

		12 (22284731)			4														
F-18 amyloid PET/CT brain	May be appropriate	Strong	☼☼☼ 1-10 mSv		5	5	0	0	1	3	6	5	1	0	0				

References	Study Quality
26 (26646994)	4
25 (-3144437)	4
24 (23753186)	4
23 (23359661)	4
22 (20038776)	4
21 (26613792)	Good
20 (20501908)	3
19 (21764791)	2
18 (20687209)	1
17 (22331215)	2
16 (21245183)	2
15 (19587325)	3
14 (14991808)	3

MRI head without and with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	5	3	8	0	0	0	0	0	0	0	0	0
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References	Study Quality
36 (21969707)	3
35 (24331205)	1
34 (19460794)	3
33 (20139996)	4
10 (22517954)	4
9 (11342678)	4

Tc-99m HMPAO SPECT/CT brain	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	3	5	5	1	1	0	0	1	0			
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References	Study Quality
40 (17349943)	4
39 (11801698)	3

			38 (18855165)			3												
			9 (11342678)			4												
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	2	2	5	5	3	3	0	0	0	0	0	0	0	0
			References		Study Quality													
			32 (21807094)		4													
			31 (22078171)		4													
MR spectroscopy head without IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	2	2	6	3	5	2	0	0	0	0	0	0	0	0
			References		Study Quality													
			30 (16443495)		4													
			29 (24035276)		2													
CT head with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	9	3	2	0	1	0	0	1	0	0	1	0
			References		Study Quality													
			13 (2105589)		4													
			9 (11342678)		4													
CT head without and with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	10	2	2	0	1	0	0	1	0	0	1	0
			References		Study Quality													
			13 (2105589)		4													
			9 (11342678)		4													

Variant 2: Suspected 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	0 0 mSv	0 0 mSv [ped]	9	9	1	0	0	0	1	1	2	2	9				

		References	Study Quality												
		49 (22976075)	3												
		44 (25171901)	4												
CT head without IV contrast	Usually appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	8	8	0	0	0	2	2	1	2	3	6
FDG-PET/CT brain	May be appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	6	6	0	0	0	1	5	8	1	1	0
		References	Study Quality												
		45 (-3148969)	4												
		44 (25171901)	4												
MRI head without and with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	5	3	8	0	0	0	0	0	0
		References	Study Quality												
		49 (22976075)	3												
		44 (25171901)	4												
Tc-99m HMPAO SPECT/CT brain	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	1	1	7	2	5	0	0	0	0
		References	Study Quality												
		50 (9527139)	2												
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	2	2	8	4	2	2	0	0	0	0	0
		References	Study Quality												
		48 (25002573)	2												
		47 (12821731)	2												
MR spectroscopy head without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	6	4	4	2	0	0	0	0	0
		References	Study Quality												
		46 (18445744)	4												

F-18 amyloid PET/CT brain	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		2	2	8	1	2	2	3	0	0	0	0
		References	Study Quality												
		44 (25171901)	4												
CT head with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	9	5	0	1	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	10	3	0	1	0	0	1	1	0

Variant 3: Suspected 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	Limited	○ 0 mSv	○ 0 mSv [ped]	9	9	1	0	0	0	2	1	2	1	9
		References	Study Quality												
		57 (26572170)	3												
		35 (24331205)	1												
CT head without IV contrast	Usually appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	8	8	0	0	0	1	0	1	3	5	6
		References	Study Quality												
		52 (28592453)	4												
I-123 Ioflupane SPECT/CT brain	May be appropriate	Limited	☼☼☼ 1-10 mSv		5	5	0	0	1	5	7	2	1	0	0
		References	Study Quality												
		51 (20075101)	3												
		11 (22135130)	4												
FDG-PET/CT brain	May be appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	4	4	1	0	5	3	4	3	0	0	0

			References		Study Quality													
			54 (19142710)		3													
F-18 amyloid PET/CT brain	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		3	3	7	1	5	0	2	0	1	0	0			
			References		Study Quality													
			53 (23831180)		4													
Tc-99m HMPAO SPECT/CT brain	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	7	0	5	2	2	0	0	0	0			
			References		Study Quality													
			52 (28592453)		4													
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	8	3	3	1	0	0	0	1	0			
			References		Study Quality													
			56 (22189566)		3													
MRI head without and with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	5	6	5	0	0	0	0	0	0			
			References		Study Quality													
			57 (26572170)		3													
			35 (24331205)		1													
MR spectroscopy head without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	8	2	5	0	0	1	0	0	0			
			References		Study Quality													
			55 (24468473)		3													
CT head with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	13	2	1	0	0	0	0	0	0			
			References		Study Quality													
			52 (28592453)		4													
CT head without and with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	13	2	1	0	0	0	0	0	0			

FDG-PET/CT brain	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	3	0	7	5	1	0	0	0	0
		References		Study Quality											
		61 (23043907)		4											
US duplex Doppler carotid	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	3	4	3	1	5	0	0	0	0
		References		Study Quality											
		67 (22537454)		3											
Tc-99m HMPAO SPECT/CT brain	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	4	0	7	4	1	0	0	0	0
		References		Study Quality											
		50 (9527139)		2											
MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	2	2	6	3	4	0	1	1	0	1	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	10	5	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	13	2	1	0	0	0	0	0	0
MRI functional (fMRI) head without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	9	4	2	0	0	0	0	1	0
MR spectroscopy head without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	1	1	9	4	2	0	0	0	0	1	0
		References		Study Quality											
		63 (1513253)		3											
		62 (9341699)		2											

Variant 5: Suspected idiopathic 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	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	1	1	2	12
		References		Study Quality											
		70 (29213984)		4											
CT head without IV contrast	Usually appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	8	8	1	0	0	0	0	2	1	5	7
In-111 DTPA cisternography	May be appropriate	Limited	☼☼☼ 1-10 mSv		4	4	1	0	3	9	3	0	0	0	0
		References		Study Quality											
		68 (26644048)		4											
Tc-99m HMPAO SPECT/CT brain	May be appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	4	4	2	0	6	6	2	0	0	0	0
		References		Study Quality											
		71 (19284245)		2											
MRI head without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	2	2	6	4	6	0	0	0	0	0	0
		References		Study Quality											
		70 (29213984)		4											
CT head with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	9	6	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	12	3	1	0	0	0	0	0	0
MR spectroscopy head without IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	1	1	12	2	1	0	0	0	0	1	0
		References		Study Quality											
		69 (20647518)		2											

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.