

# **CTA Pulmonary Embolus (PE)**

Updated  
5/2/2024

Indications - shortness of breath, dyspnea, chest pain, tachycardia, pulmonary embolus, DVT, elevated D-dimer, pulmonary hypertension.

**Hemoptysis indication uses CTA thoracic aorta protocol.** If indication is PE and hemoptysis, tech should contact ordering clinician to pick either PE or hemoptysis which will determine which protocol to use.

## **GENERAL SCAN NOTES**

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - lung apices through diaphragm (obtained during end inspiration).

Craniocaudal scan coverage:

Regular patients - lung apices through adrenal glands (**just have patient stop breathing**).

**Pregnant patient** - lung apices through **lung bases** (**just have patient stop breathing**).

Having the patient just stop breathing rather than taking in a deep breath reduces the influx of unopacified contrast from the abdomen into the pulmonary arteries.

**Scan caudal to cranial to reduce motion artifact in lung bases where PEs are more common.**

Adjust FOV (field of view) on topogram to smallest without cropping anatomy.

IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Bolus track off **right atrium** triggered at **95 HU**.

*Test Bolus Method – Give 20 mL contrast bolus followed by saline flush. Track enhancement curve off pulmonary artery with target 100 HU to get timing delay. Give another 80 mL contrast and begin scanning caudal-cranial after timing delay.*

*Use 25 mL contrast for test bolus and 100 mL contrast for actual scan in patients weighing over 250 lbs.*

For **GE scanners**, it is essential for the 1st recon thickness on the scanner to match the 1st recon thickness in this protocol book for the prescribed Noise Index to be valid. The 1st recon should generally be the thickest recon in the protocol.

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## SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	110	56	on	on 70	1.50	32	0.7	0.8	7.1
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	6.5
Definition 64	spiral	120	127	on	on	1.40	64	0.6	0.3	3.3
Go Top 64	spiral	100	62	on	on 70	1.50	64	0.6	0.33	1.7
Drive 128	spiral	100	105	on	on	1.20	128	0.6	0.28	1.8
Force 192	spiral	100	105	on	on	1.20	192	0.5	0.25	1.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX LUNG	3.0	3.0	Br57 / B70f	lung	3	head/feet
AX ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
AX ANGIO THINS	1.5	1.5	Br40 / B41f	mediastinum	3	head/feet
COR SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	left/right
AX MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	head/feet
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		

## GE PARAMETERS & RECONS

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR	Scan Time
LS 16	helical	large	120	100-440	16.36	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
Opt 540	helical	large	120	100-440	16.36	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
LS VCT 64	helical	large body	120	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	3.8
Disc VCT 64	helical	large body	120	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	3.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX LUNG	2.5	2.5	lung	1600/-600	head/feet
AX ANGIO	2.5	2.5	std full	400/40	head/feet
AX ANGIO THINS	1.25	1.25	std full	400/40	head/feet
COR SOFT	2.5	2.5	std full	400/40	front/back
SAG SOFT	2.5	2.5	std full	400/40	left/right
AX MIPS	5.0	3.0	std full	1600/-600	head/feet
3D VRT (spin)	0.625	0.625	std full	400/40	

**Must be first recon.**

# **CTA Pulmonary Embolus (PE)**

## **PHILLIPS PARAMETERS & RECONS**

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.20	64	0.625	0.50	3.1

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX LUNG	3.0	3.0	YA	lung	3	head/feet
AX ANGIO	3.0	3.0	B	mediastinum	3	head/feet
AX ANGIO THINS	1.5	1.5	B	mediastinum	3	head/feet
COR SOFT	3.0	3.0	B	mediastinum	3	front/back
SAG SOFT	3.0	3.0	B	mediastinum	3	left/right
AX MIPS	5.0	3.0	B	mediastinum	3	head/feet
3D VRT (spin)	0.75	0.5	B			