## American College of Radiology ACR Appropriateness Criteria®

## Radiologic Management of Venous Thromboembolism-Inferior Vena Cava Filters

Variant 1: Acute venous thromboembolism (proximal deep vein thrombosis of the leg or pulmonary embolism) with no contraindication to anticoagulation.

	Appropriateness	COL	A.L.V. DDV	D 1 DD1	D (1	37.11			F	inal	Tabu	latio	ns		
Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Anticoagulation	Usually appropriate	Moderate	N/A	N/A	9	9	0	0	0	0	0	0	0	2	12
		References		Study	Quality										
		1 (24549552)			4										
		3 (26867832)			4										
		4 (18322285)			4										
		22 (19717844)			1		_								
Retrievable IVC filter	May be appropriate	Strong	N/A	N/A	4	4	0	3	2	4	4	1	0	0	0
		References		Study	Quality										
		18 (16567669)			4										
		26 (24269095)			3										
		37 (23467701)			3										
		27 (22310013)			3										
		33 (23968903)			2										
		25 (25446296)			3										
		28 (24280176)			3										
		29 (17625093)			4										
		30 (9040297)			4										
		31 (15784297)			4										

			32 (22643565)				4										
			34 (24997415)				4										
			35 (22421738)				1										
			36 (17261856)				4										
			38 (17329532)				4										
			39 (16215350)				4										
			40 (9674471)				2										
Permanent IVC filter	Usually approp	y not oriate	Moderate	N/A		N/A	2	2	7	4	2	0	1	0	0	0	0
			References		·	Stud	y Quality										
			References 3 (26867832)				4										
			23 (9459643)				1										
			24 (28935036)			(	Good										

Variant 2: Acute venous thromboembolism (proximal deep vein thrombosis of the leg or pulmonary embolism) with contraindication to anticoagulation, major complication of anticoagulation, or failure of anticoagulation.

D 1	Appropri	ateness	COF	4 1 14 DD		D.T.	D. (	3.6.11			F	inal	Tabu	latio	ns		
Trocedure	Categ		SOE	Adults RR	L Peds R	KL	Rating	Median	1	2	3	4	5	6	7	8	9
Retrievable IVC filter	Usua approp	.*	Strong	N/A	N/A		8	8	0	0	0	0	0	0	2	7	5
			References			Study	Quality										

References	Study Quality
14 (24928649)	3
51 (25919526)	1
9 (22173108)	4
52 (17916166)	4
53 (23180324)	4
54 (24980424)	3
55 (10693718)	4
56 (24630748)	2
57 (20696949)	4

		58 (-3123667)					4										
Permanent IVC filter	May approp	be oriate	Strong	N/A		N/A	6	6	0	1	0	0	5	3	2	3	0
			References 49 (15252766)			Study	Quality										
			49 (15252766)				4										
			44 (16009794)				1										
			23 (9459643)				1										
		23 (9459643) 12 (22024114)					4										
			43 (24576432)				1										
			45 (24500085)				3										
			46 (23622035)				2										
			47 (10887228)				4										
			48 (12953821)				4										
			50 (16604959)				4										

Variant 3: Isolated acute distal deep vein thrombosis of the leg.

D. I	Appropriateness	COF	A L L DDI	D I DDI	D 4	3.6.11			F	inal '	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRI	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Observation with serial imaging	Usually appropriate	Limited	N/A	N/A	7	7	0	0	0	0	1	3	5	3	2
		References		Study	Quality										
		3 (26867832)			4										
Anticoagulation	May be appropriate	Limited	N/A	N/A	6	6	0	0	0	0	1	7	1	2	3
		References		Study	Quality										
		3 (26867832)			4										
Retrievable IVC filter	Usually not appropriate	Expert Consensus	N/A	N/A	3	3	5	1	3	3	0	2	0	0	0

Permanent IVC filter	Usually not appropriate	Expert Consensus	N/A	N/A	2	2	7	5	2	0	0	0	0	0	0	
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## Variant 4: Chronic venous thromboembolism (eg, chronic thromboembolic pulmonary hypertension).

	Appropri	ateness	go <del>n</del>	A L II DDI	D 1 DD1	D 41	3.5 3.			F	inal	Tabu	latio	ns		
Procedure	Categ		SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Anticoagulation	Usua approp		Moderate	N/A	N/A	9	9	0	0	0	0	1	0	1	3	9
			References		Study	Quality										
			3 (26867832)			4										
			59 (23883377)			1		_				_				
Pulmonary thromboendarterectomy	Usua approp		Limited	N/A	N/A	7	7	0	0	0	1	1	5	4	3	0
			References		Study	Quality										
		60 (15163775)				4										
		60 (15163775) 61 (27571005)				4										
Permanent IVC filter	May approp	be riate	Limited	N/A	N/A	5	5	0	0	0	2	9	2	0	0	0
			References		Study	Quality										
,			62 (21330453)			4										
Balloon pulmonary angioplasty	May approp		Limited	N/A	N/A	5	5	0	0	1	3	8	1	0	0	0
			References		Study	Quality										
	_		63 (29636403)			4										
Retrievable IVC filter	May approp		Limited	N/A	N/A	4	4	0	1	3	4	3	3	0	0	0
			References		Study	Quality										
			62 (21330453)			4										

Variant 5: Venous thromboembolism prophylaxis in high-risk patient (eg, major trauma, traumatic brain injury, etc).

<b>.</b> .	Appropriateness	SS SOE Adults RRL Peds RRL Rating Median							I	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Intermittent pneumatic compression devices	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	4	2	3	5
		References		Study	y Quality										
		78 (14598411)			1										
Prophylactic anticoagulation	Usually appropriate	Limited	N/A	N/A	7	7	0	0	0	0	1	1	5	5	1
		References		Study	y Quality										
		64 (8703169)			1						_				
Retrievable IVC filter	May be appropriate	Strong	N/A	N/A	6	6	0	0	1	2	2	7	1	1	0
		References	Study	y Quality											
		15 (22698970)		4											
		19 (17070525)			4										
		20 (22047757)			2										
		21 (20345723)			4										
		66 (16859222)			4										
		67 (16310701)			4										
		68 (17124100)			4										
		69 (15041267)			4										
		72 (21825934)			1										
		73 (24195920)	(	Good											
		74 (10759199)		4											
		75 (23754086)			4										
		76 (22360915)		3											
		70 (26366537)			2										

			77 (25599325)				4										
			71 (27682367)				2										
Surveillance US	May approp	be oriate	Limited	N/A		N/A	5	5	0	1	1	1	8	2	0	0	0
			References			Study	Quality										
			References 79 (26032827)				4										
Permanent IVC filter	Usuall approp	y not oriate	Limited	N/A		N/A	3	3	6	1	4	1	1	1	0	0	0
			References		·	Study	Quality		•	•	•				-		
			65 (21990806)				3										

Variant 6: Proximal deep vein thrombosis of the leg undergoing catheter-directed thrombolysis.

n 1	Appropri	ateness	gor.	4 1 14 DD	_	D I DDI	D (1	36.11			F	inal '	Tabu	latio	ns		
Procedure	Categ	gory	SOE	Adults RR	L	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Anticoagulation	Usua approp		Expert Consensus	N/A		N/A	9	9	0	1	0	1	2	1	0	2	7
Retrievable IVC filter	May approp	be riate	Limited	N/A		N/A	5	5	0	0	1	3	8	1	0	0	0
			References			Study	Quality										
			References 80 (22271078)				1										
			31 (15784297)				4		_								
Permanent IVC filter	Usually approp	y not riate	Limited	N/A		N/A	2	2	5	3	3	2	0	1	0	0	0
			References			Study	Quality										
			80 (22271078)				1										
			31 (15784297)				4										

Variant 7: Indwelling prophylactic retrievable inferior vena cava filter, resolution of risk factors for venous thromboembolism.

D 1	Appropriateness	COF	4 1 14 DD		D I DDI	D 41	N. 11			F	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RR	KL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Venography at time of retrieval procedure	Usually appropriate	Limited	N/A		N/A	9	9	0	0	0	0	0	0	0	4	10
		References			Study	Quality										
		18 (16567669)				4										
US duplex Doppler lower extremities prior to retrieval	May be appropriate	Limited	N/A		N/A	6	6	0	0	1	4	1	1	5	1	0
		References			Study	Quality								•		
		18 (16567669)				4		_	_							
CT venography prior to retrieval	Usually not appropriate	Limited	N/A		N/A	3	3	0	0	10	2	1	0	0	0	0
		References			Study	Quality										
		18 (16567669)				4										

Variant 8: Indwelling retrievable inferior vena cava filter for venous thromboembolism, now tolerating or completed therapeutic anticoagulation.

Procedure	Appropriatenes	S	Adults RRL	, D 1 DD1	Rating	Median	Final Tabulations									
	Category	SOE		L Peds RRL			1	2	3	4	5	6	7	8	9	
Venography at time of retrieval procedure	Usually appropriate	Limited	N/A	N/A	9	9	0	0	0	0	0	0	0	4	10	
		References		Study Quality												
		18 (16567669)		4									_			
US duplex Doppler lower extremities prior to retrieval	May be appropriate (Disagreement)	Expert Opinion	N/A	N/A	5	5	0	1	4	2	0	2	4	0	0	
		References		Study Quality												
		18 (16567669)		4			_							_		
CT venography prior to retrieval	Usually not appropriate	Limited	N/A	N/A	3	3	0	0	9	4	0	0	0	0	0	

References	Study Quality						
18 (16567669)	4						

Variant 9: Indwelling retrievable inferior vena cava filter with failed first retrieval attempt.

Procedure	Appropriaten	ess sor	A deelda DDI	D. J. DDI	Rating	Madian	Final Tabulations								
	Category	SOE	Adults RRI	Peds RRL		Median	1	2	3	4	5	6	7	8	9
Re-attempt retrieval with advanced techniques	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	1	2	9	2
		References		Study Quality											
		56 (24630748)		2											
		88 (21530309)													
		89 (21050774)			4	_									
Convert to permanent device	May be appropriate	Limited	N/A	N/A	4	4	0	2	2	5	3	0	1	0	0
		References		Study Quality											
		56 (24630748)		2											
Refer for surgical evaluation for retrieval	Usually not appropriate		N/A	N/A	3	3	0	5	4	1	2	2	0	0	0
		References	References		Study Quality										
		90 (21674279)			4										
		91 (26993841)			4										

## **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.