American College of Radiology
ACR Appropriateness Criteria®

Dementia

Variant 1: Adult. Mild cognitive impairment not meeting criteria for dementia. 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	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 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 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 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 Quality
18 (24035276)	2
16 (16443495)	4
17 (18445744)	4

CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 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.

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	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

FDG-PET/CT brain	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	1	3	1	8	1	2
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
Tau PET/CT brain	May be appropriate	Strong	☢☢☢ 1-10 mSv		6	6	0	0	2	0	4	4	5	1	0

References	Study Quality
3 (21764791)	2
25 (23954175)	3
7 (29889941)	2
35 (32385166)	2
36 (32808011)	3
42 (33219525)	1
6 (29018162)	2
31 (35649652)	4
8 (30915522)	2
40 (37561943)	2
41 (29962497)	2
39 (30094462)	1
28 (31917652)	4

References	Study Quality
11 (16880360)	4
45 (11342678)	4
12 (18287270)	3
44 (11801698)	3
14 (32734458)	1
28 (31917652)	4

References	Study Quality
43 (2105589)	4

References	Study Quality
53 (30326496)	2

		54 (30639421)		2											
		52 (32391858)		1											
		51 (31784374)		2											
		28 (31917652)		4											
SPECT or SPECT/CT brain perfusion	May be appropriate	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 be appropriate	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 not appropriate	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 not appropriate	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 not appropriate	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 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	8	2	0	0	0	2	0	1	0

Variant 3: Adult. Cognitive impairment with memory deficits. Suspect Alzheimer disease with atypical clinical presentation. 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	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

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)		4												
		49 (18855165)		3												
		48 (9527139)		2												
SPECT or SPECT/CT brain striatal	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	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 not appropriate	Limited	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)		3												
MRI head without and with IV contrast	Usually not appropriate	Expert Consensus	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 not appropriate	Limited	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 not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	8	1	0	0	2	1	1	0	0
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

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

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9

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	0	0	2	0	11
	References		Study Quality												
	62 (37357276)		4												
Amyloid PET/CT brain	Usually appropriate	Limited	☢☢☢ 1-10 mSv		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 be appropriate	Limited	☢☢☢ 1-10 mSv		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 not appropriate	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 not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	11	0	1	0	0	0	1	0	0
CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	7	0	1	2	2	1	0	0	0
	References		Study Quality												
	62 (37357276)		4												
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	0	1	0	0	0	1	0	0
MRI functional (fMRI) 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

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.

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	0	1	0	1	11
References			Study Quality												
63 (37651273)			4												
Amyloid PET/CT brain	May be appropriate (Disagreement)	Expert Opinion	☢☢☢ 1-10 mSv		5	5	8	2	1	0	2	1	1	0	1
References			Study Quality												
67 (37639461)			4												
66 (37459141)			1												
10 (-3198414)			4												
CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	11	0	1	1	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	9	0	2	1	1	0	0	0	0
References			Study Quality												

		62 (37357276)		4												
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	0	1	1	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	1	1	0	0	1	0	0	0
MRI head without and with IV contrast	Usually not appropriate	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	Usually not appropriate	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	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	0	1	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	11	0	1	0	0	0	1	0	0
FDG-PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	1	1	0	1	0	0	0	0
Tau PET/CT brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	10	0	1	0	1	0	1	0	0
		References		Study Quality												
		10 (-3198414)		4												

Variant 6: Adult. Cognitive impairment with behavioral abnormalities or progressive aphasia. Suspect frontotemporal dementia. 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	0	9
		References		Study Quality											
		70 (25171901)		4											

		75 (22976075)	3												
		74 (37500561)	2												
		28 (31917652)	4												
		73 (38012398)	3												
FDG-PET/CT brain	Usually appropriate	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	Usually appropriate	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 be appropriate	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 be appropriate	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 not appropriate	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 not appropriate	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	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	2	2	6	4	6	0	0	0	0	0	0
		References		Study Quality											
		19 (21807094)		4											
		72 (25002573)		2											
		71 (12821731)		2											
MR spectroscopy head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	6	3	7	0	0	0	0	0	0
		References		Study Quality											
		17 (18445744)		4											
CT head with IV contrast	Usually not appropriate	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	Usually not appropriate	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	Usually not appropriate	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.

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	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											
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											

		19 (21807094)		4											
		21 (22189566)		3											
MR spectroscopy head without IV contrast	Usually not appropriate	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	Usually not appropriate	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	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	15	0	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	14	1	1	0	0	0	0	0	0
Tau PET/CT brain	Usually not appropriate	Strong	☢☢☢ 1-10 mSv		1	1	11	4	0	1	0	0	0	0	0
		References		Study Quality											
		61 (30615804)		2											
		90 (27654968)		1											
		91 (33631469)		2											

Variant 8: Adult. Cognitive impairment with recent stroke or stepwise decline. Suspect vascular dementia. 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	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	3	11

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	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 be appropriate (Disagreement)	Expert Opinion	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	3	0	1	2	1	1	5	1	2

References	Study Quality
95 (8094895)	4
92 (35678401)	4

CTA head and neck with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	0	0	2	8	3	2	1	0
MRA head without IV contrast	May be appropriate	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 be appropriate	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 be appropriate	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 not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	8	1	3	2	1	0	0	0	1
Amyloid PET/CT brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		2	2	7	1	1	1	3	0	0	1	0

		References		Study Quality												
		3 (21764791)		2												
		96 (31929166)		4												
CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	14	0	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	15	0	1	0	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	11	2	2	0	0	0	0	1	0
MRI functional (fMRI) head without 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
MR spectroscopy head without IV contrast	Usually not appropriate	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												
SPECT or SPECT/CT brain striatal	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	0	2	1	0	1	0	0	0
SPECT or SPECT/CT brain perfusion	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	1	4	1	0	0	0	0	0
		References		Study Quality												
		48 (9527139)		2												
FDG-PET/CT brain	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 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												

Tau PET/CT brain	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	10	0	2	1	0	1	0	0	0

Variant 9: Adult. Cognitive impairment with gait disturbance or urinary incontinence. Suspect normal pressure hydrocephalus. 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	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	Limited	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	Expert Consensus	☢☢☢ 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	Limited	☢☢☢ 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	Limited	☢☢☢ 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	Expert Consensus	☢☢☢ 1-10 mSv		1	1	10	0	1	1	1	1	0	0	0

Variant 10: Adult. Rapidly progressive dementia. 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 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												

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)	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	☢☢☢ 1-10 mSv		1	1	9	1	1	2	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.**