

**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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							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 not appropriate	Moderate	N/A	N/A	2	2	7	4	2	0	1	0	0	0	0
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References	Study Quality
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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Retrievable IVC filter	Usually appropriate	Strong	N/A	N/A	8	8	0	0	0	0	0	0	2	7	5

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 be appropriate	Strong	N/A	N/A	6	6	0	1	0	0	5	3	2	3	0			
		References		Study Quality														
		49 (15252766)		4														
		44 (16009794)		1														
		23 (9459643)		1														
		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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations											
							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).**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Anticoagulation	Usually appropriate	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	Usually appropriate	Limited	N/A	N/A	7	7	0	0	0	1	1	5	4	3	0
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References	Study Quality
60 (15163775)	4
61 (27571005)	4

Permanent IVC filter	May be appropriate	Limited	N/A	N/A	5	5	0	0	0	2	9	2	0	0	0
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References	Study Quality
62 (21330453)	4

Balloon pulmonary angioplasty	May be appropriate	Limited	N/A	N/A	5	5	0	0	1	3	8	1	0	0	0
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References	Study Quality
63 (29636403)	4

Retrievable IVC filter	May be appropriate	Limited	N/A	N/A	4	4	0	1	3	4	3	3	0	0	0
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References	Study Quality
62 (21330453)	4

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

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							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 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 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 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 be appropriate	Limited	N/A	N/A	5	5	0	1	1	1	8	2	0	0	0				
		References		Study Quality															
			79 (26032827)		4														
Permanent IVC filter	Usually not appropriate	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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations													
							1	2	3	4	5	6	7	8	9					
Anticoagulation	Usually appropriate	Expert Consensus	N/A	N/A	9	9	0	1	0	1	2	1	0	2	7					
Retrievable IVC filter	May be appropriate	Limited	N/A	N/A	5	5	0	0	1	3	8	1	0	0	0					
		References		Study Quality																
			80 (22271078)		1															
			31 (15784297)		4															
Permanent IVC filter	Usually not appropriate	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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							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	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							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	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							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)	4												
		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	Limited	N/A	N/A	3	3	0	5	4	1	2	2	0	0	0
		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](http://www.acr.org/ac).