

## GE

### Adrenal MRI

#### Pre Contrast

**T2 FSE axial FS 5/1** (diaphragm to inferior renal poles) resp triggered, (if unable to register well, do BREATHHOLD)

**NOTE if BH, no fat sat**

**Dual T1 GRE axial 5/1mm**(through adrenals) BREATHHOLD

**3D T1 LAVA or FAME axial FS 5mm**  
BREATHHOLD (diaphragm to inferior renal poles)

#### Post Contrast

**Venous phase- 3DT1 FAME (UH) or LAVA (TKC) axial FS 5mm** BREATHHOLD (diaphragm to inferior renal poles) 70 second delay

**3 minute coronal T1 FS FSPGR or FAME/LAVA (preferred if available) 5mm** thick BREATHHOLD through adrenals and kidneys

**Optional: washout 3DT1 FAME or LAVA axial FS 5mm** thick BREATHHOLD (diaphragm to inferior renal poles) 15 minute delay

## PHILIPS

### Adrenal MRI

#### Pre Contrast

**T2 SPAIR axial 5/1** (diaphragm to inferior renal poles) resp triggered, (if unable to register well, do BREATHHOLD)

**NOTE if BH, no fat sat**

**Dual T1 axial FFE 5/1** (through adrenals) BREATHHOLD

**\*\*if tiny adrenal lesion may do 3mm dual FFE on 3T\*\*\***

**3D T1 THRIVE SPAIR axial 5mm** BREATHHOLD (diaphragm to inferior renal poles)

#### Post Contrast

**Venous phase- 3DT1 THRIVE SPAIR axial 5mm** BREATHHOLD (diaphragm to inferior renal poles) 70 second delay

**3 minute coronal T1 THRIVE SPAIR 5mm** BREATHHOLD through adrenals and kidneys

**Optional: washout 3DT1 THRIVE SPAIR axial 5mm** thick BREATHHOLD (diaphragm to inferior renal poles) 15 minute delay

## SIEMENS

### Adrenal MRI

#### Pre Contrast

**T2 TSE FS ax 5/1 mm** (diaphragm to inferior renal poles) resp triggered or if poor registration, BREATHHOLD

**NOTE if BH (HASTE), no fat sat**

**Dual T1 GRE ax in/out phase 5/1mm** through adrenals  
BREATHHOLD

**T1 VIBE FS ax pre 5mm**  
BREATHHOLD (diaphragm to inferior renal poles)

#### Post contrast

**T1 VIBE FS ax 5mm**  
BREATHHOLD(diaphragm to inferior renal poles 70 sec delay

**T1 VIBE FS cor 5mm** BREATHHOLD through kidneys and adrenals 3 min delay

**Optional: washout 3DT1 FAME or LAVA axial FS 5mm** thick BREATHHOLD (diaphragm to inferior renal poles) 15 minute delay

## GE

Body pelvis MRI

### Pre Contrast

**T2 FSE sagittal FS 5/1** exclude body wall  
**T2 FSE angled coronal FS 5/1** exclude body wall (If patient has a uterus, angle so that slices are parallel to endometrial cavity)  
**T1 FSPGR (UH) or LAVA (TKC) axial in phase 8/2 5mm for 3D BREATHHOLD**  
**T1 FSPGR axial FS in phase 8/2 (UH) 5mm LAVA FS (TKC) BREATHHOLD**

### Post Contrast

**70 second delay- FSPGR axial FS in phase 8/2 BREATHHOLD(UH) 5mm LAVA FS (TKC) BREATHHOLD**

\*If **pelvis congestion syndrome** a question, may do **MRV** (set up like for renal MRV with enough AP coverage to included pelvic veins, post gado 3D TOF) **IMMEDIATELY BEFORE** (70 second delay) axial T1 post cons\* NO MRA acquisition needed.

## PHILIPS

Body pelvis MRI

### Pre Contrast

**T2 SPAIR sagittal 5/1** exclude body wall  
**T2 SPAIR angled coronal FS 5/1** exclude body wall (If patient has a uterus, angle so that slices are parallel to endometrial cavity)  
**T1 THRIVE axial 5mm BREATHHOLD**  
**3D T1 THRIVE SPAIR axial 5mm**

### Post Contrast

**70 second delay- 3D T1 THRIVE SPAIR axial 5mm**

\*If **pelvis congestion syndrome** a question, may do **MRV** (set up like for renal MRV with enough AP coverage to included pelvic veins, post gado 3D TOF) **IMMEDIATELY BEFORE** (70 second delay) axial T1 post cons\* NO MRA acquisition needed.

## SIEMENS

Body Pelvis

### Pre Contrast

**T2 TSE sagittal FS 5/1** exclude body wall  
**T2 TSE angled coronal FS 5/1** exclude body wall (If patient has a uterus, angle so that slices are parallel to endometrial cavity)  
**T1 VIBE no fat sat axial in phase 8/2 BREATHHOLD**  
**T1 VIBE axial FS in phase 8/2 BREATHHOLD**

### Post Contrast

**70 second delay- T1 VIBE axial FS in phase 8/2 BREATHHOLD**

\*If **pelvis congestion syndrome** a question, may do **MRV** (set up like for renal MRV with enough AP coverage to included pelvic veins, post gado 3D TOF) **IMMEDIATELY BEFORE** (70 second delay) axial T1 post cons\* NO MRA acquisition needed.

## GE

Cervix Cancer MRI

### Pre Contrast

**T2 FSE sagittal no fat sat 5/1** exclude body wall  
**T2 FSE angled coronal FS 5/1** exclude body wall (If patient has a uterus, angle so that slices are parallel to endometrial cavity)  
**T2 FSE FS axial 5/1** whole pelvis  
**T1 3D LAVA (TKC) or FAME vs FSPGR (UH) axial in phase 5mm** whole pelvis (BREATHHOLD)  
**T1 3D LAVA (TKC) or FAME vs FSPGR axial FS in phase (UH) 5mm** (BREATHHOLD)

### Post Contrast

**30 sec T1 LAVA (TKC) or FAME vs FSPGR (UH) FS sagittal 5mm** exclude body wall (BREATHHOLD)  
**70 sec T1 LAVA (TKC) or FAME vs FSPGR (UH) FS sagittal 5mm** exclude body wall (BREATHHOLD)  
**110 sec T1 LAVA (TKC) or FAME vs FSPGR (UH) axial FS inphase (UH) 5mm** whole pelvis (BREATHHOLD)  
**3 minute coronal T1 LAVA (TKC) or FAME vs FSPGR (UH) axial FS inphase (UH) 5-7mm** whole pelvis (BREATHHOLD) MUST INCLUDE KIDNEYS

## PHILIPS

Cervix Cancer MRI

### Pre Contrast

**T2 sagittal 5/1 no fat sat** exclude body wall  
**T2 SPAIR angled coronal FS 5/1** exclude body wall (If patient has a uterus, angle so that slices are parallel to endometrial cavity)  
**T1 THRIVE axial 5mm** BREATHHOLD  
**3D T1 THRIVE SPAIR axial 5mm**

### Post Contrast

**30 second delay- 3D T1 THRIVE SPAIR sagittal 5mm** exclude body wall  
**70 second delay- 3D T1 THRIVE SPAIR sagittal 5mm** exclude body wall  
**110 second delay- 3D T1 THRIVE SPAIR axial 5mm** whole pelvis  
**3 minute 3D T1 THRIVE SPAIR coronal 5mm** whole pelvis and MUST INCLUDE KIDNEYS

## SIEMENS

Cervix cancer

### Pre Contrast

**T2 TSE sagittal no fat sat 5/1** exclude body wall  
**T2 TSE angled coronal FS 5/1** exclude body wall (If patient has a uterus, angle so that slices are parallel to endometrial cavity)  
**T1 VIBE no fat sat axial in phase 8/2** BREATHHOLD  
**T1 VIBE axial FS in phase 8/2** BREATHHOLD

### Post Contrast

**30 second delay- 3D T1 VIBE FS sagittal 5mm** exclude body wall  
**70 second delay- 3D T1 VIBE FS sagittal 5mm** exclude body wall  
**110 second delay- 3D T1 VIBE FS axial 5mm** whole pelvis  
**3 minute 3D T1 VIBE FS coronal 5-7mm** whole pelvis and MUST INCLUDE KIDNEYS

## GE

Pelvic Floor Relaxation

**Prep: 60cc ultrasound gel inserted into rectum**

**T2 SSFSE sagittal 10mm 7 slices through midline at rest**

**T2 SSFSE sagittal 10mm 1 slice through midline at rest**

**T2 SSFSE sagittal 10mm 1 slice through midline VALSALVA**

**T2 FSE axial free breathe 3/0** pelvic floor

**T2 FSE coronal free breathe 3/0** bladder to rectum

**T2 SSFSE coronal free breathe 5/0** bladder to rectum (oblique to sacrum)

## PHILIPS

Pelvic Floor Relaxation

**Prep: 60cc ultrasound gel inserted into rectum**

**T2 SSTSE sagittal 10mm 7 slices through midline at rest**

**T2 SSTSE sagittal 10mm 1 slice through midline at rest**

**T2 SSTSE sagittal 10mm 1 slice through midline VALSALVA**

**T2 TSE axial free breathe 3/0** pelvic floor

**T2 TSE coronal free breathe 3/0** bladder to rectum

**T2 SSTSE coronal free breathe 5/0** bladder to rectum (oblique to sacrum)

## SIEMENS

## GE

Urethral diverticulum MRI

Phased array pelvis coil:

**T2 FSE axial FS 7/3** crest through pubis  
FOV 34

**T1 SE axial 7/3** crest through pubis FOV  
34

Small FOV (diverticulum):

**Ax LAVA 3mm** 16 FOV, 256x205 matrix,  
cover bladder base to skin of perineum for  
all below as well.

**Ax FIESTA or SSFSE 3mm**

**Ax FIESTA or SSFSE FS**

**3mm**

Select which one of **FIESTA** or **SSFSE FS**  
appears better, then do:

**Coronal 3mm**

**Sagittal 3mm**

**OPTIONAL:**

High resolution

Precontrast:

**Ax T1 high resolution FS LAVA 2mm**  
(matrix 512x512)

Post contrast:

**Ax T1 high resolution FS LAVA 2mm**  
(matrix 512x512)

## PHILIPS

Urethral diverticulum MRI

**3T examination preferred.**

Pelvis phased array coil

**T1 FFE in phase 5/1** whole  
pelvis

**T2 TSE SPAIR 5/1** whole pelvis

Small FOV (diverticulum):

**Ax T1 TSE 3mm** 16 FOV  
256x205 matrix, cover bladder  
base to skin of perineum for all  
below as well

**Ax T2 TSE 3mm**

**Ax T2 TSE SPAIR 3mm**

**Cor T2 TSE SPAIR 3mm**

**Sag T2 TSE SPAIR 3mm**

**OPTIONAL:**

High resolution

Precontrast:

**Ax T1 high resolution FS 3D**  
**TFE 2mm** (matrix 512x512)

Post contrast:

**Ax T1 high resolution FS 3D**  
**TFE 2mm** (matrix 512x512)

## SIEMENS

Urethral diverticulum MRI

Phased array pelvis coil:

**T2 TSE axial FS 7/3** crest through pubis FOV 34

**T1 SE axial 7/3** crest through pubis FOV 34

Small FOV (diverticulum):

**Ax VIBE 3mm** 16 FOV, high matrix, cover bladder  
base to skin of perineum for all below as well.

**Ax T2 TSE or HASTE 3mm**

**Ax T2 TSE or HASTE FS 3mm**

**Coronal T2 TSE 3mm**

**Sagittal T2 TSE 3mm**

**Note for coronal and sagittal acquisition,  
select FS or no FS depending on which axial  
appears better.**

**OPTIONAL:**

High resolution

Precontrast:

**Ax T1 high resolution FS VIBE 2mm** (matrix  
512x512)

Post contrast:

**Ax T1 high resolution FS VIBE 2mm** (matrix  
512x512)

## GE

### Liver MRI

#### Pre Contrast

**T2 FSE axial FS 6/1** (through liver) resp triggered, (if unable to register well, do BREATHHOLD **SSFSE**, but delete fat sat)

**Dual T1 GRE axial 6/1** (through liver) BREATHHOLD

**T1 3D FAME or LAVA if available axial FS 5mm** thick BREATHHOLD (through liver) **IF no 3D UH), then FSPGR inphase FS**

#### Post Contrast

**Automated bolus tracking FOR ARTERIAL PHASE!**

**If no tracking art phase is 25 sec (UH).**

**Arterial and 70 sec (portal venous phase) delay- 3D T1 LAVA or FAME (UH) axial FS 5mm** thick BREATHHOLD (through liver);

**3 minute delay T1 LAVA or FAME or FSPGR coronal in phase FS 5/1** BREATHHOLD (diaphragm to iliac crests)

**OPTIONAL subtractions of pre from arterial phase in cirrhotic livers**

## PHILIPS

### Liver MRI

#### Pre Contrast

**T2 TSE SPAIR axial 6/1** (through liver) resp triggered (if unable to register well, do BREATHHOLD **SSTSE**, but delete fat sat)

**Dual T1 FFE axial 6/1** (through liver) BREATHHOLD -

**T1 THRIVE axial SPAIR 5mm** thick BREATHHOLD (through liver)

#### Post Contrast

**BOLUS TRACK FOR ARTERIAL PHASE!**

**Arterial and 70 sec (portal venous phase) delay- T1 THRIVE axial FS 5mm** thick BREATHHOLD (through liver);

**3 minute delay T1 THRIVE axial FS 5mm** BREATHHOLD (diaphragm to iliac crests)

**OPTIONAL subtractions of pre from arterial phase in cirrhotic livers**

## SIEMENS

### Liver MRI

#### Pre Contrast

**T2 TSE ax 8/2mm** (diaphragm to inferior renal poles) resp triggered (if unable to register well, do BREATHHOLD **HASTE**, but delete fat sat)

**Dual T1 GRE ax in/out phase 8/2mm** through liver BREATHHOLD

**T1 VIBE FS axial pre 5mm** BREATHHOLD (through liver)

#### Post contrast

**T1 VIBE FS ax 5mm** BREATHHOLD 25 (hepatic arterial phase) sec delay

**T1 VIBE FS ax 5mm** BREATHHOLD 70 (portal venous phase) sec delay

**T1 VIBE FS cor 5mm**

BREATHHOLD diaphragm to iliac crests 3 min delay

**OPTIONAL subtractions of pre from arterial phase in cirrhotic livers**

## GE

### EOVIST Liver MRI

#### Pre Contrast

**Dual T1 GRE axial 6/1** (through liver)

BREATHHOLD

**T1 3D FAME or LAVA if available axial FS 5mm** thick BREATHHOLD (through liver)

#### Post Contrast

**Realtime bolus tracking MANDATORY FOR ARTERIAL PHASE!**

**Arterial and 70 sec (portal venous phase) delay- 3D T1 LAVA or FAME axial FS 5mm** thick BREATHHOLD (through liver);

**MRCP if needed**

**3 minute delay T1 LAVA or FAME or FSPGR coronal in phase FS 5/1**

BREATHHOLD (diaphragm to iliac crests)

**T2 FSE axial FS 6/1** (through liver) resp triggered, (if unable to register well, do BREATHHOLD **SSFSE**, but delete fat sat)

**At ten minutes after injection** check for bright signal in bile ducts (**T1 FS FSPGR** slices through porta and GB if present); have Body MRI resident check then:

**Hepatobiliary phase 3D T1 LAVA or FAME axial FS 5mm** thick BREATHHOLD

(through liver) This sequence may be done at 15 min or max of 30 min if no excretion noted at ten min

**OPTIONAL subtractions of pre from arterial phase in cirrhotic livers**

## PHILIPS

### EOVIST Liver MRI

#### Pre Contrast

**Dual T1 FFE axial 6/1** (through liver)

BREATHHOLD -

**T1 THRIVE axial SPAIR 5mm** thick BREATHHOLD (through liver)

#### Post Contrast

**BOLUS TRACK FOR ARTERIAL PHASE!**

**Arterial and 70 sec (portal venous phase) delay- T1 THRIVE axial FS 5mm** thick BREATHHOLD (through liver);

**MRCP if needed**

**3 minute delay T1 THRIVE axial FS 5mm** BREATHHOLD (diaphragm to iliac crests)

**T2 TSE SPAIR axial 6/1** (through liver) resp triggered (if unable to register well, do

**BREATHHOLD SSTSE**, but delete fat sat)

**At ten minutes after injection** check for bright signal in bile ducts (**T1 FS FFE** slices through porta and GB if present); have Body MRI resident check then:

**Hepatobiliary phase 3D THRIVE SPAIR axial 5mm** thick BREATHHOLD (through liver)

This sequence may be done at 15 min or max of 30 min if no excretion noted at ten min

**OPTIONAL subtractions of pre from arterial phase in cirrhotic livers**

## SIEMENS

### EOVIST Liver MRI

#### Pre Contrast

**Dual T1 GRE ax in/out phase 8/2mm**

through liver BREATHHOLD

**T1 VIBE FS axial pre 5mm** BREATHHOLD (through liver)

#### Post contrast

**T1 VIBE FS ax 5mm** BREATHHOLD 20 (hepatic arterial phase) sec delay

**T1 VIBE FS ax 5mm** BREATHHOLD 70 (portal venous phase) sec delay

**MRCP if needed**

**T1 VIBE FS cor 5mm** BREATHHOLD diaphragm to iliac crests **3 min** delay

**T2 TSE ax 8/2mm** (diaphragm to inferior renal poles) resp triggered (if unable to register well, do BREATHHOLD **HASTE**, but delete fat sat)

**At ten minutes after injection** check for bright signal in bile ducts (**T1 FS FFE** slices through porta and GB if present); have Body MRI resident check then:

**Hepatobiliary phase 3D THRIVE SPAIR axial 5mm** thick BREATHHOLD (through liver)

This sequence may be done at 15 min or max of 30 min if no excretion noted at ten min

**OPTIONAL subtractions of pre from arterial phase in cirrhotic livers**

## GE

### MRCP ALWAYS PART OF EITHER A LIVER OR PANCREAS PROTOCOL

Prep: Patient should be NPO for 6 hours.

#### Pre Contrast

#### **(TKC) 3D high res MRCP**

#### **MIP- send rotated saved series to PACS**

#### **(UH)**

**SSFSE axial FS thin slice 4/0**; TE 90 (through pancreas and biliary tree) BREATHHOLD- need these because cannot see stones on radial!)

**SSFSE angled coronal FS thin slice 4/0**; TE 90 (through pancreas and biliary tree-align with bifurcation of portal vein at level of porta hepatis) BREATHHOLD- ditto need

**(TKC and UH) SSFSE RADIAL FS**; TE 1400, 18 slices, 7 degree, CW (center over vessels with slice #1 at 12 o'clock) BREATHHOLDS

**T2 FSE axial FS 6/1** (through liver) do resp triggered, but if poor registration breathhold and delete FS)

**Dual T1 GRE axial 6/1** (through liver) BREATHHOLD

**3D T1 FAME or LAVA if available axial FS 5mm**

(top of liver through pancreas) BH **IF no 3D (UH), then FSPGR inphase FS**

#### Post Contrast Fluoro/bolus tracking FOR

#### **ARTERIAL PHASE!**

#### IF HEPATIC QUESTION:

**Arterial and 70 second (portal venous phase)**

**delay 3D T1 FAME or LAVA if available axial FS**

**5mm** (top of liver through pancreas) BREATHHOLD

**3 minute delay 3D T1 LAVA (TKC) or T1 FAME vs**

**FMPSPGR 5/1 coronal FS (UH)** (through pancreas and liver)

#### IF PANCREATIC QUESTION:

**35 (pancreatic parenchymal) and 70 second**

**(portal venous phase) delay 3D T1 FAME or LAVA**

**if available axial FS 5mm** (top of liver through

pancreas) BREATHHOLD

**3 minute delay T1 3D FAME, LAVA or (UH) FSPGR**

**FS in phase coronal 5/1** (through pancreas and liver)

## PHILIPS

### MRCP ALWAYS PART OF EITHER A LIVER OR PANCREAS PROTOCOL

Prep: Patient should be NPO for 6 hours.

#### Pre Contrast

#### **3D high res MRCP**

#### **MIP- send rotated saved series to PACS**

**SSFSE RADIAL FS**; TE 1400, 18 slices, 7 degree, CW (center over vessels with slice #1 at 12 o'clock) BREATHHOLDS

**T2 TSE SPAIR axial 6/1** (through liver) resp triggered, (if unable to register well, do BREATHHOLD)

**Dual T1 FFE axial 6/1** (through liver) BREATHHOLD

**3D T1 THRIVE SPAIR axial 5mm** (top of liver through pancreas) BREATHHOLD

#### Post Contrast BOLUS TRACK FOR ARTERIAL PHASE!

#### IF HEPATIC QUESTION:

**Arterial and 70 second (portal venous phase)**  
**delay THRIVE SPAIR axial in phase 5mm** (top of liver through pancreas) BH

**3 minute delay T1 THRIVE SPAIR 5mm coronal FS** (top of liver through pancreas)

#### IF PANCREATIC QUESTION:

**35 (pancreatic parenchymal) and 70 second (portal venous phase) delay THRIVE SPAIR axial 5mm** (top of liver through pancreas)

**3 minute delay T1 THRIVE SPAIR 5mm coronal** (through pancreas and liver)

\*\*\*IF PANCREATIC QUESTION and PT on 3T, get

**DIFFUSION b=0,700\*\*\*\*\***

## SIEMENS

### MRCP ALWAYS PART OF EITHER A LIVER OR PANCREAS PROTOCOL

Prep: Patient should be NPO for 6 hours.

#### Pre Contrast

**HASTE angled coronal FS slab 50mm thickness**; TE 90 (through pancreas and biliary tree-align with bifurcation of portal vein at level of porta hepatis) BREATHHOLD

**HASTE axial FS thin slice 4/0**; TE 90 (through pancreas and biliary tree) BREATHHOLD- need these because cannot see stones on radial!)

**HASTE angled coronal FS thin slice 4/0**; TE 90 (through pancreas and biliary tree-align with bifurcation of portal vein at level of porta hepatis) BREATHHOLD

**T2 TSE axial FS 8/2** (through liver) resp triggered, (if unable to register well, do BREATHHOLD)

**Dual T1 GRE axial 8/2** (through liver) BREATHHOLD

**T1 VIBE axial FS 5mm** (top of liver through pancreas) BREATHHOLD

#### Post Contrast

#### IF HEPATIC QUESTION:

**T1 VIBE axial FS 5mm** (top of liver through pancreas) BREATHHOLD **25** and **70** second delay

**3 minute delay T1 VIBE 5mm coronal FS** (through pancreas and liver)

#### IF PANCREATIC QUESTION:

**35 (pancreatic parenchymal) and 70 second (portal venous phase) delay T1 VIBE axial FS 5mm** (top of liver through pancreas) BREATHHOLD

**3 minute delay T1 VIBE FS in phase coronal 5/1** (through pancreas and liver)

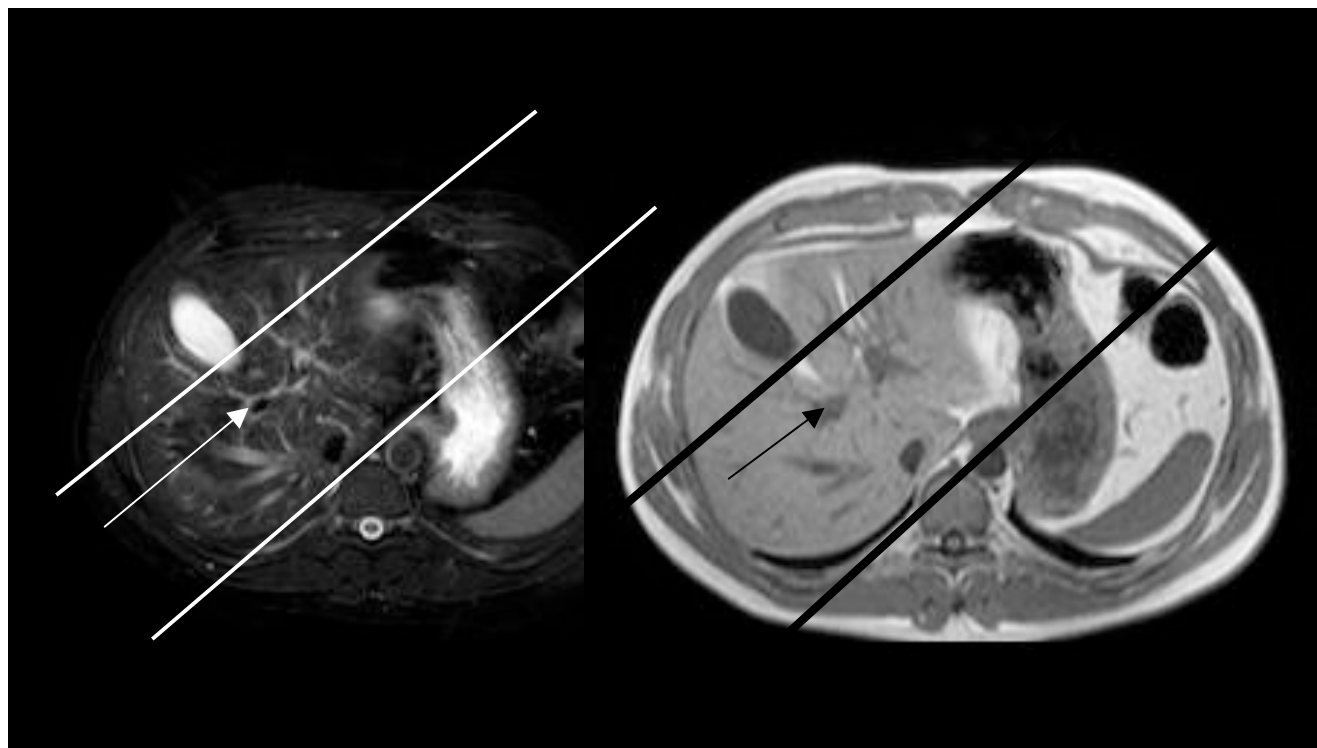
Desiree E. Morgan M.D.  
UAB Department of Radiology  
Revised November 6, 2008

Set up of MRCP  
angled coronals:

**UAB hospital GE and Highlands Siemens units only!**

Thin 4/0 SSFSE MRCP images should be aligned with the main branching of the portal vein (see dotted line), and include central intrahepatic duct bifurcation to head of pancreas (see solid lines).

Thin 4/0 SSFSE MRCP images should be aligned with the main branching of the portal vein (see dotted line), and include central intrahepatic duct bifurcation to head of pancreas (see solid lines).



## GE

### Pancreas MRI

#### Pre Contrast

**T2 FSE axial FS 6/1** (through liver and pancreas) resp triggered, but if poor registration breathhold **SSFSE** and delete FS

**SSFSE RADIAL FS**; TE 1400, 18 slices, 7 degree, CW (center over vessels with slice #1 at 12 o'clock) BREATHHOLDS

**SSFSE axial FS thin slice 4/0**; TE 90 (through pancreas and biliary tree)

BREATHHOLD- need these because cannot see stones on radial!

**T1 3D FAME or LAVA if available axial FS 5mm thick BREATHHOLD** (through liver and pancreas) **IF no 3D (UH), then FSPGR inphase FS**

#### Post Contrast

**35 (pancreatic parenchymal) and 70 second (portal venous phase) delay LAVA or FAME FS axial 5mm** (top of liver through pancreas) BREATHHOLD

**3 minute delay T1 3D LAVA, FAME or FSPGR FS** in phase coronal 5/1 BREATHHOLD (diaphragm to iliac crests)

## PHILIPS

### Pancreas MRI

#### Pre Contrast

**T2 TSE SPAIR axial 6/1** (through liver and pancreas) resp triggered, (if unable to register well, do BREATHHOLD **SSTSE** but no FS)

**3D high res MRCP**

**MIP- send rotated saved series to PACS**

**MRCP RADIAL FS**; TE 1400, 18 slices, 7 degree, CW (center over vessels with slice #1 at 12 o'clock) BREATHHOLDS

**T1 THRIVE SPAIR axial 5mm thick**

**BREATHHOLD** (through liver and pancreas)

#### Post Contrast

**35 (pancreatic parenchymal) and 70 second (portal venous phase) delay T1 3D THRIVE SPAIR axial in phase 5mm** (top of liver through pancreas) BREATHHOLD

**3 minute delay THRIVE SPAIR 5mm coronal** (diaphragm to iliac crests)

**\*\*\*IF PT on 3T, get axial DIFFUSION b=0,700\*\*\*\*\***

## SIEMENS

### Pancreas MRI

#### Pre Contrast

**SSFSE angled coronal FS slab 50mm thickness**; TE 90 (through pancreas and biliary tree-align with bifurcation of portal vein at level of porta hepatis) BREATHHOLD

**T2 TSE axial FS 8/2** (through liver and pancreas) ) resp triggered, (if unable to register well, do BREATHHOLD **HASTE** but no FS)

**Dual T1 axial 8/2** (through liver) BREATHHOLD

**T1 VIBE axial FS 5mm** (top of liver through pancreas) BREATHHOLD

#### Post Contrast

**35 (pancreatic parenchymal) and 70 second (portal venous phase) delay T1 VIBE axial FS 5mm** (top of liver through pancreas) BREATHHOLD  
**3 minute delay T1 VIBE FS in phase coronal 5mm** (through pancreas and liver)

## GE

Pelvis fistula

### Pre Contrast

**T2 FSE axial 3/0**; 25 FOV (cover rectum approximately 42 slices)

**T2 FSE coronal 3/0**; 25 FOV (mid bladder to coccyx approximately 42 slices)

**T2 FSE FS axial 3/0**; 25 FOV (cover rectum approximately 42 slices)

**T2 FSE FS coronal 3/0**; 25 FOV (mid bladder to coccyx approximately 42 slices)

**T1 FSE axial 3/0**; 25 FOV

**T1 FSE coronal 3/0**; 25 FOV

**T1 FSPGR axial in phase 6/2**; 25 FOV

### Post Contrast

**Delay 3 minutes**

**T1 FSPGR axial in phase 6/2**; 25 FOV

**T1 FSPGR axial FS in phase 6/2**; 25 FOV

### **PLEASE-**

Be sure that inferior margins/slices include skin surface of perineum!

\*\*If rectovaginal fistula the question, consider **T2FSE FS sagittal** slices\*\*

## PHILIPS

Pelvis fistula

### Pre Contrast

**T2 TSE axial 3/0**; 25 FOV (cover rectum approximately 42 slices)

**T2 TSE coronal 3/0**; 25 FOV (mid bladder to coccyx approximately 42 slices)

**T2 TSE SPAIR axial 3/0**; 25 FOV (cover rectum approximately 42 slices)

**T2 TSE SPAIR coronal 3/0**; 25 FOV (mid bladder to coccyx approximately 42 slices)

**T1 FFE axial 3/0**; 25 FOV

**T1 FFE coronal 3/0**; 25 FOV

**T1 THRIVE axial in phase 5mm**; 25 FOV

### Post Contrast

**Delay 3 minutes**

**T1 THRIVE axial in phase 5mm**; 25 FOV

**T1 THRIVE SPAIR in phase 5mm**; 25 FOV

Be sure that inferior margins/slices include skin surface of perineum.

\*\*If rectovaginal fistula the question, consider **T2 SPAIR sagittal** slices\*\*

## SIEMENS

Pelvis Fistula

### Pre Contrast

**T2 TSE axial 3/0**; 25 FOV (cover rectum approximately 42 slices)

**T2 TSE coronal 3/0**; 25 FOV (mid bladder to coccyx approximately 42 slices)

**T2 TSE FS axial 3/0**; 25 FOV (cover rectum approximately 42 slices)

**T2 TSE FS coronal 3/0**; 25 FOV (mid bladder to coccyx approximately 42 slices)

**T1 FLASH axial 3/0**; 25 FOV

**T1 FLASH coronal 3/0**; 25 FOV

**T1 VIBE axial in phase 6/2**; 25 FOV

### Post Contrast

**Delay 3 minutes**

**T1 VIBE axial in phase 6/2**; 25 FOV

**T1 VIBE axial FS in phase 6/2**; 25 FOV

### **PLEASE-**

Be sure that inferior margins/slices include skin surface of perineum!

\*\*If rectovaginal fistula the question, consider **T2FSE FS sagittal** slices\*\*

## GE

### Abdominal/Pelvic Survey

#### Pre Contrast

**T2 FSE axial FS 8/2** (diaphragm to symphysis) BREATHHOLD (if unable to hold breath, do resp triggered, but ONLY if patient is unable to hold breath)

**Dual T1 GRE axial 8/2** (diaphragm to symphysis) BREATHHOLD

**Note: need in-phase through pelvis, but in AND out of phase through upper abdomen.\*\*\***

**T1 LAVA,FAME, or FSPGR (UH if 3D not available) axial FS 5mm thick BREATHHOLD** (through liver and pancreas)

#### Post Contrast

**70 second delay- T1 LAVA, FAME, or FSPGR (UH if 3D not available) axial FS 5mm thick BREATHHOLD** (top of liver through kidneys);

**T1 LAVA, FAME, or FSPGR (UH if 3D not available) FS axial 5mm BREATHHOLD** through remainder of abd and pelvis.

## PHILIPS

### Abdominal/Pelvic Survey

#### Pre Contrast

**T2 SPAIR axial 8/2** (diaphragm to inferior renal poles) resp triggered, (if unable to register well, do BREATHHOLD)

**Dual T1 FFE axial 8/2** (diaphragm to symphysis) BREATHHOLD

**T1 THRIVE SPAIR axial 5mm thick BREATHHOLD** (through liver and pancreas)

#### Post Contrast

**70 second delay- T1 THRIVE SPAIR axial 5mm thick BREATHHOLD** (top of liver through kidneys);

**T1 THRIVE SPAIR BREATHHOLD** through remainder of abd and pelvis.

## SIEMENS

### Abdominal/Pelvic Survey

#### Pre Contrast

**T2 TSE FS ax 8/2mm** (diaphragm to inferior renal poles) BREATHHOLD

**T2 TSE FS ax 8/2mm** (through pelvis)

**Dual T1 GRE ax in/out phase 8/2mm** through liver BREATHHOLD

**T1 VIBE FS ax pre 5mm BREATHHOLD** (through liver)

#### Post contrast

**T1 VIBEFS ax 5mm BREATHHOLD 70** (portal venous phase) sec delay

**T1 VIBE FS ax 5mm BREATHHOLD 1 min** (portal venous phase) sec delay through pelvis

**T1 VIBE FS cor 5mm BREATHHOLD** diaphragm to iliac crests 3 min delay

## GE

### MR Enterography

Prep NPO after midnight or 6 hours, Volumen ingestion of 450mL of 0.1% barium sulfate oral contrast media at 30 minute intervals in the 2 hours prior to scanning. Immediately prior to the time of scan, patients will be administered tincture of opium, 4-6 drops to decrease bowel peristalsis.

#### Pre Contrast

**T2 SSFSE axial 4-6/1** (diaphragm to symphysis) BREATHHOLD

**T2 SSFSE coronal 4-6/1** (diaphragm to symphysis) BREATHHOLD

**FIESTA axial 4-6/1** (diaphragm to symphysis) BREATHHOLD

**FIESTA coronal 4-6/1** (diaphragm to symphysis) BREATHHOLD

**T1 LAVA axial FS 5mm coronal BREATHHOLD** (diaphragm to pubis)

#### Post Contrast

**20 second delay- 2D T1 FSPGR coronal FS 5mm** BREATHHOLD (diaphragm to pubis and for all below same coverage)

**60 second delay-3D T1 LAVA FS Coronal 5mm** BREATHHOLD

**100 second delay-3D T1 LAVA FS axial 5mm** BREATHHOLD

**140 second delay-3D T1 LAVA FS Coronal 5mm**

**3 minute delay 2D T1 FSPGR coronal FS 5mm** BREATHHOLD

## PHILIPS

### MR Enterography

Prep same

#### Pre Contrast

**T2 TSE 4-6/1** (diaphragm to symphysis)

BREATHHOLD

**T2 TSE coronal 4-6/1** (diaphragm to symphysis)

BREATHHOLD

**Balanced FFE axial 4-6/1** (diaphragm to symphysis) BREATHHOLD

**Balanced FFE coronal 4-6/1** (diaphragm to symphysis) BREATHHOLD

**T1 THRIVE SPAIR axial FS 5mm coronal BREATHHOLD** (diaphragm to pubis)

#### Post Contrast

**20 second delay- 2D T1 FFE in phase coronal FS 5mm** BREATHHOLD (diaphragm to pubis and for all below same coverage)

**60 second delay-3D T1 THRIVE SPAIR Coronal 5mm** BREATHHOLD

**100 second delay-3D T1 THRIVE SPAIR axial 5mm** BREATHHOLD

**140 second delay-3D T1 THRIVE SPAIR Coronal 5mm**

**3 minute delay 2D T1 FFE in phase coronal FS 5mm** BREATHHOLD

## SIEMENS

### MR Enterography

#### DO NOT DO

## GE

### Kidney MRI

#### Pre Contrast

**T2 FSE axial FS 6/1** (diaphragm to inferior renal poles) resp triggered, (if unable to register well, do BREATHHOLD)

**Dual T1 GRE axial 5mm** (through kidneys) BREATHHOLD

**T1 LAVA, FAME, or FSPGR (UH if 3D not available) FS axial 5mm** (through kidneys) BREATHHOLD

#### Post Contrast

**25, 90 second delay- T1 LAVA, FAME, or FSPGR (UH if 3D not available) FS axial 5mm** (top of liver through kidneys) BREATHHOLD

**3 minute delay LAVA, FAME, or FSPGR (UH if 3D not available) coronal 3D** or in phase FS 8/2 BREATHHOLD (diaphragm to iliac crests)

#### **OPTIONS:**

**If NONCON ONLY: Add T2 FSE coronal and sagittal FS 6/1** (diaphragm to inferior renal poles) resp triggered through kidneys

\*Consider adding **3D TOF renal MRA/MRV** between FAME pre and post if partial nephrectomy a question.\* **Drop 25 sec THRIVE.**

**MRUrogram:** At end of exam do **MRA- type sequence: CORONAL kidneys through bladder base**

**SUBTRACTIONS: pre from 70sec 3DT1**

## PHILIPS

### Kidney MRI

#### Pre Contrast

**T2 SPAIR axial 6/1** (diaphragm to inferior renal poles) resp triggered, (if unable to register well, do BREATHHOLD)

**Dual T1 axial FFE 5/1** (through kidneys) BREATHHOLD

**T1 THRIVE SPAIR axial 5mm** (through kidneys) BREATHHOLD

#### Post Contrast

**25, 90 second delay- T1 THRIVE SPAIR axial 5mm** (top of liver through kidneys) BREATHHOLD (same as precontrast in case subtraction images are needed!)

**3 minute delay T1 THRIVE SPAIR 5mm coronal** BREATHHOLD (diaphragm to iliac crests)

#### **OPTIONS:**

**If NONCON ONLY: Add T2 SPAIR coronal and sagittal 6/1** (diaphragm to inferior renal poles) resp triggered through kidneys

\*Consider adding **3D TOF renal MRA/MRV** between THRIVE pre and post if partial nephrectomy a question.\* **Drop 25 sec THRIVE.**

#### **MRUrogram:**

At end of exam do **MRA- type sequence: CORONAL kidneys through bladder base**  
**SUBTRACTIONS: pre from 70sec 3DT1**

## SIEMENS

### Kidney MRI

#### Pre Contrast

#### **FISP coronal**

**T2 TSE ax 8/2mm** (diaphragm to inferior renal poles) BREATHHOLD

**Dual T1 GRE ax in/out phase 5/1mm** through kidneys BREATHHOLD

**T1 VIBE FS ax pre 5mm/1mm** BREATHHOLD

#### Post contrast

**T1 VIBE FS ax 5mm/1mm** BREATHHOLD immediate

**T1 VIBE FS ax 5mm/1mm** BREATHHOLD 70 sec delay

**T1 VIBE FS cor 5mm/1mm** BREATHHOLD through liver and kidneys  
3 min delay

**If NONCON ONLY: Add T2 TSE FS coronal and sagittal**

**6/1** (diaphragm to inferior renal poles) resp triggered through kidneys

## GE

Renal MRA

### Pre Contrast

**T1 LAVA,FAME, or FSPGR (UH if 3D not available) coronal FS 5mm**

**BREATHHOLD** (through kidneys and adrenals)

**3D MRA- vascTOFSPGR 3mm**

**BREATHHOLD** (renal arteries to posterior kidneys) **Note: FOV 24-30**

### Post Contrast

**Cor 3D MRA/MRV vascTOFSPGR 3mm**  
**BREATHHOLD** (renal arteries to posterior kidneys) **Note: FOV 24-30**

One arterial and one venous run unless otherwise instructed per attending of the day.

**T1 LAVA,FAME, or FSPGR (UH if 3D not available) coronal FS 5mm**

**BREATHHOLD** (through kidneys and adrenals)

## PHILIPS

Renal MRA

### Pre Contrast

**T1 THRIVE SPAIR coronal 5mm**

**BREATHHOLD** (through kidneys and adrenals)

**3D MRA FFE 3mm BREATHHOLD** (renal

arteries to posterior kidneys) **Note: FOV 24-30**

### Post Contrast

**3D MRA FFE 3mm BREATHHOLD** (renal arteries to posterior kidneys) **Note: FOV 24-30**

One arterial and one venous run unless otherwise instructed per attending of the day.

**T1 THRIVE SPAIR coronal 5mm**

**BREATHHOLD** (through kidneys and adrenals)

## SIEMENS

Renal MRA

### Pre Contrast

**T1 VIBE FS ax pre coronal 5mm**

**BREATHHOLD** (through kidneys and adrenals)

**3D MRA 3mm BREATHHOLD** (renal arteries to posterior kidneys) **Note: FOV 24-30**

### Post contrast

**3D MRA 3mm BREATHHOLD** (renal arteries to posterior kidneys) **Note: FOV 24-30**

**T1 VIBE FS ax 5mm coronal BREATHHOLD** (through kidneys and adrenals)

## GE

Abdominal MRA

### Pre Contrast

**T1 LAVA, FAME, or FSPGR (UH if 3D not available) axial FS 5mm BREATHHOLD** (diaphragm to pubis)

**3D MRA- vascTOFSPGR 3mm**

**BREATHHOLD** (NOTE: anterior to posterior coverage to include mesenteric arteries as well as renals)

### Post Contrast

**Cor 3D MRA/MRV vascTOFSPGR 3mm**

**BREATHHOLD** (anterior to posterior coverage to include mesenteric arteries as well as renals)

One arterial and one venous run unless otherwise instructed per attending of the day.

**T1 LAVA, FAME, or FSPGR (UH if 3D not available) axial FS 5mm BREATHHOLD** (diaphragm to pubis)

## PHILIPS

Abdominal MRA

### Pre Contrast

**T1 THRIVE SPAIR axial 5mm**

**BREATHHOLD** (diaphragm to pubis)

**3D MRA FFE 3mm BREATHHOLD** (NOTE:

anterior to posterior coverage to include mesenteric arteries as well as renals)

### Post Contrast

**3D MRA FFE 3mm BREATHHOLD** (anterior to posterior coverage to include mesenteric arteries as well as renals)

One arterial and one venous run unless otherwise instructed per attending of the day.

**T1 THRIVE SPAIR axial 5mm**

**BREATHHOLD** (diaphragm to pubis)

## SIEMENS

Abdominal MRA

### Pre Contrast

**T1 VIBE FS ax pre 5mm BREATHHOLD** (diaphragm to pubis)

**3D MRA 3mm BREATHHOLD** (anterior to posterior coverage to include mesenteric arteries as well as renals)

### Post contrast

**3D MRA 3mm BREATHHOLD** (anterior to posterior coverage to include mesenteric arteries as well as renals)

**T1 VIBE FS ax 5mm BREATHHOLD** (diaphragm to pubis)

## GE

Runoff MRA

### Pre Contrast

**3D MRA- vascTOFSPGR 3.4 mm  
BREATHHOLD superior station**

anterior to posterior coverage to include  
origins of mesenteric and renal arteries,

FOV per machine to cover abd aorta through  
ankles

### Post Contrast

**Cor 3D MRA/MRV vascTOFSPGR  
3.4mm BREATHHOLD superior station**

anterior to posterior coverage to include  
origins of mesenteric and renal arteries,

FOV per machine to cover abd aorta through  
ankles

3 station arterial and venous runs

## PHILIPS

Runoff MRA

### Pre Contrast

**3D MRA FFE 3.2-3.4mm BREATHHOLD superior  
station**

anterior to posterior coverage to include origins of  
mesenteric and renal arteries,

FOV per machine to cover abd aorta through ankles

### Post Contrast

**3D MRA FFE 3.2-3.4mm BREATHHOLD superior  
station**

anterior to posterior coverage to include origins of  
mesenteric and renal arteries,

FOV per machine to cover abd aorta through ankles

## SIEMENS

Runoff MRA MRA

### Pre Contrast

**3D MRA 3mm BREATHHOLD superior station**  
anterior to posterior coverage to include origins of  
mesenteric and renal arteries,

FOV per machine to cover abd aorta through ankles

### Post contrast

**3D MRA 3mm BREATHHOLD superior station**  
anterior to posterior coverage to include origins of  
mesenteric and renal arteries,

FOV per machine to cover abd aorta through ankles

## GE

Abdominal MRV

Pre Contrast

**2D TOF** abd and pelvis with superior saturation band.

**IF NO IV CONTRAST STOP HERE**

**T1 LAVA,FAME, or FSPGR (UH if 3D not available) axial FS 5mm BREATHHOLD** (diaphragm to pubis)

**3D MRV- vascTOFSPGR 3mm**

**BREATHHOLD** (anterior to posterior coverage to include IVC and aorta through kidneys if IVC and iliac veins targeted OR mesenteric arteries as well as renals if portal vein a question)

Post Contrast

**Cor 3D MRA/MRV vascTOFSPGR 3mm BREATHHOLD with one MRA and three venous runs** (see coverage issues above)

**T1 LAVA,FAME, or FSPGR (UH if 3D not available) axial FS 5mm BREATHHOLD** (diaphragm to pubis))

## PHILIPS

Abdominal MRV

Pre Contrast

**2D TOF** abd and pelvis with superior saturation band

**IF NO IV CONTRAST STOP HERE**

**T1 THRIVE SPAIR axial 5mm BREATHHOLD** (diaphragm to pubis)

**3D MRA FFE 3mm BREATHHOLD** (anterior to posterior coverage to include IVC and aorta through kidneys if IVC and iliac veins targeted OR mesenteric arteries as well as renals if portal vein a question)

Post Contrast

**3D MRA FFE 3mm BREATHHOLD with one MRA and three venous runs** (see coverage issues above)

**T1 THRIVE SPAIR axial 5mm BREATHHOLD** (diaphragm to pubis)

## SIEMENS

Abdominal MRV

Pre Contrast

**2D TOF** abd and pelvis with superior saturation band

**IF NO IV CONTRAST STOP HERE**

**T1 VIBE FS ax pre 5mm BREATHHOLD** (diaphragm to pubis)

**3D MRA 3mm BREATHHOLD** (anterior to posterior coverage to include IVC and aorta through kidneys if IVC and iliac veins targeted OR mesenteric arteries as well as renals if portal vein a question)

Post contrast

**3D MRA 3mm BREATHHOLD with one MRA and three venous runs** (see coverage issues above)

**T1 VIBE FS ax 5mm BREATHHOLD** (diaphragm to pubis)

## GE

Prostate MRI

### Body coil

**T2 FSE axial FS 7/3** crest through pubis  
FOV 34

**T1 SE axial 7/3** crest through pubis FOV  
34

### Endorectal coil

**T2 FRFSE 3/1 axial, coronal, sagittal:**  
FOV 12, 256/256

**T1 SE axial** FOV 12 356/160

## PHILIPS

Prostate MRI

### Pelvis phased array coil

**T1 FFE in phase 5/1** whole  
pelvis

**T2 TSE FS 5/1** whole pelvis

Small FOV (prostate):

**Ax T1 3mm**

**Ax T2 3mm**

**Ax T2 FS 3mm**

**Cor T2 FS 3mm**

**Sag T2 3mm**

### **OPTIONAL:**

Post treatment High res prostate  
evaluation

Precontrast:

**Ax T1 high resolution FS 3D**

**TFE 2mm** (matrix 512x512)

Post contrast:

**Ax T1 high resolution FS 3D TFE 2mm** (matrix  
512x512)