

American College of Radiology
ACR Appropriateness Criteria®

Staging and Post-Therapy Assessment of Head and Neck Cancer

Variant 1: Suspected or diagnosed cancer of the oral cavity or oropharynx or hypopharynx or larynx or cancer of unknown primary of the head and neck. Initial staging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT neck with IV contrast	Usually appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	9	9	0	0	0	0	0	0	2	2	14
		References		Study Quality											
		36 (28608737)		1											
		32 (30633558)		4											
		22 (32388410)		2											
		26 (33370639)		2											
		31 (27373806)		2											
		28 (30369373)		2											
		35 (31606761)		2											
		29 (32445627)		2											
		34 (27480073)		2											
		37 (30473166)		Good											
		33 (32152744)		Good											
		23 (26573595)		2											
		39 (26013025)		2											
		27 (22155255)		2											
		40 (22996710)		4											
		38 (25643834)		2											
		30 (26307809)		4											

FDG-PET/CT skull base to mid-thigh	Usually appropriate	Strong	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	8	8	0	0	0	1	1	2	4	3	7

References	Study Quality
25 (32554422)	1
24 (34087615)	1
49 (30768363)	2
50 (28600822)	2
36 (28608737)	1
35 (31606761)	2
37 (30473166)	Good
42 (31635765)	4
51 (32129894)	2
10 (28572489)	2
39 (26013025)	2
46 (23538049)	Good
48 (26490394)	2
47 (25131685)	2
17 (25405771)	2
38 (25643834)	2
45 (21470899)	2
44 (21637051)	2
43 (21861286)	2

MRI orbits face neck without and with IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	0	1	9	4	4

References	Study Quality
26 (33370639)	2
31 (27373806)	2
29 (32445627)	2
34 (27480073)	2
59 (32949282)	Good
33 (32152744)	Good

		61 (22877952)		4											
		60 (25197667)		2											
CT chest with IV contrast	May be appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	6	6	0	0	0	0	7	3	6	1	1
		References		Study Quality											
		20 (31005338)		4											
		15 (25239083)		4											
		19 (26350882)		2											
		21 (21232904)		2											
		11 (10718426)		2											
CT chest without IV contrast	May be appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	0	0	4	6	3	4	1	0
		References		Study Quality											
		20 (31005338)		4											
		15 (25239083)		4											
		19 (26350882)		2											
		21 (21232904)		2											
		11 (10718426)		2											
US neck	May be appropriate	Strong	○ ○ 0 mSv	○ ○ 0 mSv [ped]	5	5	0	0	1	2	7	6	2	0	0
		References		Study Quality											
		63 (19688854)		2											
		64 (21674359)		2											
		62 (21604319)		4											
		65 (25150165)		2											
		69 (30227124)		2											
		68 (32792295)		2											
		67 (29362123)		4											
		51 (32129894)		2											
		66 (29496048)		2											

CT head with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	13	2	0	3	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	15	2	0	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	14	2	0	1	1	0	0	0	0
CT maxillofacial with IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	12	1	2	2	1	0	0	0	0
CT maxillofacial without IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	12	3	2	1	0	0	0	0	0
CT maxillofacial without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	14	3	1	0	0	0	0	0	0
CT neck 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	1	0	1
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	2	0	1	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	16	1	0	1	0	0	0	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	1	1	1	0	0	0	0	0
MRI head without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	12	2	2	1	1	0	0	0	0
Radiography chest	Usually not appropriate	Strong	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	13	4	0	0	1	0	0	0	0

References	Study Quality
15 (25239083)	4
11 (10718426)	2

		82 (18704401)		2											
		84 (11130825)		2											
FDG-PET/CT skull base to mid-thigh	Usually appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	8	8	0	0	0	0	1	0	6	4	7
		References		Study Quality											
		87 (17873135)		2											
		88 (24283555)		Not Assessed											
		74 (33416977)		2											
		85 (31635767)		4											
		83 (25348201)		Good											
		17 (25405771)		2											
		82 (18704401)		2											
		84 (11130825)		2											
FDG-PET/MRI skull base to mid-thigh	Usually appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	7	7	1	0	0	0	2	1	9	4	1
		References		Study Quality											
		86 (31746412)		2											
		53 (24924545)		2											
		89 (29502310)		2											
CT chest with IV contrast	May be appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	6	6	0	0	0	0	7	4	5	1	1
		References		Study Quality											
		15 (25239083)		4											
CT chest without IV contrast	May be appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	0	0	4	7	3	3	1	0
		References		Study Quality											
		15 (25239083)		4											
CT maxillofacial with IV contrast	May be appropriate (Disagreement)	Expert Opinion	⊕⊕ 0.1-1mSv	⊕⊕⊕ 0.3-3 mSv [ped]	5	5	0	2	0	4	8	2	0	2	0

CT maxillofacial without IV contrast	May be appropriate (Disagreement)	Expert Opinion	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	5	5	3	0	0	4	8	3	0	0	0
MRI head without and with IV contrast	May be appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	5	5	1	0	1	2	11	2	0	0	1
US neck	May be appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	5	5	0	0	1	2	10	3	2	0	0
		References		Study Quality											
		63 (19688854)		2											
		64 (21674359)		2											
		62 (21604319)		4											
		65 (25150165)		2											
		93 (24764338)		2											
		47 (25131685)		2											
CT neck without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	2	2	9	3	2	0	2	2	0	0	0
CTA neck with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	11	1	4	2	0	0	0	0	0
		References		Study Quality											
		41 (32113152)		4											
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	15	0	2	0	0	0	0	0	1
CT head with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	12	2	2	0	0	1	1	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	15	1	1	0	0	1	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	1	0	1	0

CT maxillofacial without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	14	2	2	0	0	0	0	0
CT neck 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	1	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	3	0	1	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	3	0	1	0	0	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	1	0	1	0	1	0	0
Radiography chest	Usually not appropriate	Strong	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	11	1	2	1	1	1	1	0

References	Study Quality
15 (25239083)	4
11 (10718426)	2
18 (10870751)	2

Radiography paranasal sinuses	Usually not appropriate	Expert Consensus	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	18	0	0	0	0	0	0	0
MRI orbits face neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	10	4	3	1	0	0	0	0
MRA neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	13	3	1	1	0	0	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	13	2	0	1	1	0	0	1
MRI orbits face neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	3	0	0	0	0	0	1

Variant 3: Suspected or diagnosed cancer of the paranasal sinuses or nasal cavity. Initial staging.

		19 (26350882)		2											
		21 (21232904)		2											
		11 (10718426)		2											
CT maxillofacial with IV contrast	May be appropriate	Expert Consensus	☹☹ 0.1-1mSv	☹☹☹ 0.3-3 mSv [ped]	6	6	0	0	0	1	8	6	0	2	1
CT chest without IV contrast	May be appropriate	Strong	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	5	5	0	0	1	2	9	4	1	1	0
		References		Study Quality											
		20 (31005338)		4											
		15 (25239083)		4											
		19 (26350882)		2											
		21 (21232904)		2											
		11 (10718426)		2											
CT maxillofacial without IV contrast	May be appropriate (Disagreement)	Expert Opinion	☹☹ 0.1-1mSv	☹☹☹ 0.3-3 mSv [ped]	5	5	1	1	1	2	7	4	1	1	0
MRI head without and with IV contrast	May be appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	5	5	0	2	1	2	9	3	0	1	0
US neck	May be appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	5	5	0	0	1	1	12	3	1	0	0
		References		Study Quality											
		63 (19688854)		2											
		64 (21674359)		2											
		62 (21604319)		4											
		65 (25150165)		2											
		47 (25131685)		2											
FDG-PET/MRI skull base to mid-thigh	May be appropriate	Strong	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	5	5	1	0	1	1	9	5	0	1	0
		References		Study Quality											
		52 (24649835)		4											

57 (33247166)	2
42 (31635765)	4
56 (28129606)	2
53 (24924545)	2
54 (26243264)	2

CT neck without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	2	2	9	1	2	2	2	1	1	0	0
CTA neck with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	13	1	3	1	0	0	0	0	0

References	Study Quality
41 (32113152)	4

CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	14	1	2	0	0	0	0	0	1
CT head with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	12	1	1	2	1	0	1	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	15	1	1	0	0	1	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	0	2	0	0	0	1	0
CT maxillofacial without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	12	2	0	1	2	0	1	0	0
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	13	1	2	0	0	0	1	0	1
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	16	1	1	0	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	2	1	0	0	0	0	0	0

MRI head without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	1	0	0	1	1	0	1	0
Radiography chest	Usually not appropriate	Strong	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	1	1	11	1	1	2	2	0	1	0	0

References	Study Quality
15 (25239083)	4
11 (10718426)	2
18 (10870751)	2

Radiography paranasal sinuses	Usually not appropriate	Expert Consensus	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	1	1	16	0	1	0	1	0	0	0	0
MRI orbits face neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	10	6	1	0	0	0	0	0	1
MRA neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	2	2	0	0	0	0	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	12	1	1	1	1	0	0	2	0
MRI orbits face neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	16	1	0	0	0	0	0	0	1

Variant 4: Suspected or diagnosed cancer of a major salivary gland (parotid, submandibular, and sublingual glands). Initial staging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI orbits face neck without and with IV contrast	Usually appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	9	9	0	0	0	0	0	1	1	3	13

References	Study Quality
112 (18337041)	4
108 (27236737)	4
107 (33866123)	4

		106 (31327623)		Good											
		113 (25577417)		Good											
CT neck with IV contrast	Usually appropriate	Strong	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	8	8	0	0	0	0	0	3	4	3	8
		References		Study Quality											
		112 (18337041)		4											
		108 (27236737)		4											
		107 (33866123)		4											
		106 (31327623)		Good											
		111 (22842859)		4											
		113 (25577417)		Good											
FDG-PET/CT skull base to mid-thigh	Usually appropriate	Limited	☹☹☹☹ 10-30 mSv	☹☹☹☹ 3-10 mSv [ped]	7	7	1	0	1	0	3	2	4	2	5
		References		Study Quality											
		115 (27890182)		4											
		114 (31102059)		2											
		108 (27236737)		4											
		42 (31635765)		4											
		110 (31635766)		4											
CT chest with IV contrast	May be appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	6	6	0	0	0	0	8	5	3	1	1
		References		Study Quality											
		108 (27236737)		4											
		15 (25239083)		4											
CT chest without IV contrast	May be appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	5	5	0	0	1	3	8	4	1	1	0
		References		Study Quality											
		108 (27236737)		4											
		15 (25239083)		4											

US neck	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	1	0	11	5	1	0	0
		References	Study Quality												
		116 (26224227)	3												
		112 (18337041)	4												
		108 (27236737)	4												
		107 (33866123)	4												
FDG-PET/MRI skull base to mid-thigh	May be appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	1	0	1	1	9	5	0	1	0
		References	Study Quality												
		110 (31635766)	4												
MRI orbits face neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	7	0	2	2	5	1	0	1	0
CTA neck with IV contrast	Usually not appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕ 0.3-3 mSv [ped]	1	1	12	1	3	2	0	0	0	0	0
		References	Study Quality												
		41 (32113152)	4												
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	14	1	2	0	0	0	0	0	1
CT head with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv	⊕⊕⊕ 0.3-3 mSv [ped]	1	1	16	1	0	1	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv	⊕⊕⊕ 0.3-3 mSv [ped]	1	1	18	0	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	2	0	0	0	0	0	0
CT maxillofacial with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕ 0.1-1mSv	⊕⊕⊕ 0.3-3 mSv [ped]	1	1	9	1	3	2	2	1	0	0	0

CT maxillofacial without IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	14	1	1	1	1	0	0	0	0
CT maxillofacial without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	16	1	1	0	0	0	0	0	0
CT neck without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	10	1	3	1	3	0	0	0	0
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	12	2	2	0	0	0	1	0	1
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	16	1	0	1	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	2	0	1	0	0	0	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	2	0	1	0	0	0	0	0
MRI head without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	12	2	1	1	2	0	0	0	0
Radiography chest	Usually not appropriate	Strong	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	11	1	2	2	1	0	1	0	0

References	Study Quality
15 (25239083)	4
11 (10718426)	2
18 (10870751)	2

Radiography paranasal sinuses	Usually not appropriate	Expert Consensus	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	18	0	0	0	0	0	0	0	0
MRA neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	1	1	1	0	0	0	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	13	2	1	1	0	0	0	0	1

MRI orbits face neck with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	2	0	0	0	0	0	0	1
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Variant 5: Treated cancer of the oral cavity or oropharynx or hypopharynx or larynx or cancer of unknown primary of the head and neck. Surveillance imaging or follow-up imaging for suspected or known recurrence.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT neck with IV contrast	Usually appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕ 0.3-3 mSv [ped]	9	9	0	0	0	0	0	0	2	6	10

References	Study Quality
128 (29754496)	2
40 (22996710)	4
126 (25829083)	4
127 (25892275)	2
125 (21439046)	4
123 (21990217)	2
124 (10715030)	2

FDG-PET/CT skull base to mid-thigh	Usually appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	8	8	0	0	0	0	0	1	5	4	8
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References	Study Quality
128 (29754496)	2
129 (29478080)	Good
135 (25716933)	2
19 (26350882)	2
130 (23639557)	2
119 (26188656)	2
133 (25169701)	2
126 (25829083)	4
132 (23817791)	4

		121 (30409312)	2												
		20 (31005338)	4												
		15 (25239083)	4												
		21 (21232904)	2												
US neck	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	3	9	5	1	0	0
		References	Study Quality												
		63 (19688854)	2												
		64 (21674359)	2												
		65 (25150165)	2												
		140 (28638103)	2												
		47 (25131685)	2												
		141 (22201409)	4												
MRI orbits face neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	7	1	2	2	4	2	0	0	0
CTA neck with IV contrast	Usually not appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	1	1	11	1	3	1	0	1	1	0	0
		References	Study Quality												
		41 (32113152)	4												
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	13	2	0	1	0	0	1	1	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	1	1	15	1	1	1	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	1	1	17	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	13	3	1	0	1	0	0	0	0

CT maxillofacial with IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	11	3	2	0	2	0	0	0	0
CT maxillofacial without IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	14	2	0	2	0	0	0	0	0
CT maxillofacial without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	15	2	1	0	0	0	0	0	0
CT neck without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	10	1	1	1	3	0	2	0	0
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	13	1	2	0	0	0	1	1	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	1	0	1	1	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	2	0	1	0	0	1	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	2	0	0	0	1	0	0	0
MRI head without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	13	2	1	0	1	0	0	1	0
Radiography chest	Usually not appropriate	Strong	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	13	4	0	0	1	0	0	0	0

References	Study Quality
15 (25239083)	4
11 (10718426)	2
18 (10870751)	2

Radiography paranasal sinuses	Usually not appropriate	Expert Consensus	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	17	1	0	0	0	0	0	0	0
MRA neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	1	1	1	0	0	1	0	0

			143 (26547126)		Good										
			90 (23769923)		4										
			136 (25917499)		2										
			82 (18704401)		2										
			145 (16622711)		2										
			146 (16954552)		2										
			147 (21501441)		4										
FDG-PET/MRI skull base to mid-thigh	Usually appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	7	7	1	0	0	0	4	1	6	4	2
		References			Study Quality										
		138 (29922943)			4										
		137 (25958189)			2										
CT chest with IV contrast	May be appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	6	6	0	0	0	0	8	4	4	1	1
		References			Study Quality										
		15 (25239083)			4										
CT chest without IV contrast	May be appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	5	5	0	0	0	3	8	4	2	1	0
		References			Study Quality										
		15 (25239083)			4										
CT maxillofacial with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☹☹ 0.1-1mSv	☹☹☹ 0.3-3 mSv [ped]	5	5	0	2	0	2	8	4	1	1	0
CT maxillofacial without IV contrast	May be appropriate (Disagreement)	Expert Opinion	☹☹ 0.1-1mSv	☹☹☹ 0.3-3 mSv [ped]	5	5	3	0	0	3	8	3	0	1	0
MRI head without and with IV contrast	May be appropriate	Expert Consensus	○ ○ 0 mSv	○ ○ 0 mSv [ped]	5	5	1	0	2	1	9	5	0	0	0
US neck	May be appropriate	Strong	○ ○ 0 mSv	○ ○ 0 mSv [ped]	5	5	0	0	0	2	11	4	1	0	0
		References			Study Quality										

		63 (19688854)	2													
		64 (21674359)	2													
		65 (25150165)	2													
		140 (28638103)	2													
		47 (25131685)	2													
CTA neck with IV contrast	Usually not appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	1	1	10	1	4	1	1	1	0	0	0	
		References		Study Quality												
		41 (32113152)		4												
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	14	1	2	0	0	0	0	1	0	
CT head with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	1	1	13	3	0	1	0	0	1	0	0	
CT head without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	1	1	15	3	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	14	1	1	0	1	0	1	0	0	
CT maxillofacial without and with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	1	1	14	3	1	0	0	0	0	0	0	
CT neck without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	1	1	10	2	1	1	2	1	1	0	0	
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	13	1	3	0	0	0	1	0	0	
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	2	0	0	1	0	0	0	0	
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	2	0	0	2	0	0	0	0	

MRI head without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	1	2	0	0	1	0	0	0
Radiography chest	Usually not appropriate	Strong	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	1	1	13	3	1	0	1	0	0	0	0

References	Study Quality
15 (25239083)	4
11 (10718426)	2
18 (10870751)	2

Radiography paranasal sinuses	Usually not appropriate	Expert Consensus	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	1	1	18	0	0	0	0	0	0	0	0
MRI orbits face neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	10	4	3	0	0	0	0	0	1
MRA neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	1	1	0	2	0	0	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	13	1	1	1	0	0	1	1	0
MRI orbits face neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	16	1	0	0	0	0	0	0	1

Variant 7: Treated cancer of the paranasal sinuses or nasal cavity. Surveillance imaging or follow-up imaging for suspected or known recurrence.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI orbits face neck without and with IV contrast	Usually appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	9	9	0	0	1	0	1	0	2	3	11

References	Study Quality
104 (31529977)	4
103 (32608548)	2
105 (25698188)	2

		96 (26476381)			4												
CT neck with IV contrast	Usually appropriate	Limited	⊗⊗⊗ 1-10 mSv	⊗⊗⊗ 0.3-3 mSv [ped]	8	8	0	0	0	0	2	2	3	3	8		
		References			Study Quality												
		96 (26476381)			4												
FDG-PET/CT skull base to mid-thigh	Usually appropriate	Strong	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	8	8	0	0	0	0	0	1	5	4	8		
		References			Study Quality												
		150 (21925763)			4												
		117 (24149172)			2												
		136 (25917499)			2												
		118 (26715675)			4												
		134 (21665394)			2												
		102 (16343913)			2												
		151 (18486742)			4												
CT chest with IV contrast	May be appropriate	Strong	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	6	6	0	0	0	0	9	4	3	1	1		
		References			Study Quality												
		120 (26976351)			2												
		122 (22520870)			2												
		121 (30409312)			2												
		15 (25239083)			4												
		21 (21232904)			2												
CT chest without IV contrast	May be appropriate	Strong	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	5	5	0	0	0	3	9	4	1	1	0		
		References			Study Quality												
		120 (26976351)			2												
		122 (22520870)			2												
		121 (30409312)			2												
		15 (25239083)			4												

		21 (21232904)			2											
CT maxillofacial with IV contrast	May be appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	5	5	0	0	0	3	7	6	0	2	0	
CT maxillofacial without IV contrast	May be appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	5	5	2	0	2	1	7	5	0	1	0	
MRI head without and with IV contrast	May be appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	5	5	1	1	1	2	9	3	0	0	1	
US neck	May be appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	5	5	2	0	0	2	9	4	1	0	0	
		References			Study Quality											
		63 (19688854)			2											
		64 (21674359)			2											
		65 (25150165)			2											
		140 (28638103)			2											
		47 (25131685)			2											
FDG-PET/MRI skull base to mid-thigh	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	5	5	1	0	1	0	8	7	0	1	0	
		References			Study Quality											
		138 (29922943)			4											
		137 (25958189)			2											
MRI orbits face neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	2	2	9	4	3	0	0	0	0	1	1	
CTA neck with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	11	2	2	1	2	0	0	0	0	
		References			Study Quality											
		41 (32113152)			4											
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	14	2	1	0	0	0	0	1	0	

CT head with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	12	2	1	2	0	0	1	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	15	2	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	1	1	0	0
CT maxillofacial without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	14	2	0	0	1	0	1	0	0
CT neck without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	10	1	2	2	1	0	2	0	0
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	13	2	1	0	1	0	1	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	2	0	0	1	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	2	0	0	2	0	0	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	1	0	1	0	1	0	0	0
Radiography chest	Usually not appropriate	Strong	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	15	2	0	0	1	0	0	0	0

		References		Study Quality											
		15 (25239083)		4											
		11 (10718426)		2											
		18 (10870751)		2											
Radiography paranasal sinuses	Usually not appropriate	Expert Consensus	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	17	0	0	0	1	0	0	0	0

CT chest with IV contrast	May be appropriate	Limited	⚠⚠⚠ 1-10 mSv	⚠⚠⚠⚠ 3-10 mSv [ped]	6	6	0	0	0	0	9	4	3	1	1
		References	Study Quality												
		15 (25239083)	4												
CT chest without IV contrast	May be appropriate	Limited	⚠⚠⚠ 1-10 mSv	⚠⚠⚠⚠ 3-10 mSv [ped]	5	5	0	0	0	3	9	4	2	0	0
		References	Study Quality												
		15 (25239083)	4												
US neck	May be appropriate	Limited	0 0 mSv	0 0 mSv [ped]	5	5	0	0	0	2	11	4	1	0	0
		References	Study Quality												
		112 (18337041)	4												
		108 (27236737)	4												
FDG-PET/MRI skull base to mid-thigh	May be appropriate	Strong	⚠⚠⚠ 1-10 mSv	⚠⚠⚠⚠ 3-10 mSv [ped]	5	5	1	0	0	0	10	6	0	1	0
		References	Study Quality												
		152 (30548894)	2												
		154 (25841279)	4												
		137 (25958189)	2												
Radiography chest	Usually not appropriate	Strong	⚠ <0.1 mSv	⚠ <0.03 mSv [ped]	2	2	8	4	2	0	2	1	1	0	0
		References	Study Quality												
		15 (25239083)	4												
		11 (10718426)	2												
		18 (10870751)	2												
CTA neck with IV contrast	Usually not appropriate	Limited	⚠⚠⚠ 1-10 mSv	⚠⚠⚠ 0.3-3 mSv [ped]	1	1	10	2	2	2	2	0	0	0	0
		References	Study Quality												
		41 (32113152)	4												

CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	15	1	1	0	0	0	0	1	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	14	1	0	1	2	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	16	1	0	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	14	2	0	0	2	0	0	0	0
CT maxillofacial with IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	10	2	2	1	1	2	0	0	0
CT maxillofacial without IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	14	1	2	1	0	0	0	0	0
CT maxillofacial without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	14	3	0	0	1	0	0	0	0
CT neck without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	12	4	1	0	0	0	0	0	1
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	13	1	2	0	0	0	1	1	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	3	0	0	1	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	2	0	0	2	0	0	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	2	0	0	1	0	0	0	0
MRI head without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	10	2	2	0	3	1	0	0	0

Radiography paranasal sinuses	Usually not appropriate	Expert Consensus	☼ <0.1 mSv	☼ <0.03 mSv [ped]	1	1	17	1	0	0	0	0	0	0	0
MRI orbits face neck without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	11	3	3	0	1	0	0	0	0
MRA neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	13	2	1	0	2	0	0	0	0
MRI head with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	13	2	0	2	0	1	0	0	0
MRI orbits face neck with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	16	1	0	0	0	0	0	0	1

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.