

Chapter 21. Abdomen and Pelvis Protocols

Routine Abdomen Pelvis

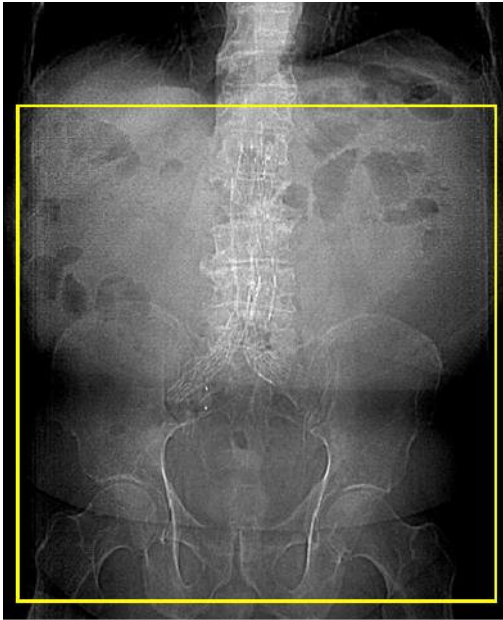


*Protocol is the same for Routine Abdomen (no pelvis) except that the scan ends at the iliac crests (or lower, if necessary to include the entire liver)

Examples of clinical indications: Suspected abdominal mass, tumor staging, abscess
Scouts: AP and lateral
Scan Type: Helical
Start Location: Just above diaphragm
End Location: Just below symphysis pubis
Breath-Hold: Inspiration
IV Contrast: 125 mL at 3.0 mL/sec. 50-mL saline flush. Scan delay = 65 seconds
Oral Contrast: 675 mL barium sulfate suspension (1.5 bottles Read-Cat 2). An additional 225 mL (the remainder of the second bottle) given just before scanning.
DFOV: ~38 cm (optimize for individual)
SFOV: Large body

Algorithm: Standard		
Window Settings: 400 ww/50 wl (Soft tissue)		
150 ww/70 wl (Liver—for slices that contain liver)		
1500 ww/ -700 wl (Lung—for slices that contain lung)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	5 mm / 5 mm	5 mm / 5 mm
Pitch	1.375	1.375
kVp	120	120
mA	≥ 230	≥ 230

Abdomen Pelvis Aorta (post-stent, nongated)



Groups 1 & 2



Group 3

*3D reformations needed if surgery was sooner than 1 year

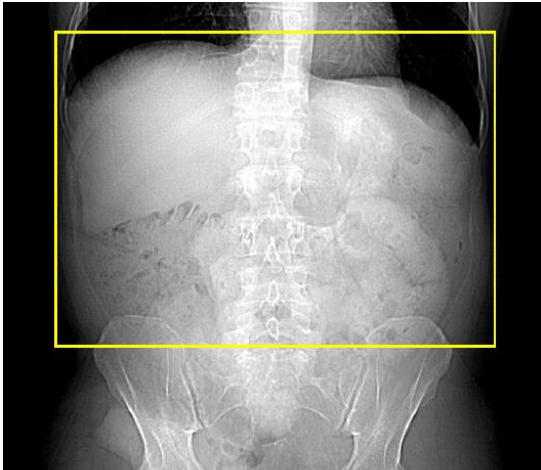
Examples of clinical indications: Follow-up endovascular repair
Scouts: AP and lateral
Scan Type: Helical
Group 1. Non Contrast Scan
Start Location: 2 cm above celiac artery
End Location: Just below the symphysis pubis
Breath-Hold: Inspiration
IV Contrast: None
Oral Contrast: None
DFOV: ~38 cm (optimize for individual)
SFOV: Large body

Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	5.0 mm / 5.0 mm	5.0 mm / 5.0 mm
Pitch	1.375	1.375
kVp	120	120
mA	200	200
Group 2. Arterial Scan		
Start Location: 2 cm above celiac artery		
End Location: Just below the symphysis pubis		
Breath-Hold: Inspiration		
IV Contrast: 125 mL [370 concentration] at 4 mL/s		
Scan Delay: Smart Prep; set monitor location at the level of the celiac artery		
Oral Contrast: None		
DFOV: same as group 1		
SFOV: Large body		
Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue)		

	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 0.625 = 10 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	2.5 mm / 1.5 mm	0.625 mm / 0.625 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Group 3. Delayed Scan		
Start Location: 2 cm above the stent		
End Location: 2 cm below the stent		
Breath-Hold: Inspiration		
IV Contrast: No additional IV contrast		
Scan delay: 60 sec		
Oral Contrast: None		
DFOV: same as group 1		
SFOV: Large body		
Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec

Acquisition (detector width x # detector rows = detector coverage)	16 x 0.625 = 10 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	2.5 mm / 1.5 mm	0.625 mm / 0.625 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Reconstruction 2:		
Slice thickness/interval	None	2.5 mm / 1.25 mm

Arterial-Venous Liver



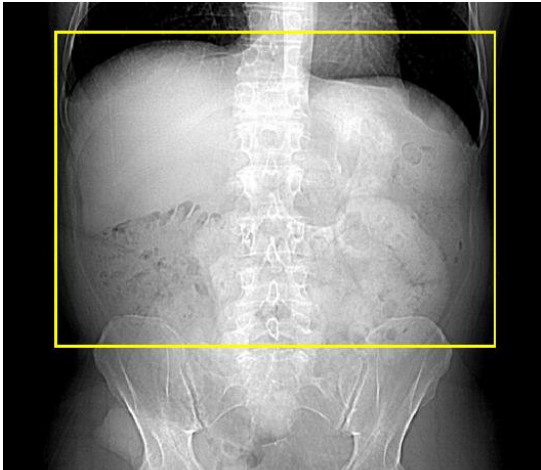
*3-Phase liver for suspected hemangioma; repeat group 2, 600 seconds after IV injection.

Examples of clinical indications: Evaluation of suspected hypervascular hepatic tumors including, hepatocellular carcinoma and metastases from carcinoid, islet cell carcinoma, thyroid carcinoma, renal cell carcinoma, breast carcinoma, melanoma, sarcomas
Scouts: AP and lateral
Scan Type: Helical
Group 1. Arterial Scan
Start Location: Just above diaphragm End Location: At iliac crest (or through entire liver)
Breath-Hold: Inspiration
IV Contrast: 125 mL at 4 mL/s; 50 mL saline at 4.0 mL/s Scan Delay: 35 sec Oral Contrast: VoLumen or water; 450 mL 30 minutes before; 225 mL 10 minutes before, 225 mL just before scan (in scan room)
DFOV: ~38 cm (optimize for individual)

SFOV: Large body		
Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue) 150 ww/70 wl (Liver)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	5.0 mm / 5.0 mm	5.0 mm / 5.0 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Group 2. Venous Scan		
Start Location: Just above diaphragm End Location: At iliac crest (or through entire liver)		
Breath-Hold: Inspiration		
IV Contrast: No additional Scan Delay: 65 sec Oral Contrast: No additional		
DFOV: same as group 1		
SFOV: Large body		

Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 0.625 = 10 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	5.0 mm / 5.0 mm	5.0 mm / 5.0 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Reconstruction 2: Chest images only		
Algorithm: Standard		
Slice thickness/interval: 2.5 mm / 1.25 mm		

Arterial-Venous Pancreas



Examples of clinical indications: Pancreatitis, suspected tumors of the pancreas
Scouts: AP and lateral
Scan Type: Helical
Group 1. Arterial Scan
Start Location: Just above diaphragm End Location: At iliac crest
Breath-Hold: Inspiration
IV Contrast: 125 mL [370 concentration] at 4 mL/s; 50 mL saline at 4.0 mL/s Scan Delay: 40 sec Oral Contrast: VoLumen or water; 450 mL 30 minutes before; 225 mL 10 minutes before, 225 mL just before scan (in scan room)
DFOV: ~38 cm (optimize for individual)
SFOV: Large body
Algorithm: Standard
Window Settings: 350 ww/50 wl (Soft tissue)

	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 0.625 = 10 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	0.625 mm / 0.625 mm	0.625 mm / 0.625 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Group 2. Venous Scan		
Start Location: Just above diaphragm		
End Location: At iliac crest		
Breath-Hold: Inspiration		
IV Contrast: No additional		
Scan Delay: 65 sec		
Oral Contrast: No additional		
DFOV: Same as group 1		
SFOV: Large body		
Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec

Acquisition (detector width x # detector rows = detector coverage)	16 x 0.625 = 10 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	0.625 mm / 0.625 mm	0.625 mm / 0.625 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Reconstruction 2: Both groups		
Algorithm: Standard		
Slice thickness/interval: 2.5 mm / 2.5 mm		

Mesenteric



Examples of clinical indications: Ischemic bowel, bleeding, tumor resection
Scouts: AP and lateral
Scan Type: Helical
Group 1. Arterial Scan
Start Location: Just above diaphragm End Location: Just below symphysis pubis
Breath-Hold: Inspiration
IV Contrast: 125 mL [370 concentration] at 4 mL/s; 50 mL saline at 4.0 mL/s Scan Delay: Smart Prep; set monitor location at the level of the celiac artery Oral Contrast: VoLumen or water; 450 mL 60 minutes before; 450 mL 30 minutes before, 225 mL 20 minutes prior, 225 mL just before scan (in scan room)
DFOV: ~38 cm (optimize for individual)
SFOV: Large body
Algorithm: Standard

Window Settings: 350 ww/50 wl (Soft tissue)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	1.25 mm / 0.8 mm	0.625 mm / 0.625 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Group 2. Venous Scan		
Start Location: Just above diaphragm		
End Location: Just below symphysis pubis		
Breath-Hold: Inspiration		
IV Contrast: No additional		
Scan Delay: 35 sec		
Oral Contrast: No additional		
DFOV: Same as group 1		
SFOV: Large body		
Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue)		
	16-Detector Protocol	64-Detector Protocol

Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	1.25 mm / 0.8 mm	0.625 mm / 0.625 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Reconstruction 2: Both groups		
Algorithm: Standard		
Slice thickness/interval: 2.5 mm / 2.5 mm		

Enterography



Examples of clinical indications: Crohn disease, inflamed bowel
Scouts: AP and lateral
Scan Type: Helical
Start Location: Just above diaphragm End Location: Just below symphysis pubis
Breath-Hold: Inspiration
IV Contrast: 125 mL [370 concentration] at 4 mL/s; 50 mL saline at 4.0 mL/s Scan Delay: 65 sec Oral Contrast: VoLumen or water; 450 mL 60 minutes before; 450 mL 30 minutes before, 225 mL 20 minutes prior, 225 mL just before scan (in scan room)
DFOV: ~38 cm (optimize for individual)
SFOV: Large body
Algorithm: Standard
Window Settings: 350 ww/50 wl (Soft tissue)

	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	1.25 mm / 0.8 mm	0.625 mm / 0.625 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Reconstruction 2		
Algorithm: Standard		
Slice thickness/interval: 2.5 mm / 2.5 mm		

Appendicitis/Diverticulitis



Examples of clinical indications: Suspected appendicitis or diverticulitis
Scouts: AP and lateral
Scan Type: Helical
Start Location: Just above diaphragm
End Location: Just below symphysis pubis
Breath-Hold: Inspiration
IV Contrast: 125 mL at 3 mL/c; 50 mL saline at 3.0 mL/s
Scan Delay: 65 sec
Oral Contrast: 675 mL barium sulfate suspension (1.5 bottles Read-Cat 2). An additional 225 mL (the remainder of the second bottle) given just before scanning
DFOV: ~38 cm (optimize for individual)
SFOV: Large body
Algorithm: Standard
Window Settings: 350 ww/50 wl (Soft tissue)

	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	5.0 mm / 5.0 mm	5.0 mm / 5.0 mm
Pitch	1.375	1.375
kVp	120	120
mA	≥ 230	≥ 230
Reconstruction 2: 3 cm above the iliac crest through pelvis		
Algorithm: Standard		
Slice thickness/interval: 2.5 mm / 1.25 mm		

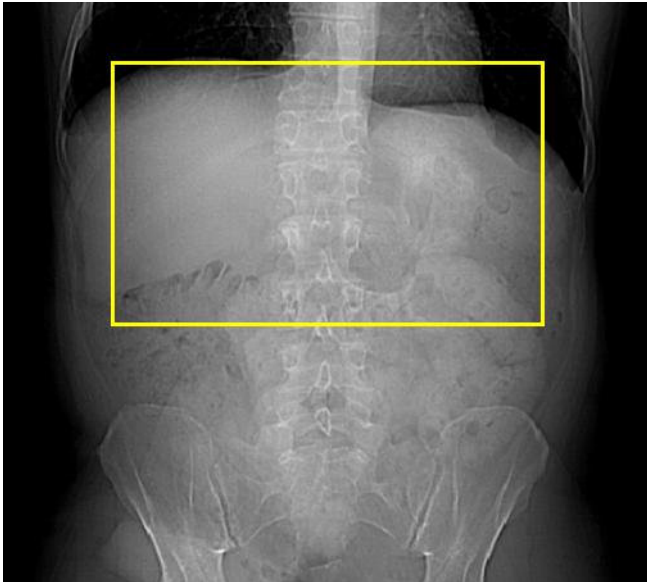
Colonography



Examples of clinical indications: Evaluation of colon after incomplete or unsuccessful colonoscopy
Scouts: AP and lateral
Scan Type: Helical
Group 1. Supine Scan
Start Location: Just above diaphragm
End Location: At lesser trochanters
Breath-Hold: Inspiration
IV Contrast: None
Rectal Contrast: Inflate colon with CO ₂ . (Check scout for air; if not sufficient, administer additional CO ₂ and rescout.)
DFOV: ~38 cm (optimize for individual)
SFOV: Large body

Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	2.5 mm / 1.25 mm	2.5 mm / 1.25 mm
Pitch	1.375	1.375
kVp	120	120
mA	120	120
Group 2. Prone Scan		
All scan parameters remain the same as group 1		

Adrenal Mass (with delay)



Examples of clinical indications: Characterization of known adrenal mass
Scouts: AP and lateral
Scan Type: Helical
Group 1. Non Contrast Scan
Start Location: Just above diaphragm
End Location: Just below kidney
Breath-Hold: Inspiration
IV Contrast: None
Oral Contrast: None
DFOV: ~25 cm
SFOV: Large body
Algorithm: Standard
Window Settings: 350 ww/50 wl (Soft tissue)

	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	2.5 mm / 2.5 mm	2.5 mm / 2.5 mm
Pitch	1.375	1.375
kVp	120	120
mA	≥ 230	≥ 230
Note: Place ROI on affected adrenal. If measure is 10 HU or less, end the exam. If greater than 10 HU continue with groups 2 and 3.		
Group 2. Contrast-Enhanced Scan		
Start Location/End Location: repeat group 1		
Breath-Hold: Inspiration		
IV Contrast: 150 mL at 3 mL/s; 50 mL saline at 3.0 mL/s		
Scan Delay: 60 sec		
Oral Contrast: None		
All scan parameters the same as group 1		
Group 3. Delayed Scan		
Start Location/End Location: repeat group 1		
Breath-Hold: Inspiration		
IV Contrast: No additional		

Scan Delay: 15 minutes

Oral Contrast: None

All scan parameters the same as group 1

Renal Mass



Group 1



Group 2

Examples of clinical indications: Known or suspected renal mass
Scouts: AP and lateral
Scan Type: Helical
Group 1. Non Contrast Scan
Start Location: 2 cm above kidneys
End Location: 2 cm below kidneys
Breath-Hold: Inspiration
IV Contrast: None
Oral Contrast: None
DFOV: ~38 cm (optimize for individual)
SFOV: Large body
Algorithm: Standard
Window Settings: 350 ww/50 wl (Soft tissue)

	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	2.5 mm / 2.5 mm	2.5 mm / 2.5 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	400
Group 2. Delayed Scan		
Start Location: Just above diaphragm		
End Location: Just below symphysis pubis		
Breath-Hold: Inspiration		
IV Contrast: 100 mL at 3 mL/s; 50 mL saline at 3.0 mL/s		
Scan Delay: 150 sec		
Oral Contrast: None		
All scan parameters the same as group 1		

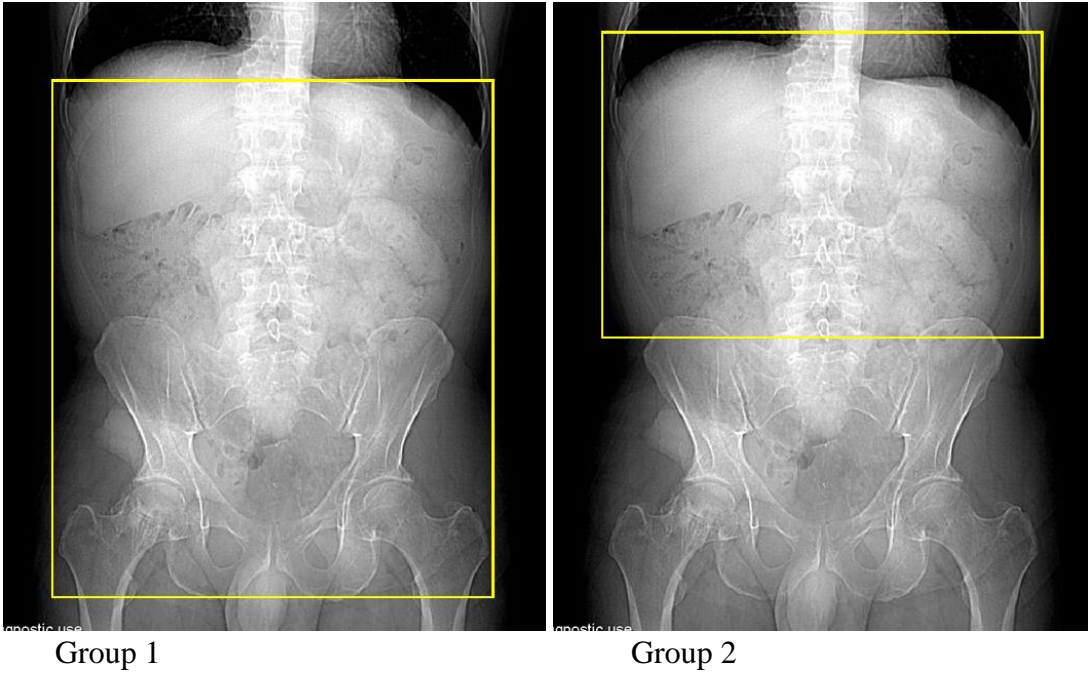
Renal Stone



Examples of clinical indications: Known or suspected renal mass
Scouts: AP and lateral
Scan Type: Helical
Group 1. Non Contrast Scan
Start Location: 2 cm above kidneys End Location: 2 cm below kidneys
Breath-Hold: Inspiration
IV Contrast: None Oral Contrast: None
DFOV: ~38 cm (optimize for individual)
SFOV: Large body
Algorithm: Standard
Window Settings: 350 ww/50 wl (Soft tissue)

	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	2.5 mm / 2.5 mm	2.5 mm / 2.5 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	400
Group 2. Delayed Scan		
Start Location: Just above diaphragm		
End Location: Just below symphysis pubis		
Breath-Hold: Inspiration		
IV Contrast: 100 mL at 3 mL/s; 50 mL saline at 3.0 mL/s		
Scan Delay: 150 sec		
Oral Contrast: None		
All scan parameters the same as group 1		

CT Urogram



*Begin running a 250-mL bag of 0.9% saline through IV when the patient first gets on the CT table.

Examples of clinical indications: Hematuria, known or suspected urothelial disease such as transitional cell carcinoma
Scouts: AP and lateral
Scan Type: Helical
Group 1. Non Contrast Scan
Start Location: 2 cm above kidneys
End Location: Just below symphysis pubis
Breath-Hold: Inspiration
IV Contrast: None
Oral Contrast: None

DFOV: ~38 cm (optimize for individual)		
SFOV: Large body		
Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 1.25 = 20 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	5 mm / 5 mm	5 mm / 5 mm
Pitch	1.375	1.375
kVp	120	120
mA		
200 lbs or less	80	80
More than 200 lbs	200	200
Group 2. Excretory Scan		
Start Location: Just above diaphragm		
End Location: At iliac crest		
Breath-Hold: Inspiration		
IV Contrast (split bolus): 75 mL at 3 mL/s; 20 mL saline at 3 mL/s		
Injection Delay: 600 sec		
100 mL at 3 mL/sec; 20 mL saline at 3 mL/sec		

Scan Delay: Scan begin 100 sec after second contrast injection		
Oral Contrast: None		
DFOV: Same as group 1		
SFOV: Large body		
Algorithm: Standard		
Window Settings: 350 ww/50 wl (Soft tissue)		
	16-Detector Protocol	64-Detector Protocol
Gantry Rotation Time	0.8 sec	0.8 sec
Acquisition (detector width x # detector rows = detector coverage)	16 x 0.625 = 10 mm	64 x 0.625 = 40 mm
Reconstruction (Slice thickness/interval)	0.625 mm / 0.625 mm	0.625 mm / 0.625 mm
Pitch	1.375	1.375
kVp	120	120
mA	400	500
Reconstruction 2: Both groups		
Algorithm: Standard		
Slice thickness/interval: 2.5 mm / 2.5 mm		