

| | | | | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|---------------------|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| | | 13 (22808568) | | 2 | | | | | | | | | | | | | | |
| US FAST scan chest abdomen and pelvis | Usually appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 7 | 7 | 0 | 1 | 0 | 0 | 2 | 2 | 3 | 3 | 3 | | | |
| | | References | Study Quality | | | | | | | | | | | | | | | |
| | | 5 (22512989) | 2 | | | | | | | | | | | | | | | |
| CT whole body without IV contrast | May be appropriate | Strong | ⊕⊕⊕⊕ 10-30 mSv | | 5 | 5 | 0 | 2 | 0 | 2 | 8 | 1 | 1 | 0 | 0 | | | |
| | | References | Study Quality | | | | | | | | | | | | | | | |
| | | 20 (26122129) | 4 | | | | | | | | | | | | | | | |
| | | 14 (19321199) | 3 | | | | | | | | | | | | | | | |
| | | 19 (2783289) | 3 | | | | | | | | | | | | | | | |
| | | 16 (25250591) | Good | | | | | | | | | | | | | | | |
| | | 15 (23949104) | 3 | | | | | | | | | | | | | | | |
| | | 18 (22458247) | 4 | | | | | | | | | | | | | | | |
| | | 8 (27163732) | 2 | | | | | | | | | | | | | | | |
| | | 17 (28610777) | Good | | | | | | | | | | | | | | | |
| Fluoroscopy retrograde urethrography | Usually not appropriate | Expert Consensus | ⊕⊕⊕ 1-10 mSv | ⊕⊕⊕ 0.3-3 mSv [ped] | 3 | 3 | 5 | 2 | 2 | 1 | 2 | 1 | 0 | 0 | 1 | | | |
| MRI abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 2 | 2 | 7 | 2 | 1 | 2 | 1 | 0 | 0 | 0 | 1 | | | |
| MRI abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 2 | 2 | 5 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | | | |

Variant 3: Major blunt trauma. Hemodynamically stable. Suspected facial injury. Initial imaging.

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | | | | |
|--------------------------------------|--------------------------|------------|---------------|----------|--------|--------|-------------------|---|---|---|---|---|---|---|---|--|--|--|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | |
| CT maxillofacial without IV contrast | Usually appropriate | Limited | ⊕⊕ 0.1-1mSv | | 9 | 9 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 8 | | | |
| | | References | Study Quality | | | | | | | | | | | | | | | |

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| 21 (22964404) | 4 |
| 22 (16702454) | 4 |
| 23 (15730983) | 3 |

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|-----------------------------|---------------------|------------------|--------------|---------------------|---|---|---|---|---|---|---|---|---|---|---|
| CT head without IV contrast | Usually appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼ 0.3-3 mSv [ped] | 8 | 8 | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 2 | 6 |
| Radiography trauma series | Usually appropriate | Strong | ☼☼☼ 1-10 mSv | | 8 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 5 | 5 |

| | |
|---------------|---------------|
| References | Study Quality |
| 4 (22920605) | 2 |
| 13 (22808568) | 2 |

| | | | | | | | | | | | | | | | |
|--------------------------------|-----------------------------------|----------------|----------------|--|---|---|---|---|---|---|---|---|---|---|---|
| CT whole body with IV contrast | May be appropriate (Disagreement) | Expert Opinion | ☼☼☼☼ 10-30 mSv | | 5 | 5 | 0 | 2 | 0 | 1 | 3 | 1 | 0 | 4 | 3 |
|--------------------------------|-----------------------------------|----------------|----------------|--|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---------------|---------------|
| References | Study Quality |
| 20 (26122129) | 4 |
| 14 (19321199) | 3 |
| 19 (2783289) | 3 |
| 16 (25250591) | Good |
| 15 (23949104) | 3 |
| 18 (22458247) | 4 |
| 8 (27163732) | 2 |
| 17 (28610777) | Good |

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|-----------------------------------|--------------------|--------|----------------|--|---|---|---|---|---|---|---|---|---|---|---|
| CT whole body without IV contrast | May be appropriate | Strong | ☼☼☼☼ 10-30 mSv | | 4 | 4 | 2 | 4 | 1 | 3 | 3 | 0 | 0 | 1 | 0 |
|-----------------------------------|--------------------|--------|----------------|--|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---------------|---------------|
| References | Study Quality |
| 20 (26122129) | 4 |
| 14 (19321199) | 3 |
| 19 (2783289) | 3 |
| 16 (25250591) | Good |
| 15 (23949104) | 3 |
| 18 (22458247) | 4 |

| | |
|---------------|------|
| 14 (19321199) | 3 |
| 19 (2783289) | 3 |
| 16 (25250591) | Good |
| 15 (23949104) | 3 |
| 18 (22458247) | 4 |
| 8 (27163732) | 2 |
| 17 (28610777) | Good |

| | | | | | | | | | | | | | | | |
|---------------------------|---------------------|--------|--------------|--|---|---|---|---|---|---|---|---|---|---|---|
| Radiography trauma series | Usually appropriate | Strong | ⊕⊕⊕ 1-10 mSv | | 8 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 5 | 6 |
|---------------------------|---------------------|--------|--------------|--|---|---|---|---|---|---|---|---|---|---|---|

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|---------------|---------------|
| References | Study Quality |
| 4 (22920605) | 2 |
| 13 (22808568) | 2 |

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|---------------------------------------|---------------------|---------|---------|---------------|---|---|---|---|---|---|---|---|---|---|---|
| US FAST scan chest abdomen and pelvis | Usually appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 7 | 7 | 1 | 0 | 0 | 0 | 4 | 1 | 2 | 3 | 3 |
|---------------------------------------|---------------------|---------|---------|---------------|---|---|---|---|---|---|---|---|---|---|---|

| | |
|--------------|---------------|
| References | Study Quality |
| 5 (22512989) | 2 |

| | | | | | | | | | | | | | | | |
|-----------------------------------|-----------------------------------|----------------|----------------|--|---|---|---|---|---|---|---|---|---|---|---|
| CT whole body without IV contrast | May be appropriate (Disagreement) | Expert Opinion | ⊕⊕⊕⊕ 10-30 mSv | | 5 | 5 | 0 | 2 | 3 | 2 | 3 | 1 | 1 | 2 | 0 |
|-----------------------------------|-----------------------------------|----------------|----------------|--|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---------------|---------------|
| References | Study Quality |
| 20 (26122129) | 4 |
| 14 (19321199) | 3 |
| 19 (2783289) | 3 |
| 16 (25250591) | Good |
| 15 (23949104) | 3 |
| 18 (22458247) | 4 |
| 8 (27163732) | 2 |
| 17 (28610777) | Good |

| | | | | | | | | | | | | | | | |
|----------------------------------|--------------------|------------------|--------|--------|---|---|---|---|---|---|---|---|---|---|---|
| CT extremity without IV contrast | May be appropriate | Expert Consensus | Varies | Varies | 5 | 5 | 0 | 2 | 3 | 0 | 8 | 1 | 0 | 0 | 0 |
|----------------------------------|--------------------|------------------|--------|--------|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | |
|---|-----------------------------------|------------------|--------|---------------|---|---|---|---|---|---|---|---|---|---|---|
| CTA extremity with IV contrast | May be appropriate (Disagreement) | Expert Opinion | Varies | Varies | 5 | 5 | 0 | 1 | 1 | 0 | 2 | 1 | 5 | 2 | 2 |
| | | References | | Study Quality | | | | | | | | | | | |
| | | 24 (22190106) | | 4 | | | | | | | | | | | |
| CT extremity with IV contrast | May be appropriate | Expert Consensus | Varies | Varies | 4 | 4 | 1 | 2 | 4 | 3 | 3 | 1 | 0 | 0 | 0 |
| CT extremity without and with IV contrast | Usually not appropriate | Expert Consensus | Varies | Varies | 2 | 2 | 6 | 2 | 2 | 1 | 2 | 1 | 0 | 0 | 0 |

Variant 5: Major blunt trauma. Hemodynamically stable. Suspected bowel trauma. Initial imaging.

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|--|--------------------------|---------------|----------------|---------------------|--------|--------|-------------------|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| CT abdomen and pelvis with IV contrast | Usually appropriate | Limited | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 9 | 9 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 9 |
| | | References | | Study Quality | | | | | | | | | | | |
| | | 25 (23624596) | | Inadequate | | | | | | | | | | | |
| | | 19 (2783289) | | 3 | | | | | | | | | | | |
| US FAST scan chest abdomen and pelvis | Usually appropriate | Limited | 0 0 mSv | 0 0 mSv [ped] | 8 | 8 | 0 | 1 | 0 | 0 | 1 | 0 | 4 | 5 | 3 |
| | | References | | Study Quality | | | | | | | | | | | |
| | | 5 (22512989) | | 2 | | | | | | | | | | | |
| CT whole body with IV contrast | Usually appropriate | Strong | ☼☼☼☼ 10-30 mSv | | 8 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 8 | 4 |
| | | References | | Study Quality | | | | | | | | | | | |
| | | 20 (26122129) | | 4 | | | | | | | | | | | |
| | | 14 (19321199) | | 3 | | | | | | | | | | | |
| | | 19 (2783289) | | 3 | | | | | | | | | | | |
| | | 16 (25250591) | | Good | | | | | | | | | | | |

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|---|-------------------------|---------------|----------------|-----------------------|---|---|---|---|---|---|---|---|---|---|---|
| CT abdomen and pelvis without and with IV contrast | Usually not appropriate | Limited | ☼☼☼☼ 10-30 mSv | ☼☼☼☼☼ 10-30 mSv [ped] | 2 | 2 | 6 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 25 (23624596) | Inadequate | | | | | | | | | | | | |
| | | 19 (2783289) | 3 | | | | | | | | | | | | |
| MRI abdomen and pelvis without IV contrast | Usually not appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 2 | 2 | 7 | 1 | 3 | 0 | 1 | 1 | 1 | 0 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 28 (-3147030) | 4 | | | | | | | | | | | | |
| MRI abdomen and pelvis without and with IV contrast | Usually not appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 2 | 2 | 7 | 0 | 3 | 2 | 1 | 0 | 0 | 1 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 28 (-3147030) | 4 | | | | | | | | | | | | |
| US abdomen | Usually not appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 2 | 2 | 5 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 29 (15278707) | 4 | | | | | | | | | | | | |

Variant 6: Major blunt trauma. Hemodynamically stable. Suspected urinary system, including urethra trauma. Initial imaging.

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|--------------------------------------|--------------------------|---------------|---------------|---------------------|--------|--------|-------------------|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Fluoroscopy retrograde urethrography | Usually appropriate | Limited | ☼☼☼ 1-10 mSv | ☼☼☼ 0.3-3 mSv [ped] | 9 | 9 | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 8 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 47 (28126218) | 4 | | | | | | | | | | | | |
| Radiography trauma series | Usually appropriate | Strong | ☼☼☼ 1-10 mSv | | 9 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 3 | 7 |
| | | References | Study Quality | | | | | | | | | | | | |

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|---|-----------------------------------|----------------|----------------|---------------------|---|---|---|---|---|---|---|---|---|---|---|
| CT abdomen and pelvis without IV contrast | May be appropriate | Limited | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 5 | 5 | 1 | 2 | 0 | 4 | 8 | 0 | 0 | 0 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 25 (23624596) | Inadequate | | | | | | | | | | | | |
| | | 19 (2783289) | 3 | | | | | | | | | | | | |
| CTU without and with IV contrast | May be appropriate (Disagreement) | Expert Opinion | ☼☼☼☼ 10-30 mSv | | 5 | 5 | 0 | 2 | 0 | 0 | 2 | 2 | 2 | 3 | 4 |
| CT whole body without IV contrast | May be appropriate | Strong | ☼☼☼☼ 10-30 mSv | | 5 | 5 | 0 | 3 | 2 | 2 | 5 | 2 | 0 | 0 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 20 (26122129) | 4 | | | | | | | | | | | | |
| | | 19 (2783289) | 3 | | | | | | | | | | | | |
| | | 16 (25250591) | Good | | | | | | | | | | | | |
| | | 15 (23949104) | 3 | | | | | | | | | | | | |
| | | 18 (22458247) | 4 | | | | | | | | | | | | |
| | | 8 (27163732) | 2 | | | | | | | | | | | | |
| | | 17 (28610777) | Good | | | | | | | | | | | | |
| Radiography intravenous urography | Usually not appropriate | Limited | ☼☼☼ 1-10 mSv | ☼☼☼ 0.3-3 mSv [ped] | 3 | 3 | 3 | 1 | 5 | 2 | 2 | 1 | 0 | 0 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 46 (1757139) | 4 | | | | | | | | | | | | |
| | | 43 (6616359) | 4 | | | | | | | | | | | | |
| | | 44 (6359436) | 4 | | | | | | | | | | | | |
| | | 45 (6632094) | 4 | | | | | | | | | | | | |
| US abdomen and pelvis | Usually not appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 3 | 3 | 2 | 5 | 6 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 29 (15278707) | 4 | | | | | | | | | | | | |
| | | 41 (15798158) | 3 | | | | | | | | | | | | |
| | | 42 (9323670) | 3 | | | | | | | | | | | | |

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|--|-------------------------|------------------|----------------|----------------------|---|---|---|---|---|---|---|---|---|---|---|
| CT whole body without IV contrast | May be appropriate | Strong | ⊕⊕⊕⊕ 10-30 mSv | | 5 | 5 | 0 | 3 | 0 | 3 | 7 | 1 | 0 | 0 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 20 (26122129) | 4 | | | | | | | | | | | | |
| | | 14 (19321199) | 3 | | | | | | | | | | | | |
| | | 19 (2783289) | 3 | | | | | | | | | | | | |
| | | 16 (25250591) | Good | | | | | | | | | | | | |
| | | 15 (23949104) | 3 | | | | | | | | | | | | |
| | | 18 (22458247) | 4 | | | | | | | | | | | | |
| | | 17 (28610777) | Good | | | | | | | | | | | | |
| CT chest without and with IV contrast | Usually not appropriate | Strong | ⊕⊕⊕ 1-10 mSv | ⊕⊕⊕⊕⊕ 3-10 mSv [ped] | 3 | 3 | 3 | 4 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 20 (26122129) | 4 | | | | | | | | | | | | |
| | | 49 (12355007) | 2 | | | | | | | | | | | | |
| | | 48 (26169926) | 3 | | | | | | | | | | | | |
| | | 8 (27163732) | 2 | | | | | | | | | | | | |
| US chest | Usually not appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 3 | 3 | 1 | 4 | 3 | 1 | 4 | 1 | 0 | 0 | 0 |
| | | References | Study Quality | | | | | | | | | | | | |
| | | 49 (12355007) | 2 | | | | | | | | | | | | |
| MRI chest without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 9 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRI chest without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 8 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |

Variant 8: Major blunt trauma. Hemodynamically stable. Pregnant patient. Initial imaging.

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|-----------|--------------------------|-----|------------|----------|--------|--------|-------------------|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

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|--|-------------------------|---------|----------------|-----------------------|---------------|---|---|---|---|---|---|---|---|---|---|--|--|--|--|
| | | | 4 (22920605) | | 2 | | | | | | | | | | | | | | |
| | | | 13 (22808568) | | 2 | | | | | | | | | | | | | | |
| CTA abdomen and pelvis with IV contrast | May be appropriate | Limited | ⊕⊕⊕⊕ 10-30 mSv | | 6 | 6 | 0 | 0 | 1 | 2 | 2 | 5 | 3 | 0 | 1 | | | | |
| | | | References | | Study Quality | | | | | | | | | | | | | | |
| | | | 27 (19458997) | | 4 | | | | | | | | | | | | | | |
| | | | 26 (24056401) | | 2 | | | | | | | | | | | | | | |
| CTA chest with IV contrast | May be appropriate | Limited | ⊕⊕⊕ 1-10 mSv | ⊕⊕⊕⊕ 3-10 mSv [ped] | 6 | 6 | 0 | 1 | 0 | 1 | 2 | 6 | 3 | 1 | 0 | | | | |
| | | | References | | Study Quality | | | | | | | | | | | | | | |
| | | | 20 (26122129) | | 4 | | | | | | | | | | | | | | |
| CT abdomen and pelvis without IV contrast | May be appropriate | Limited | ⊕⊕⊕ 1-10 mSv | ⊕⊕⊕⊕ 3-10 mSv [ped] | 4 | 4 | 1 | 1 | 4 | 2 | 5 | 1 | 0 | 0 | 0 | | | | |
| | | | References | | Study Quality | | | | | | | | | | | | | | |
| | | | 25 (23624596) | | Inadequate | | | | | | | | | | | | | | |
| | | | 19 (2783289) | | 3 | | | | | | | | | | | | | | |
| CT whole body without IV contrast | May be appropriate | Strong | ⊕⊕⊕⊕ 10-30 mSv | | 4 | 4 | 0 | 4 | 1 | 3 | 5 | 1 | 0 | 0 | 0 | | | | |
| | | | References | | Study Quality | | | | | | | | | | | | | | |
| | | | 20 (26122129) | | 4 | | | | | | | | | | | | | | |
| | | | 14 (19321199) | | 3 | | | | | | | | | | | | | | |
| | | | 19 (2783289) | | 3 | | | | | | | | | | | | | | |
| | | | 16 (25250591) | | Good | | | | | | | | | | | | | | |
| | | | 15 (23949104) | | 3 | | | | | | | | | | | | | | |
| | | | 18 (22458247) | | 4 | | | | | | | | | | | | | | |
| | | | 8 (27163732) | | 2 | | | | | | | | | | | | | | |
| | | | 17 (28610777) | | Good | | | | | | | | | | | | | | |
| CT abdomen and pelvis without and with IV contrast | Usually not appropriate | Limited | ⊕⊕⊕⊕ 10-30 mSv | ⊕⊕⊕⊕⊕ 10-30 mSv [ped] | 2 | 2 | 7 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | | | | |

| | |
|---------------|---------------|
| References | Study Quality |
| 25 (23624596) | Inadequate |
| 19 (2783289) | 3 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|---------|---------------|---|---|---|---|---|---|---|---|---|---|---|
| MRI abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | 0 0 mSv | 0 0 mSv [ped] | 2 | 2 | 7 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| MRI abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | 0 0 mSv | 0 0 mSv [ped] | 1 | 1 | 8 | 3 | 3 | 0 | 0 | 0 | 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.