (18631949)			4										
		47 (29762090)			2										
		28 (31917652)			4										
Amyloid PET/CT brain	Usually appropriate	Strong	��� 1-10 mSv		8	8	0	0	0	0	3	2	1	6	4
		References		Study	Quality										
		38 (25988463)		(Good										
		34 (14991808)			3										
		33 (21245183)			2										
		37 (20501908)			3										

		53 (30326496)			2										
		References		Study	Quality										
Tau PET/CT brain	May be appropriate	Strong	��� 1-10 mSv		6	6	0	0	2	0	4	4	5	1	0
		43 (2105589)			4					1	ı				
		References		Study	Quality										
CT head without IV contrast	May be appropriate	Limited	≎≎≎ 1-10 mSv	��� 0.3- 3 mSv [ped]	6	6	0	0	0	1	2	7	4	1	1
		28 (31917652)			4										
		14 (32734458)			1										
		44 (11801698)			3										
		12 (18287270)			3										
		45 (11342678)			4										
		11 (16880360)		Stady	4										
	appropriate	Limited References	mSv	10 mSv [ped]	7 Quality	7	0	0	0	1	3	1	8	1	2
FDG-PET/CT brain	Usually		⊕⊕⊕ 1-10	ॐॐॐ 3-							_		_	_	
		28 (31917652)			4										
		39 (30094462)			1										
		41 (29962497)			2										
		40 (37561943)			2										
		8 (30915522)			2										
		31 (35649652)			4										
		42 (33219525) 6 (29018162)			2										
		36 (32808011)			3										
		35 (32385166)			2										
		7 (29889941)			2										
		25 (23954175)			3										
		3 (21764791)			2										

			54 (30639421)			2										
			52 (32391858)			1										
			51 (31784374)			2										
			28 (31917652)			4										
SPECT or SPECT/CT brain perfusion	May approp	be riate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	5	5	1	2	3	1	7	2	0	0	0
			References		Study	Quality										
			45 (11342678)			4										
			49 (18855165)			3										
			48 (9527139)			2										
MR spectroscopy head without IV contrast	May approp	be riate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	3	0	2	7	2	2	0	0	0
	•		References		Study	Quality		-								
			16 (16443495)			4										
			17 (18445744)			4										
MRI functional (fMRI) head without IV contrast	Usually approp		Limited	O 0 mSv	O 0 mSv [ped]	3	3	4	2	4	1	2	0	0	0	0
			References		Study	Quality										
			19 (21807094)			4										
			21 (22189566)			3										
SPECT or SPECT/CT brain striatal	Usually approp		Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	3	3	6	0	3	2	1	1	0	0	0
			References		Study	Quality										
			50 (20075101)			3										
MRI head without and with IV contrast	Usually approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	6	3	7	0	0	0	0	0	0
CT head with IV contrast	Usually approp		Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	14	1	1	0	0	0	0	0	0
					H 1		-									

CT head without and with IV contrast	Usually not appropriate	Expert Consensus	≎⊛≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	2	0	0	0	2	0	1	0
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Variant 3: Adult. Cognitive impairment with memory deficits. Suspect Alzheimer disease with atypical clinical presentation. Initial imaging.

	Appropriateness	COT			.	3.5.11]	Final	Tab	ulatio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI head without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	1	2	1	9
		References		Study	Quality					·		•			•
		46 (24331205)			1										
		24 (21969707)			3										
		23 (20139996)			4										
		13 (18631949)			4										
		47 (29762090)			2										
		28 (31917652)			4										
		59 (31672482)		•	3			1					_		
Amyloid PET/CT brain	Usually appropriate	Strong	��� 1-10 mSv		9	9	0	0	0	1	0	1	2	2	7
		References		Study	Quality										
		34 (14991808)			3										
		33 (21245183)			2										
		37 (20501908)			3										
		3 (21764791)			2										
		25 (23954175)			3										
		7 (29889941)			2										
		5 (38306055)			2										
		35 (32385166)			2										
		42 (33219525)			1										
		6 (29018162)			2										

		31 (35649652)			4										
		8 (30915522)			2										
		40 (37561943)			2										
		56 (29107051)			2										
		41 (29962497)			2										
		39 (30094462)			1										
		27 (37690109)			2										
		28 (31917652)			4										
FDG-PET/CT brain	Usually appropriate	Strong	��� 1-10 mSv	���� 3- 10 mSv [ped]	8	8	0	0	0	1	0	0	1	6	5
		References		Study	Quality										
		11 (16880360)			4										
		45 (11342678)			4										
		12 (18287270)			3										
		44 (11801698)			3										
		14 (32734458)			1										
		57 (29756163)			4										
		58 (31633646)			2										
		28 (31917652)			4										
Tau PET/CT brain	Usually appropriate	Strong	��� 1-10 mSv)	8	8	0	0	1	1	2	3	1	6	2
		References		Study	Quality										
		60 (29105977)			1										
		61 (30615804)			2										
CT head without IV contrast	Usually appropriate	Limited	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	7	7	0	0	0	0	1	1	9	4	1
		References		Study	Quality										
		43 (2105589)			4										
SPECT or SPECT/CT brain perfusion	May be appropriate (Disagreement)	Expert Opinion	��� 1-10 mSv	���� 3- 10 mSv [ped]	5	5	2	1	1	1	4	7	0	0	0

		References		Study	Quality										
		45 (11342678	3)		4										
		49 (18855165	5)		3										
		48 (9527139))		2										
SPECT or SPECT/CT brain striatal	May be appropriate	Limited Limited	��� 1-10 mSv	9	4	4	7	0	1	1	6	1	0	0	0
		References		Study	Quality										
		50 (20075101)		3										
MRI functional (fMRI) head without IV contrast	Usually no appropriate		O 0 mSv	O 0 mSv [ped]	3	3	5	1	4	0	2	1	0	0	0
		References		Study	Quality										
		19 (21807094	.)		4										
		21 (22189566	5)		3										
MRI head without and with IV contrast	Usually no appropriate		O 0 mSv	O 0 mSv [ped]	3	3	3	4	6	1	2	0	0	0	0
MR spectroscopy head without IV contrast	Usually no appropriate		O 0 mSv	O 0 mSv [ped]	3	3	5	2	9	0	0	0	0	0	0
		References		Study	Quality										
		16 (16443495			4										
		17 (18445744	.)		4										
CT head with IV contrast	Usually no appropriate		��� 1-10 mSv	9	1	1	8	1	0	0	2	1	1	0	0
CT head without and with IV contrast	Usually no appropriate		≎≎≎ 1-10 mSv	0	1	1	8	2	0	0	0	2	0	1	0

Variant 4: Adult. Known Alzheimer disease considering therapy with anti-amyloid monoclonal antibodies. Pretreatment imaging.

D 1	Appropriateness	COF	A L L DDY	D I DDI	D (1	3.6.31		F	inal '	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1 2	3	4	5	6	7	8	9

D	Appropria	Appropriateness SOE Adult				D. J. DDI	D - 43	М. З			F	inal '	Tabu	latio	ns		
Procedure			SUE	Adults RR	L	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI head without IV contrast	Usuall appropr		Limited	O 0 mSv	,	O 0 mSv [ped]	9	9	0	0	0	0	0	0	2	0	11
			References			Study	Quality										
			62 (37357276)				4										
Amyloid PET/CT brain	Usuall appropr		Limited	��� 1-10 mSv	0		9	9	0	0	1	0	3	0	1	1	7
			References			Study	Quality										
			62 (37357276)				4										
			10 (-3198414)				4		_								
Tau PET/CT brain	May b		Limited	��� 1-10 mSv	0		4	4	0	1	5	3	4	3	0	0	0
		•	References		•	Study	Quality			•			•				
			62 (37357276)				4										
			10 (-3198414)				4		_								
MRI head without and with IV contrast	Usually appropr		Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	3	3	7	1	7	1	0	0	0	0	0
CT head with IV contrast	Usually appropr		Expert Consensus	≎≎≎ 1-10 mSv	0	��� 0.3- 3 mSv [ped]	1	1	11	0	1	0	0	0	1	0	0
CT head without IV contrast	Usually appropr		Limited	≎≎≎ 1-10 mSv	0	��� 0.3- 3 mSv [ped]	1	1	7	0	1	2	2	1	0	0	0
			References			Study	Quality										
			62 (37357276)				4		,			1					
CT head without and with IV contrast	Usually appropr		Expert Consensus	��� 1-1(mSv	0	��� 3- 10 mSv [ped]	1	1	11	0	1	0	0	0	1	0	0
MRI functional (fMRI) head without IV contrast	Usually appropr		Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	1	1	11	0	1	0	1	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	0	1	0	1	0	0	0	0
SPECT or SPECT/CT brain striatal	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	9	1	2	0	0	0	1	0	0
SPECT or SPECT/CT brain perfusion	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	9	0	2	1	0	0	1	0	0
FDG-PET/CT brain	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	1	1	0	2	0	1	0	0

Variant 5: Adult. Known Alzheimer disease undergoing therapy with anti-amyloid monoclonal antibodies. Posttreatment imaging.

D l	Appropr	iateness	SOF	4 J14 - DD	I D. J. DDI	D - 45	N# - 3!			F	inal '	Tabu	latio	ns		
Procedure	Categ		SOE	Adults RR	L Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI head without IV contrast	Usua approp		Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	1	0	1	11
	•		References		Study	y Quality										
,			63 (37651273)			4		_								
Amyloid PET/CT brain	May approp (Disagre	riate	Expert Opinion	��� 1-10 mSv)	5	5	8	2	1	0	2	1	1	0	1
			References		Study	y Quality										
			67 (37639461)		4											
			66 (37459141)		1											
			10 (-3198414)			4									_	
CT head with IV contrast	Usuall approp		Expert Consensus	��� 1-10 mSv	0	1	1	11	0	1	1	0	0	0	0	0
CT head without IV contrast	Usuall approp		Limited	��� 1-10 mSv	0	1	1	9	0	2	1	1	0	0	0	0
			References		Study	y Quality										

		62 (37357276)			4										
CT head without and with IV contrast	Usuall approp	Expert Consensus	≎≎≎ 1-10 mSv	0	1	1	11	0	1	1	0	0	0	0	0
MRI functional (fMRI) head without IV contrast	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	1	1	0	0	1	0	0	0
MRI head without and with IV contrast	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	4	2	1	0	0	0	0	0
MR spectroscopy head without IV contrast	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	1	1	0	0	1	0	0	0
SPECT or SPECT/CT brain striatal	Usuall approp	Expert Consensus	��� 1-10 mSv	9	1	1	11	0	1	0	0	0	1	0	0
SPECT or SPECT/CT brain perfusion	Usuall approp	Expert Consensus	��� 1-10 mSv	0	1	1	11	0	1	0	0	0	1	0	0
FDG-PET/CT brain	Usuall approp	Expert Consensus	��� 1-10 mSv	0	1	1	10	1	1	0	1	0	0	0	0
Tau PET/CT brain	Usuall approp	Limited	≎≎≎ 1-10 mSv)	1	1	10	0	1	0	1	0	1	0	0
		References		Study	Quality										

Variant 6: Adult. Cognitive impairment with behavioral abnormalities or progressive aphasia. Suspect frontotemporal dementia. Initial imaging.

10 (-3198414)

	Appropriateness	700	A L L DDI	D I DDI	D .:	37.11			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 IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	1	0	3	0	9
		References		Study	, Quality										

 References
 Study Quality

 70 (25171901)
 4

			75 (22976075)			3										
			74 (37500561)			2										
			28 (31917652)			4										
			73 (38012398)			3										
FDG-PET/CT brain	Usua approp		Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	8	8	0	0	0	0	2	3	1	2	5
			References		Study	Quality										
			11 (16880360)			4										
			68 (33402272)			4										
			28 (31917652)			4										
CT head without IV contrast	Usua approp	lly riate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	7	7	0	0	0	1	0	0	9	3	3
Amyloid PET/CT brain	May approp		Limited	��� 1-10 mSv		5	5	0	0	1	1	13	0	1	0	0
			References		Study	Quality										
			3 (21764791)			2										
			70 (25171901)			4										
SPECT or SPECT/CT brain perfusion	May approp		Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	4	4	1	1	1	6	6	1	0	0	0
			References		Study	Quality										
			48 (9527139)			2			_							
MRI head without and with IV contrast	Usually approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	6	2	8	0	0	0	0	0	0
Tau PET/CT brain	Usually approp		Strong	≎≎≎ 1-10 mSv		3	3	7	1	6	1	1	0	0	0	0
			References		Study	Quality										
			53 (30326496)			2										
			76 (30704514)			2										
		77 (30594046)				2										
			28 (31917652)			4										

		78 (33824991)			3										
MRI functional (fMRI) head without IV contrast	Usuall approp	Strong	O 0 mSv	O 0 mSv [ped]	2	2	6	4	6	0	0	0	0	0	0
		References		Study	y Quality		-								
		19 (21807094)			4										
		72 (25002573)			2										
		71 (12821731)			2										
MR spectroscopy head without IV contrast	Usuall approp	Limited	O 0 mSv	O 0 mSv [ped]	2	2	6	3	7	0	0	0	0	0	0
		References		Study	y Quality										
		17 (18445744)			4										
CT head with IV contrast	Usuall approp	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	8	1	0	1	1	1	1	0	0
CT head without and with IV contrast	Usuall approp	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	1	0	2	0	1	1	0	0
SPECT or SPECT/CT brain striatal	Usuall approp	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	9	0	1	2	0	0	1	0	0

Variant 7: Adult. Cognitive impairment with visual hallucinations or parkinsonian symptoms. Suspect dementia with Lewy bodies. Initial imaging.

ъ .	Appropriateness	COE	A L L DDI	D I DDI	D 41	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 IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	1	0	1	3	8

References		Study	Quality	
83 (26572170))		3	
46 (24331205))		1	
85 (18692749))		3	
68 (33402272))		4	

		28 (31917652)			4										
		84 (36123123)			2										
CT head without IV contrast	Usually appropriate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	7	7	0	0	0	1	0	1	8	5	1
SPECT or SPECT/CT brain striatal	Usually appropriate	Limited	��� 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	7	7	0	0	0	0	0	0	9	5	2
		References		Study	Quality										
		50 (20075101)			3										
		89 (32198310)			2										
		88 (36920494)			4										
		68 (33402272)			4										
FDG-PET/CT brain	Usually appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	7	7	1	0	0	0	2	1	3	3	3
		References		Study	Quality										
		11 (16880360)			4										
		79 (33926896)			4										
		81 (37421880)			1										
		68 (33402272)			4										
MRI head without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	4	2	3	1	1	0	3	2	0
SPECT or SPECT/CT brain perfusion	May be appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	5	5	4	0	0	2	8	2	0	0	0
		References		Study	Quality										
		50 (20075101)			3										
		86 (19142710)			3										
		87 (38315966)			2				ı						
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	3	6	0	0	0	0	0	0
		References		Study	Quality										

							1									
			19 (21807094)			4										
			21 (22189566)			3										
MR spectroscopy head without IV contrast	Usuall approp	y not oriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	2	7	0	0	0	0	0	0
			References		Study	Quality										
			82 (24468473)			3										
			17 (18445744)			4										
Amyloid PET/CT brain	Usuall approp		Strong	≎≎≎ 1-10 mSv)	2	2	7	3	5	0	1	0	0	0	0
	•		References		Study	Quality			•							
			38 (25988463)			Good										
			80 (23831180)			4										
			3 (21764791)			2										
CT head with IV contrast	Usuall approp		Expert Consensus	��� 1-10 mSv	9	1	1	15	0	1	0	0	0	0	0	0
CT head without and with IV contrast	Usuall approp		Expert Consensus	≎≎≎ 1-10 mSv	9	1	1	14	1	1	0	0	0	0	0	0
Tau PET/CT brain	Usuall approp	y not oriate	Strong	≎≎≎ 1-10 mSv)	1	1	11	4	0	1	0	0	0	0	0
			References		Study	Quality							•			
			61 (30615804)			2										
		61 (30615804) 90 (27654968)				1										
			91 (33631469)			2										

Variant 8: Adult. Cognitive impairment with recent stroke or stepwise decline. Suspect vascular dementia. Initial imaging.

D 1	Appropriateness	COE	A L L DDI	D I DDI	D 4	3.6.11			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 IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	3	11

	Appropri	iateness									F	inal '	Tabu	latio	ns		
Procedure	Categ	gory	SOE	Adults RR	RL	Peds RRL	Rating	Median	1	2	3	4	5			8	9
			References			Study	Quality										
			97 (22135130)				4										
			101 (24557016))			1										
			100 (18436880))			2										
			102 (35614521))			2										
			92 (35678401)				4										
			28 (31917652)				4										
			94 (15729521)				4										
CT head without IV contrast	May approp (Disagre	oriate	Expert Opinion	��� 1-1 mSv	0	��� 0.3- 3 mSv [ped]	5	5	3	0	1	2	1	1	5	1	2
			References			Study	Quality										
			95 (8094895)				4										
	1		92 (35678401)				4										
CTA head and neck with IV contrast	May approp		Expert Consensus	��� 1-1 mSv	0	��� 3- 10 mSv [ped]	5	5	0	0	0	2	8	3	2	1	0
MRA head without IV contrast	May approp		Expert Consensus	O 0 mSv	/	O 0 mSv [ped]	5	5	0	1	0	1	11	1	2	0	0
MRA neck without IV contrast	May approp		Expert Consensus	O 0 mSv	/	O 0 mSv [ped]	5	5	0	1	0	5	8	1	1	0	0
MRA neck without and with IV contrast	May approp		Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	5	5	0	1	0	5	8	1	1	0	0
MRI head without and with IV contrast	Usually approp		Expert Consensus	O 0 mSv	/	O 0 mSv [ped]	2	2	8	1	3	2	1	0	0	0	1
Amyloid PET/CT brain	Usuall approp		Limited	��� 1-1 mSv	0		2	2	7	1	1	1	3	0	0	1	0

	References		Study Quality												
	3 (21764791)				2										
	96 (31929166)				4										
	Expert Consensus	��� 1-10 mSv	0	��� 0.3- 3 mSv [ped]	1	1	14	0	2	0	0	0	0	0	0
	Expert Consensus	��� 1-10 mSv	0	���� 3- 10 mSv [ped]	1	1	15	0	1	0	0	0	0	0	0
	Expert Consensus	O 0 mSv	′	O 0 mSv [ped]	1	1	11	2	2	0	0	0	0	1	0
	Expert Consensus	O 0 mSv	′	O 0 mSv [ped]	1	1	14	1	1	0	0	0	0	0	0
	Limited	O 0 mSv	′	O 0 mSv [ped]	1	1	11	1	4	0	0	0	0	0	0
	References		Study Quality			-									
	17 (18445744)		4												
	99 (1513253)				3										
	Expert Consensus	��� 1-10 mSv	0	���� 3- 10 mSv [ped]	1	1	10	0	2	1	0	1	0	0	0
	Limited	��� 1-10 mSv	0	���� 3- 10 mSv [ped]	1	1	10	1	4	1	0	0	0	0	0
	References			Study	Quality										
	48 (9527139)				2										
	Limited	��� 1-10 mSv	0	���� 3- 10 mSv [ped]	1	1	9	1	4	1	0	1	0	0	0
	References			Study	Quality										_
	97 (22135130)		4												
	98 (29932266)				4										
	28 (31917652)				4										
approp Usually approp Usually approp Usually approp Usually approp Usually approp Usually approp	Usually not appropriate Usually not appropriate	Usually not appropriate Expert Consensus Usually not appropriate References 17 (18445744) 99 (1513253) Usually not appropriate Usually not appropriate Usually not appropriate References 48 (9527139) Usually not appropriate References 48 (9527139) Usually not appropriate References 97 (22135130) 98 (29932266)	3 (21764791) 96 (31929166) Usually not appropriate Expert Consensus Usually not appropriate Usually not appropriate Expert Consensus Usually not appropriate Expert Consensus Expert Consensus Expert Consensus Usually not appropriate Usually not appropriate Expert Consensus Expert Co	Usually not appropriate Expert Consensus Usually not appropriate Usually not appropriate Expert Consensus Usually not appropriate Expert Consensus Usually not appropriate Expert Consensus Usually not appropriate Usually not appropriate Expert Consensus Expert Consensus Expert Consensus Usually not appropriate Usually not appropriate Expert Consensus Expert Consensus Expert Consensus Usually not appropriate Expert Consensus Expert C	3 (21764791) 96 (31929166)	3 (21764791) 2 96 (31929166) 4	3 (21764791) 2 4 96 (31929166) 4 Usually not appropriate Expert Consensus mSv [ped] 1 1 Usually not appropriate Consensus Co	3 (21764791) 2 4 96 (31929166) 4 Usually not appropriate Expert Consensus	3 (21764791) 2 4	Sually not appropriate Consensus Con	Sually not appropriate Expert Consensus Sually not appropriate Consensus Sually Quality Sually not appropriate Consensus Sually Quality Sually not appropriate Consensus Sually Quality Sually not appropriate Consensus Consens	3 (21764791) 2 4	Susually not appropriate Expert Consensus Domestic Domesti	3 (21764791) 96 (31929166) 4	Study not appropriate Consensus Cons

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Tau PET/CT brain	Usually not appropriate	Expert Consensus	��� 1-10 mSv		1	1	10	0	2	1	0	1	0	0	0	
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Variant 9: Adult. Cognitive impairment with gait disturbance or urinary incontinence. Suspect normal pressure hydrocephalus. Initial imaging.

Durandana	Appropriateness	COE	A J14- DDI	D. J. DDI	D - 43	M - 12			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 IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	1	0	3	10
		References		Study	Quality										
		103 (26644048))		4										
		104 (37898265))		4										
CT head without IV contrast	Usually appropriate	Limited	≎≎≎ 1-10 mSv	��� 0.3- 3 mSv [ped]	7	7	1	0	0	0	2	1	5	2	3
		References		Study	Quality				•						
		104 (37898265))	-	4										
DTPA cisternography	May be appropriate	Limited	��� 1-10 mSv		5	5	0	1	0	3	8	3	1	0	0
		References		Study	Quality			•	•	•				•	
		103 (26644048))	-	4										
		106 (33395973))		2										
MRI head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	8	2	6	0	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	15	1	0	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	16	0	0	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	1	1	0	0	0	1	0	0

MR spectroscopy head without IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	1	10	0	2	2	0	0	0	0	0
		References		Study	Quality										
		108 (20647518))		2										
SPECT or SPECT/CT brain striatal	Usually not appropriate		≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	10	0	2	1	0	0	1	0	0
SPECT or SPECT/CT brain perfusion	Usually not appropriate		≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	0	1	4	0	1	0	0	0
		References		Study	Quality										
		103 (26644048))	4											
FDG-PET/CT brain	Usually not appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	1	3	1	1	0	0	0	0
		References		Study	Quality										
		107 (29876274))		2										
		105 (32906629))		4										
Amyloid PET/CT brain	Usually not appropriate		≎≎≎ 1-10 mSv)	1	1	8	3	1	1	0	1	0	0	0
		References		Study	Quality		-								
		105 (32906629))		4										
Tau PET/CT brain	Usually not appropriate		��� 1-10 mSv		1	1	10	0	1	1	1	1	0	0	0

Variant 10: Adult. Rapidly progressive dementia. Initial imaging.

December 1	Appropriateness	COF	4 1 1/ BBI	D 1 DD1	D 41	3.5 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	Limited	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	0	1	1	0	1	10
		References		Study	Quality		•								

		111 (23413251)	,		4										
		112 (37698615)			2										
		113 (36304377)			4										
MRI head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	1	0	1	2	4	6
		References		Study	Quality										
		111 (23413251))		4										
		112 (37698615))		2										
		113 (36304377))	1	4										
CT head without IV contrast	Usually appropriate	Expert Consensus	��≎ 1-10 mSv	��� 0.3- 3 mSv [ped]	7	7	0	0	0	0	1	0	9	3	3
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 and with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	15	0	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	10	0	2	1	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	8	2	2	1	0	0	1	0	0
SPECT or SPECT/CT brain striatal	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	13	3	0	0	0	0	0	0	0
SPECT or SPECT/CT brain perfusion	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	11	4	0	1	0	0	0	0	0
FDG-PET/CT brain	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	10	2	1	0	3	0	0	0	0
Amyloid PET/CT brain	Usually not appropriate	Expert Consensus	��≎ 1-10 mSv		1	1	14	2	0	0	0	0	0	0	0

Tau PET/CT brain Usually not appropriate Expert Consensus mSv Tau PET/CT brain Usually not appropriate Usually not Consensus	1	1	9	1	1	2	0	0	1	0	0
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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.