

**American College of Radiology
ACR Appropriateness Criteria®**

Postpartum Hemorrhage

Variant 1: Postpartum hemorrhage. Early (within first 24 hours) after cesarean delivery. Initial Imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US duplex Doppler pelvis	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	0	0	5	3	7
		References		Study Quality											
		7 (12808674)		3											
		25 (23674774)		4											
		19 (26476825)		2											
		14 (25041975)		4											
		20 (24691826)		4											
		26 (15977019)		3											
		12 (22977030)		4											
US pelvis transabdominal	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	1	0	4	3	7
		References		Study Quality											
		19 (26476825)		2											
		14 (25041975)		4											
		13 (19477095)		4											
		15 (23065165)		4											
		20 (24691826)		4											
		27 (18314513)		4											
		28 (15065189)		4											

US pelvis transvaginal	Usually appropriate	Limited	0 mSv	0 mSv [ped]	8	8	0	0	0	0	0	0	4	4	7
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References	Study Quality
19 (26476825)	2
14 (25041975)	4
13 (19477095)	4
15 (23065165)	4
20 (24691826)	4
26 (15977019)	3
27 (18314513)	4
28 (15065189)	4

CT abdomen and pelvis with IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	6	6	0	0	0	1	3	4	5	0	2
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References	Study Quality
14 (25041975)	4
13 (19477095)	4
15 (23065165)	4
12 (22977030)	4
16 (24210440)	4

CTA abdomen and pelvis with IV contrast	May be appropriate	Strong	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	6	6	0	0	0	1	6	2	2	1	3
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References	Study Quality
19 (26476825)	2
14 (25041975)	4
20 (24691826)	4
12 (22977030)	4
18 (20093600)	2
17 (24630300)	4
21 (22779960)	3

CT abdomen and pelvis without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	5	5	1	2	4	2	3	0	0	0	2
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	3	2	5	2	1	0	1	0	0
MRI pelvis without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	1	3	9	1	0	0	0	0	0

References	Study Quality
19 (26476825)	2
14 (25041975)	4
15 (23065165)	4
20 (24691826)	4
22 (15371610)	4
23 (10463646)	3

MRI pelvis without and with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	1	2	9	1	1	0	0	0	0
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References	Study Quality
19 (26476825)	2
14 (25041975)	4
15 (23065165)	4
20 (24691826)	4
22 (15371610)	4

Variant 2: Postpartum hemorrhage. Early (within first 24 hours) after vaginal delivery. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US duplex Doppler pelvis	Usually appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	8	8	0	0	0	0	0	0	5	4	6

References	Study Quality
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7 (12808674)	3
25 (23674774)	4
19 (26476825)	2
14 (25041975)	4
24 (19244064)	3
20 (24691826)	4
26 (15977019)	3

US pelvis transabdominal	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	0	0	7	2	6
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References	Study Quality
14 (25041975)	4
13 (19477095)	4
15 (23065165)	4
27 (18314513)	4
28 (15065189)	4

US pelvis transvaginal	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	0	0	3	5	7
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References	Study Quality
14 (25041975)	4
13 (19477095)	4
15 (23065165)	4
27 (18314513)	4
28 (15065189)	4

CT abdomen and pelvis with IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	6	6	0	0	0	2	2	8	2	0	0
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References	Study Quality
14 (25041975)	4
13 (19477095)	4
15 (23065165)	4
12 (22977030)	4
29 (23937115)	3

			30 (8372764)		4													
CTA abdomen and pelvis with IV contrast	May be appropriate	Strong	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗⊗ 10-30 mSv [ped]	6	6	0	0	0	2	2	6	3	1	0			
			References		Study Quality													
			19 (26476825)		2													
			14 (25041975)		4													
			20 (24691826)		4													
			12 (22977030)		4													
			18 (20093600)		2													
			17 (24630300)		4													
			21 (22779960)		3													
CT abdomen and pelvis without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗⊗ 10-30 mSv [ped]	5	5	0	1	2	2	5	2	2	0	0			
			References		Study Quality													
			12 (22977030)		4													
			29 (23937115)		3													
CT abdomen and pelvis without IV contrast	May be appropriate	Expert Consensus	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗⊗ 3-10 mSv [ped]	4	4	0	1	3	7	2	1	0	0	0			
MRI pelvis without and with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	3	2	8	0	0	0	0	1	0			
			References		Study Quality													
			19 (26476825)		2													
			14 (25041975)		4													
			13 (19477095)		4													
			20 (24691826)		4													
			23 (10463646)		3													
MRI pelvis without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	4	5	4	0	0	0	1	0	0			

References	Study Quality
19 (26476825)	2
14 (25041975)	4
13 (19477095)	4
20 (24691826)	4
23 (10463646)	3

Variant 3: Postpartum hemorrhage. Late (greater than 24 hours to 6 weeks) after caesarian delivery. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US duplex Doppler pelvis	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	0	2	5	8

References	Study Quality
7 (12808674)	3
25 (23674774)	4
19 (26476825)	2
14 (25041975)	4
20 (24691826)	4
26 (15977019)	3
12 (22977030)	4

US pelvis transabdominal	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	0	3	4	8
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References	Study Quality
25 (23674774)	4
19 (26476825)	2
14 (25041975)	4
13 (19477095)	4
15 (23065165)	4
20 (24691826)	4

26 (15977019)	3
31 (25303033)	3
32 (20488441)	2
6 (31685103)	4

US pelvis transvaginal	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	0	0	4	11
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References	Study Quality
25 (23674774)	4
19 (26476825)	2
14 (25041975)	4
13 (19477095)	4
15 (23065165)	4
20 (24691826)	4
26 (15977019)	3
32 (20488441)	2
6 (31685103)	4

CT abdomen and pelvis with IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	6	6	0	0	0	0	7	3	3	0	2
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References	Study Quality
14 (25041975)	4
15 (23065165)	4
12 (22977030)	4
29 (23937115)	3

CT abdomen and pelvis without and with IV contrast	May be appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	6	6	0	0	1	1	5	6	0	0	1
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CTA abdomen and pelvis with IV contrast	May be appropriate	Strong	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	6	6	0	0	0	1	1	7	3	2	0
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References	Study Quality
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19 (26476825)	2
20 (24691826)	4
12 (22977030)	4
18 (20093600)	2
17 (24630300)	4
21 (22779960)	3

MRI pelvis without and with IV contrast	May be appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	6	6	0	1	4	1	1	7	0	0	0
CT abdomen and pelvis without IV contrast	May be appropriate	Expert Consensus	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	5	5	0	0	4	3	4	3	0	0	0
MRI pelvis without IV contrast	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	0	3	3	1	3	3	1	0	0

References	Study Quality
19 (26476825)	2
14 (25041975)	4
13 (19477095)	4
15 (23065165)	4
20 (24691826)	4
21 (22779960)	3
22 (15371610)	4
23 (10463646)	3

Variant 4: Postpartum hemorrhage. Late (greater than 24 hours to 6 weeks) after vaginal delivery. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US pelvis transvaginal	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	9	9	0	0	0	0	0	0	0	6	9

References	Study Quality
14 (25041975)	4

			29 (23937115)		3														
CTA abdomen and pelvis with IV contrast	May be appropriate	Strong	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗⊗ 10-30 mSv [ped]	6	6	0	0	0	1	4	5	4	0	0				

References	Study Quality
19 (26476825)	2
14 (25041975)	4
20 (24691826)	4
12 (22977030)	4
18 (20093600)	2
17 (24630300)	4
21 (22779960)	3

CT abdomen and pelvis without and with IV contrast	May be appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗⊗ 10-30 mSv [ped]	5	5	0	0	1	2	5	5	0	0	1				
MRI pelvis without IV contrast	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	1	1	1	1	3	4	2	1	0				

References	Study Quality
19 (26476825)	2
14 (25041975)	4
13 (19477095)	4
20 (24691826)	4
23 (10463646)	3

MRI pelvis without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	0	1	2	1	2	6	0	2	0				
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References	Study Quality
19 (26476825)	2
14 (25041975)	4
13 (19477095)	4
20 (24691826)	4

		23 (10463646)		3														
CT abdomen and pelvis without IV contrast	May be appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	4	4	1	0	3	4	2	4	0	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.