

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

Renal Transplant Dysfunction

Variant 1: Adult. Renal transplant dysfunction. 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 kidney transplant | Usually appropriate | Strong | 0 0 mSv | 0 0 mSv [ped] | 9 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 13 |

| References | Study Quality |
|---------------|---------------|
| 37 (18287435) | 3 |
| 36 (2004509) | 4 |
| 35 (14571160) | 4 |
| 34 (28858538) | 2 |
| 33 (22595689) | 2 |
| 32 (12594798) | 2 |
| 31 (14521886) | 3 |
| 30 (9176852) | 3 |
| 29 (7554736) | 3 |
| 28 (24195547) | 2 |
| 27 (21324840) | 2 |
| 26 (12853584) | 3 |
| 25 (3548286) | 3 |
| 24 (2644778) | 2 |
| 23 (3541027) | 2 |
| 22 (3303879) | 3 |
| 18 (30033070) | 4 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|-----------------------|---|---|----|---|---|---|---|---|---|---|---|
| CT abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 3 | 3 | 7 | 0 | 3 | 1 | 3 | 1 | 1 | 0 | 0 |
| CT pelvis without IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 3 | 3 | 6 | 0 | 5 | 0 | 3 | 1 | 1 | 0 | 0 |
| CT abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 2 | 2 | 8 | 1 | 2 | 1 | 3 | 0 | 1 | 0 | 0 |
| CT abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | ☼☼☼☼☼ 10-30 mSv [ped] | 2 | 2 | 8 | 1 | 2 | 2 | 3 | 0 | 0 | 0 | 0 |
| CT pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 2 | 2 | 8 | 1 | 3 | 0 | 3 | 0 | 1 | 0 | 0 |
| CTA abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | | 1 | 1 | 10 | 0 | 3 | 1 | 1 | 1 | 0 | 0 | 0 |
| CT pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | ☼☼☼☼ 3-10 mSv [ped] | 1 | 1 | 10 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 |
| CTU without and with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | ☼☼☼☼☼ 10-30 mSv [ped] | 1 | 1 | 12 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| Arteriography kidney | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | | 1 | 1 | 13 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| Image-guided biopsy kidney | Usually not appropriate | Expert Consensus | Varies | Varies | 1 | 1 | 9 | 1 | 4 | 0 | 1 | 0 | 1 | 0 | 0 |
| MRI abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 |
| MRI abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 1 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
| MRA abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|--------------|---------------------|---|---|----|---|---|---|---|---|---|---|---|
| MRA abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 10 | 2 | 2 | 1 | 0 | 1 | 0 | 0 | 0 |
| MRI pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 0 | 2 | 1 | 1 | 1 | 0 | 0 | 0 |
| MRI pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| MRU without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 12 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| MRU without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| DTPA renal scan | Usually not appropriate | Limited | ☹☹☹ 1-10 mSv | ☹☹☹ 0.3-3 mSv [ped] | 1 | 1 | 9 | 0 | 4 | 2 | 1 | 0 | 0 | 0 | 0 |

| References | Study Quality |
|---------------|---------------|
| 18 (30033070) | 4 |
| 17 (18589113) | 4 |
| 16 (3891349) | 4 |
| 15 (16549144) | 3 |
| 14 (24152633) | 3 |
| 13 (10952501) | 3 |

| | | | | | | | | | | | | | | | |
|-----------------|-------------------------|--------|--------------|---------------------|---|---|---|---|---|---|---|---|---|---|---|
| MAG3 renal scan | Usually not appropriate | Strong | ☹☹☹ 1-10 mSv | ☹☹☹ 0.3-3 mSv [ped] | 1 | 1 | 9 | 0 | 2 | 4 | 1 | 0 | 0 | 0 | 0 |
|-----------------|-------------------------|--------|--------------|---------------------|---|---|---|---|---|---|---|---|---|---|---|

| References | Study Quality |
|---------------|---------------|
| 21 (11168310) | 2 |
| 20 (24484750) | 4 |
| 19 (30074536) | 3 |
| 18 (30033070) | 4 |
| 17 (18589113) | 4 |
| 14 (24152633) | 3 |
| 13 (10952501) | 3 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|---------------|---|---|----|---|---|---|---|---|---|---|---|
| US pelvis | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 14 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Fluoroscopy antegrade pyelography | Usually not appropriate | Expert Consensus | ⊕⊕⊕ 1-10 mSv | | 1 | 1 | 12 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| CTA pelvis with IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕⊕ 10-30 mSv | | 1 | 1 | 10 | 0 | 3 | 1 | 2 | 0 | 0 | 0 | 0 |
| MRA pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 10 | 2 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| US pelvis with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 13 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| CTV abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕⊕ 10-30 mSv | | 1 | 1 | 11 | 1 | 3 | 0 | 1 | 0 | 0 | 0 | 0 |
| CTV pelvis with IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕⊕ 10-30 mSv | | 1 | 1 | 11 | 1 | 2 | 0 | 2 | 0 | 0 | 0 | 0 |
| MRV abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 1 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
| MRV pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| MRA pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 |

Variant 2: Adult. Renal transplant dysfunction. US suspicious for, but not conclusive for arterial etiology. Next imaging study.

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|-----------------------------|--------------------------|--------|----------------|---------------|--------|--------|-------------------|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| CTA pelvis with IV contrast | Usually appropriate | Strong | ⊕⊕⊕⊕ 10-30 mSv | | 8 | 8 | 1 | 0 | 1 | 0 | 0 | 1 | 5 | 4 | 4 |
| | | | References | Study Quality | | | | | | | | | | | |
| | | | 18 (30033070) | 4 | | | | | | | | | | | |

| | |
|---------------|---|
| 57 (24948209) | 2 |
| 56 (21111553) | 3 |
| 55 (17497443) | 1 |

| | | | | | | | | | | | | | | | |
|---|---------------------|--------|---------|---------------|---|---|---|---|---|---|---|---|---|----|---|
| MRA pelvis without and with IV contrast | Usually appropriate | Strong | 0 0 mSv | 0 0 mSv [ped] | 8 | 8 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 10 | 2 |
|---|---------------------|--------|---------|---------------|---|---|---|---|---|---|---|---|---|----|---|

| | |
|---------------|---------------|
| References | Study Quality |
| 63 (21601400) | 2 |
| 62 (10508297) | 4 |
| 61 (12354824) | 3 |
| 60 (10997461) | 3 |
| 57 (24948209) | 2 |
| 18 (30033070) | 4 |

| | | | | | | | | | | | | | | | |
|---|---------------------|---------|----------------|--|---|---|---|---|---|---|---|---|---|---|---|
| CTA abdomen and pelvis with IV contrast | Usually appropriate | Limited | ☠☠☠☠ 10-30 mSv | | 7 | 7 | 1 | 1 | 0 | 0 | 0 | 0 | 9 | 4 | 1 |
|---|---------------------|---------|----------------|--|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---------------|---------------|
| References | Study Quality |
| 18 (30033070) | 4 |
| 55 (17497443) | 1 |

| | | | | | | | | | | | | | | | |
|---|---------------------|---------|---------|---------------|---|---|---|---|---|---|---|---|---|---|---|
| MRA abdomen and pelvis without and with IV contrast | Usually appropriate | Limited | 0 0 mSv | 0 0 mSv [ped] | 7 | 7 | 0 | 0 | 0 | 0 | 5 | 3 | 6 | 2 | 0 |
|---|---------------------|---------|---------|---------------|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---------------|---------------|
| References | Study Quality |
| 18 (30033070) | 4 |
| 63 (21601400) | 2 |
| 62 (10508297) | 4 |
| 61 (12354824) | 3 |
| 60 (10997461) | 3 |

| | | | | | | | | | | | | | | | |
|--|--------------------|--------|---------|---------------|---|---|---|---|---|---|---|---|---|---|---|
| MRA abdomen and pelvis without IV contrast | May be appropriate | Strong | 0 0 mSv | 0 0 mSv [ped] | 6 | 6 | 1 | 0 | 0 | 1 | 4 | 9 | 1 | 0 | 0 |
|--|--------------------|--------|---------|---------------|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---------------|---------------|
| References | Study Quality |
| 68 (29666993) | 3 |
| 67 (24592960) | 3 |
| 66 (24246390) | 3 |

| | |
|---------------|---|
| 65 (19635833) | 2 |
| 64 (19261926) | 2 |
| 62 (10508297) | 4 |

| | | | | | | | | | | | | | | | |
|--------------------------------|--------------------|--------|---------|---------------|---|---|---|---|---|---|---|----|---|---|---|
| MRA pelvis without IV contrast | May be appropriate | Strong | 0 0 mSv | 0 0 mSv [ped] | 6 | 6 | 0 | 0 | 0 | 2 | 3 | 10 | 1 | 0 | 0 |
|--------------------------------|--------------------|--------|---------|---------------|---|---|---|---|---|---|---|----|---|---|---|

| References | Study Quality |
|---------------|---------------|
| 68 (29666993) | 3 |
| 67 (24592960) | 3 |
| 66 (24246390) | 3 |
| 65 (19635833) | 2 |
| 64 (19261926) | 2 |
| 62 (10508297) | 4 |
| 18 (30033070) | 4 |

| | | | | | | | | | | | | | | | |
|----------------------|-----------------------------------|----------------|--------------|--|---|---|---|---|---|---|---|---|---|---|---|
| Arteriography kidney | May be appropriate (Disagreement) | Expert Opinion | ☢☢☢ 1-10 mSv | | 5 | 5 | 1 | 1 | 1 | 1 | 6 | 4 | 1 | 0 | 1 |
|----------------------|-----------------------------------|----------------|--------------|--|---|---|---|---|---|---|---|---|---|---|---|

| References | Study Quality |
|---------------|---------------|
| 54 (13679503) | 4 |
| 53 (21331135) | 4 |
| 52 (15943633) | 2 |
| 51 (18670375) | 3 |
| 50 (20682611) | 4 |
| 49 (16504683) | 4 |
| 48 (17629433) | 2 |
| 47 (18589114) | 2 |
| 46 (19473615) | 2 |
| 45 (19235580) | 2 |
| 44 (20601365) | 2 |
| 43 (18435786) | 2 |
| 42 (15590798) | 2 |
| 41 (16433762) | 2 |
| 40 (20824760) | 2 |

| | | | | | | | | | | | | | | | | | | |
|--|-------------------------|------------------|----------------|-----------------------|---------------|---|----|---|---|---|---|---|---|---|---|--|--|--|
| | | | 39 (21839234) | | 2 | | | | | | | | | | | | | |
| | | | 38 (25220328) | | 4 | | | | | | | | | | | | | |
| DTPA renal scan | May be appropriate | Limited | ☹☹☹ 1-10 mSv | ☹☹☹☹ 0.3-3 mSv [ped] | 5 | 5 | 0 | 0 | 0 | 8 | 7 | 0 | 1 | 0 | 0 | | | |
| | | | References | | Study Quality | | | | | | | | | | | | | |
| | | | 16 (3891349) | | 4 | | | | | | | | | | | | | |
| US pelvis with IV contrast | May be appropriate | Limited | ○ ○ mSv | ○ ○ mSv [ped] | 5 | 5 | 1 | 0 | 1 | 0 | 7 | 6 | 0 | 0 | 1 | | | |
| | | | References | | Study Quality | | | | | | | | | | | | | |
| | | | 69 (28583646) | | 3 | | | | | | | | | | | | | |
| | | | 70 (1688270) | | 4 | | | | | | | | | | | | | |
| MAG3 renal scan | Usually not appropriate | Limited | ☹☹☹ 1-10 mSv | ☹☹☹☹ 0.3-3 mSv [ped] | 3 | 3 | 6 | 0 | 7 | 1 | 0 | 0 | 1 | 1 | 0 | | | |
| | | | References | | Study Quality | | | | | | | | | | | | | |
| | | | 58 (7715893) | | 3 | | | | | | | | | | | | | |
| | | | 59 (28969763) | | 4 | | | | | | | | | | | | | |
| US duplex Doppler kidney transplant | Usually not appropriate | Expert Consensus | ○ ○ mSv | ○ ○ mSv [ped] | 3 | 3 | 5 | 2 | 4 | 4 | 0 | 0 | 0 | 1 | 0 | | | |
| MRI pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ ○ mSv | ○ ○ mSv [ped] | 2 | 2 | 8 | 3 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | | | |
| CT abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹ 1-10 mSv | ☹☹☹☹ 3-10 mSv [ped] | 1 | 1 | 10 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 1 | | | |
| CT abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹ 1-10 mSv | ☹☹☹☹ 3-10 mSv [ped] | 1 | 1 | 11 | 1 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | | | |
| CT abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹☹ 10-30 mSv | ☹☹☹☹☹ 10-30 mSv [ped] | 1 | 1 | 14 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | | | |
| CT pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹ 1-10 mSv | ☹☹☹☹ 3-10 mSv [ped] | 1 | 1 | 10 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | | | |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|-----------------------|---|---|----|---|---|---|---|---|---|---|---|
| CT pelvis without IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 1 | 1 | 12 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
| CT pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | ☼☼☼☼ 3-10 mSv [ped] | 1 | 1 | 11 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| CTU without and with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | ☼☼☼☼☼ 10-30 mSv [ped] | 1 | 1 | 12 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
| Image-guided biopsy kidney | Usually not appropriate | Expert Consensus | Varies | Varies | 1 | 1 | 10 | 0 | 4 | 0 | 1 | 0 | 1 | 0 | 0 |
| MRI abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 9 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 0 |
| MRI abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 12 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| MRI pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 9 | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| MRU without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 12 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 |
| MRU without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 12 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 |
| US pelvis | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 10 | 1 | 2 | 1 | 0 | 1 | 1 | 0 | 0 |
| CTV abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | | 1 | 1 | 12 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
| CTV pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | | 1 | 1 | 12 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
| MRV abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 12 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 |
| MRV pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 0 | 2 | 1 | 1 | 1 | 0 | 0 | 0 |

Variant 3: Adult. Renal transplant dysfunction. US suspicious for, but not conclusive for venous etiology. Next imaging study.

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|---|-----------------------------------|------------------|----------------|-----------------------|--------|--------|-------------------|---|---|---|---|---|---|----|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| CTV abdomen and pelvis with IV contrast | Usually appropriate | Expert Consensus | ⊕⊕⊕⊕ 10-30 mSv | | 8 | 8 | 1 | 0 | 0 | 1 | 0 | 0 | 4 | 8 | 2 |
| MRV abdomen and pelvis without and with IV contrast | Usually appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 8 | 8 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 10 | 3 |
| MRV pelvis without and with IV contrast | Usually appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 8 | 8 | 1 | 0 | 0 | 1 | 0 | 2 | 2 | 4 | 6 |
| CTV pelvis with IV contrast | Usually appropriate | Expert Consensus | ⊕⊕⊕⊕ 10-30 mSv | | 7 | 7 | 0 | 1 | 0 | 1 | 3 | 3 | 1 | 5 | 2 |
| US pelvis with IV contrast | May be appropriate (Disagreement) | Expert Opinion | ○ 0 mSv | ○ 0 mSv [ped] | 5 | 5 | 6 | 2 | 2 | 2 | 1 | 2 | 0 | 1 | 0 |
| MRI pelvis without and with IV contrast | May be appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 4 | 4 | 2 | 1 | 5 | 4 | 3 | 0 | 1 | 0 | 0 |
| US duplex Doppler kidney transplant | May be appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 4 | 4 | 6 | 0 | 2 | 2 | 5 | 0 | 1 | 0 | 0 |
| MRI abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 3 | 3 | 7 | 1 | 5 | 2 | 1 | 0 | 0 | 0 | 0 |
| CT abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕ 1-10 mSv | ⊕⊕⊕⊕ 3-10 mSv [ped] | 2 | 2 | 7 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| CT abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕ 1-10 mSv | ⊕⊕⊕⊕ 3-10 mSv [ped] | 1 | 1 | 11 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 |
| CT abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕⊕ 10-30 mSv | ⊕⊕⊕⊕⊕ 10-30 mSv [ped] | 1 | 1 | 14 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|-----------------------|---|---|----|---|---|---|---|---|---|---|---|
| CTA abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹☹ 10-30 mSv | | 1 | 1 | 13 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| CT pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹ 1-10 mSv | ☹☹☹☹ 3-10 mSv [ped] | 1 | 1 | 9 | 2 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| CT pelvis without IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹ 1-10 mSv | ☹☹☹☹ 3-10 mSv [ped] | 1 | 1 | 11 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 0 |
| CT pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹☹ 10-30 mSv | ☹☹☹☹ 3-10 mSv [ped] | 1 | 1 | 12 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| CTU without and with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹☹ 10-30 mSv | ☹☹☹☹☹ 10-30 mSv [ped] | 1 | 1 | 12 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 |
| Arteriography kidney | Usually not appropriate | Limited | ☹☹☹ 1-10 mSv | | 1 | 1 | 15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| | |
|---------------|---------------|
| References | Study Quality |
| 71 (16687747) | 2 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|---------|---------------|---|---|----|---|---|---|---|---|---|---|---|
| Image-guided biopsy kidney | Usually not appropriate | Expert Consensus | Varies | Varies | 1 | 1 | 15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| MRI abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 9 | 1 | 2 | 0 | 2 | 2 | 0 | 0 | 0 |
| MRA abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 10 | 0 | 3 | 0 | 1 | 1 | 1 | 0 | 0 |
| MRA abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| MRI pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 9 | 1 | 2 | 2 | 0 | 2 | 0 | 0 | 0 |
| MRU without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 |
| MRU without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|---------------------|---|---|----|---|---|---|---|---|---|---|---|
| DTPA renal scan | Usually not appropriate | Limited | ⊗⊗⊗ 1-10 mSv | ⊗⊗⊗ 0.3-3 mSv [ped] | 1 | 1 | 10 | 1 | 4 | 0 | 0 | 0 | 1 | 0 | 0 |
| | | References | | Study Quality | | | | | | | | | | | |
| | | 59 (28969763) | | 4 | | | | | | | | | | | |
| MAG3 renal scan | Usually not appropriate | Limited | ⊗⊗⊗ 1-10 mSv | ⊗⊗⊗ 0.3-3 mSv [ped] | 1 | 1 | 14 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| | | References | | Study Quality | | | | | | | | | | | |
| | | 59 (28969763) | | 4 | | | | | | | | | | | |
| US pelvis | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 13 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| CTA pelvis with IV contrast | Usually not appropriate | Expert Consensus | ⊗⊗⊗⊗ 10-30 mSv | | 1 | 1 | 14 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| MRA pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 10 | 0 | 4 | 0 | 1 | 0 | 0 | 1 | 0 |
| MRA pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 10 | 0 | 4 | 0 | 1 | 0 | 1 | 0 | 0 |

Variant 4: Adult. Renal transplant dysfunction. US suspicious for, but not conclusive for extrinsic etiology. Next imaging study.

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|---|--------------------------|------------------|--------------|---------------------|--------|--------|-------------------|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| CT pelvis with IV contrast | May be appropriate | Expert Consensus | ⊗⊗⊗ 1-10 mSv | ⊗⊗⊗⊗ 3-10 mSv [ped] | 6 | 6 | 0 | 0 | 0 | 1 | 4 | 8 | 2 | 1 | 0 |
| MRI pelvis without and with IV contrast | May be appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 6 | 6 | 0 | 0 | 0 | 1 | 5 | 7 | 1 | 2 | 0 |
| MRU without and with IV contrast | May be appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 6 | 6 | 0 | 0 | 0 | 2 | 5 | 8 | 0 | 1 | 0 |
| | | References | | Study Quality | | | | | | | | | | | |
| | | 73 (12227682) | | 3 | | | | | | | | | | | |

| | | | | | | | | | | | | | | | |
|---|-----------------------------------|------------------|----------------|-----------------------|---|---|---|---|---|---|----|---|---|---|---|
| CT abdomen and pelvis with IV contrast | May be appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 5 | 5 | 0 | 0 | 0 | 1 | 9 | 2 | 1 | 1 | 2 |
| CT abdomen and pelvis without IV contrast | May be appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 5 | 5 | 0 | 0 | 0 | 1 | 10 | 2 | 0 | 3 | 0 |
| CT pelvis without IV contrast | May be appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 5 | 5 | 0 | 0 | 0 | 2 | 9 | 3 | 2 | 0 | 0 |
| CT pelvis without and with IV contrast | May be appropriate (Disagreement) | Expert Opinion | ☼☼☼☼ 10-30 mSv | ☼☼☼☼ 3-10 mSv [ped] | 5 | 5 | 3 | 1 | 4 | 1 | 1 | 5 | 1 | 0 | 0 |
| CTU without and with IV contrast | May be appropriate | Limited | ☼☼☼☼ 10-30 mSv | ☼☼☼☼☼ 10-30 mSv [ped] | 5 | 5 | 0 | 0 | 1 | 3 | 7 | 4 | 0 | 1 | 0 |

| | |
|---------------|---------------|
| References | Study Quality |
| 72 (12207185) | 3 |

| | | | | | | | | | | | | | | | |
|---|--------------------|------------------|---------|---------------|---|---|---|---|---|---|----|---|---|---|---|
| MRI abdomen and pelvis without IV contrast | May be appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 5 | 5 | 0 | 0 | 0 | 2 | 10 | 3 | 0 | 1 | 0 |
| MRI abdomen and pelvis without and with IV contrast | May be appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 5 | 5 | 0 | 0 | 0 | 2 | 9 | 4 | 1 | 0 | 0 |
| MRI pelvis without IV contrast | May be appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 5 | 5 | 0 | 0 | 0 | 1 | 10 | 4 | 1 | 0 | 0 |
| MRU without IV contrast | May be appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 5 | 5 | 1 | 0 | 2 | 3 | 8 | 1 | 1 | 0 | 0 |

| | |
|---------------|---------------|
| References | Study Quality |
| 74 (18055152) | 3 |

| | | | | | | | | | | | | | | | |
|--|-------------------------|------------------|----------------|-----------------------|---|---|---|---|---|---|---|---|---|---|---|
| CT abdomen and pelvis without and with IV contrast | May be appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | ☼☼☼☼☼ 10-30 mSv [ped] | 4 | 4 | 3 | 1 | 4 | 1 | 5 | 1 | 1 | 0 | 0 |
| DTPA renal scan | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼ 0.3-3 mSv [ped] | 3 | 3 | 7 | 0 | 2 | 3 | 2 | 2 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | |
|----------------------------|-------------------------|------------------|--------------|---------------------|---|---|---|---|---|---|---|---|---|---|---|
| MAG3 renal scan | Usually not appropriate | Expert Consensus | ☹☹☹ 1-10 mSv | ☹☹☹ 0.3-3 mSv [ped] | 2 | 2 | 8 | 0 | 2 | 2 | 3 | 0 | 1 | 0 | 0 |
| US pelvis with IV contrast | Usually not appropriate | Limited | ○ 0 mSv | ○ 0 mSv [ped] | 2 | 2 | 6 | 3 | 3 | 0 | 2 | 1 | 1 | 0 | 0 |

| | |
|---------------|---------------|
| References | Study Quality |
| 11 (32412688) | 4 |
| 75 (24118471) | 3 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|---------------|---|---|----|---|---|---|---|---|---|---|---|
| CTA abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹☹ 10-30 mSv | | 1 | 1 | 9 | 0 | 3 | 2 | 1 | 1 | 0 | 0 | 0 |
| Arteriography kidney | Usually not appropriate | Expert Consensus | ☹☹☹ 1-10 mSv | | 1 | 1 | 12 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 |
| Image-guided biopsy kidney | Usually not appropriate | Expert Consensus | Varies | Varies | 1 | 1 | 12 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 |
| MRA abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 0 |
| MRA abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 0 |
| US duplex Doppler kidney transplant | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 9 | 1 | 5 | 1 | 0 | 0 | 0 | 0 | 0 |
| US pelvis | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 9 | 2 | 2 | 0 | 1 | 1 | 1 | 0 | 0 |
| Fluoroscopy antegrade pyelography | Usually not appropriate | Expert Consensus | ☹☹☹ 1-10 mSv | | 1 | 1 | 10 | 0 | 2 | 1 | 2 | 0 | 1 | 0 | 0 |
| CTA pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹☹ 10-30 mSv | | 1 | 1 | 10 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 |
| MRA pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 12 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 |
| CTV abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☹☹☹☹ 10-30 mSv | | 1 | 1 | 10 | 0 | 3 | 0 | 2 | 1 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|---------------|---|---|----|---|---|---|---|---|---|---|---|
| CTV pelvis with IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕⊕ 10-30 mSv | | 1 | 1 | 13 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| MRV abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 10 | 0 | 3 | 0 | 1 | 1 | 1 | 0 | 0 |
| MRV pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 13 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| MRA pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 12 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 |

Variant 5: Adult. Renal transplant dysfunction. US unremarkable or indeterminate. Next imaging study.

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|----------------------------|--------------------------|---------|------------|----------|--------|--------|-------------------|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Image-guided biopsy kidney | Usually appropriate | Limited | Varies | Varies | 7 | 7 | 1 | 0 | 0 | 0 | 2 | 0 | 6 | 3 | 4 |

| References | Study Quality |
|---------------|---------------|
| 18 (30033070) | 4 |
| 79 (14508363) | 4 |
| 78 (15996250) | 3 |
| 77 (10096531) | 3 |
| 76 (22231130) | 4 |

| | | | | | | | | | | | | | | | |
|--|-------------------------|------------------|----------------|---------------------|---|---|---|---|---|---|---|---|---|---|---|
| CT abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕ 1-10 mSv | ⊕⊕⊕⊕ 3-10 mSv [ped] | 3 | 3 | 7 | 0 | 7 | 0 | 0 | 2 | 0 | 0 | 0 |
| CT pelvis with IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕ 1-10 mSv | ⊕⊕⊕⊕ 3-10 mSv [ped] | 3 | 3 | 7 | 0 | 2 | 5 | 0 | 2 | 0 | 0 | 0 |
| CT pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ⊕⊕⊕⊕ 10-30 mSv | ⊕⊕⊕⊕ 3-10 mSv [ped] | 3 | 3 | 7 | 0 | 2 | 5 | 0 | 2 | 0 | 0 | 0 |
| MRI abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 3 | 3 | 7 | 1 | 2 | 4 | 2 | 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] | 3 | 3 | 7 | 0 | 3 | 4 | 2 | 0 | 0 | 0 | 0 |
| MRI pelvis without IV contrast | Usually not appropriate | Expert Consensus | 0 0 mSv | 0 0 mSv [ped] | 3 | 3 | 7 | 1 | 2 | 0 | 6 | 0 | 0 | 0 | 0 |
| MRI pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | 0 0 mSv | 0 0 mSv [ped] | 3 | 3 | 7 | 1 | 2 | 0 | 6 | 0 | 0 | 0 | 0 |
| CT abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | ☼☼☼☼☼ 10-30 mSv [ped] | 2 | 2 | 8 | 2 | 4 | 0 | 0 | 1 | 1 | 0 | 0 |
| CTU without and with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | ☼☼☼☼☼ 10-30 mSv [ped] | 2 | 2 | 8 | 6 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| MRU without and with IV contrast | Usually not appropriate | Expert Consensus | 0 0 mSv | 0 0 mSv [ped] | 2 | 2 | 8 | 1 | 5 | 1 | 1 | 0 | 0 | 0 | 0 |
| MRA pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | 0 0 mSv | 0 0 mSv [ped] | 2 | 2 | 8 | 1 | 2 | 1 | 2 | 2 | 0 | 0 | 0 |
| US pelvis with IV contrast | Usually not appropriate | Limited | 0 0 mSv | 0 0 mSv [ped] | 2 | 2 | 8 | 1 | 2 | 0 | 4 | 1 | 0 | 0 | 0 |

| References | Study Quality |
|---------------|---------------|
| 12 (29632989) | 4 |
| 84 (28885208) | 4 |
| 83 (21792579) | 4 |
| 82 (33941759) | 4 |
| 81 (33184930) | 3 |
| 80 (19460520) | 2 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|----------------------|---|---|----|---|---|---|---|---|---|---|---|
| CT abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼☼ 3-10 mSv [ped] | 1 | 1 | 9 | 1 | 4 | 0 | 0 | 1 | 1 | 0 | 0 |
| CTA abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | | 1 | 1 | 10 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|----------------|---------------------|---|---|----|---|---|---|---|---|---|---|---|
| CT pelvis without IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼☼ 3-10 mSv [ped] | 1 | 1 | 9 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 |
| Arteriography kidney | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | | 1 | 1 | 13 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| MRA abdomen and pelvis without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 11 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 |
| MRA abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 10 | 0 | 2 | 1 | 1 | 2 | 0 | 0 | 0 |
| MRU without IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 14 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| DTPA renal scan | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼ 0.3-3 mSv [ped] | 1 | 1 | 9 | 1 | 2 | 0 | 2 | 1 | 1 | 0 | 0 |
| MAG3 renal scan | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | ☼☼☼ 0.3-3 mSv [ped] | 1 | 1 | 13 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| US duplex Doppler kidney transplant | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 10 | 2 | 3 | 0 | 1 | 0 | 0 | 0 | 0 |
| US pelvis | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 9 | 3 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| Fluoroscopy antegrade pyelography | Usually not appropriate | Expert Consensus | ☼☼☼ 1-10 mSv | | 1 | 1 | 11 | 0 | 2 | 1 | 0 | 1 | 1 | 0 | 0 |
| CTA pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | | 1 | 1 | 13 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| CTV abdomen and pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | | 1 | 1 | 10 | 0 | 3 | 0 | 1 | 1 | 0 | 1 | 0 |
| CTV pelvis with IV contrast | Usually not appropriate | Expert Consensus | ☼☼☼☼ 10-30 mSv | | 1 | 1 | 10 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 0 |
| MRV abdomen and pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | ○ 0 mSv | ○ 0 mSv [ped] | 1 | 1 | 14 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | |
|---|-------------------------|------------------|---------|---------------|---|---|----|---|---|---|---|---|---|---|---|
| MRV pelvis without and with IV contrast | Usually not appropriate | Expert Consensus | 0.0 mSv | 0.0 mSv [ped] | 1 | 1 | 14 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| MRA pelvis without IV contrast | Usually not appropriate | Expert Consensus | 0.0 mSv | 0.0 mSv [ped] | 1 | 1 | 9 | 2 | 2 | 1 | 0 | 2 | 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.