

CT SCAN PROTOCOLS  
UCSD MEDICAL CENTER  
GE Lightspeed

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Brain</u> #1	Trauma, Screen for altered mental status, dementia, psychiatric disorder, headaches, hydrocephalus	Yes	No	Axial	15°	120	300	1	512	S-Head D-22	5 q 5 p-fossa 7 q 7	STND Retro Bone

**COMMENTS**

\*to cantho-meatal line. Scan from foramen magnum to the vertex.

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC.	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Brain</u> #2	Screen for tumor, abscess/encephalitis/meningitis, new-onset seizure	Yes	Yes	Axial	15°	120	300	1	512	S-Head D-22	5 q 5 p-fossa 7 q 7	STND, Retro Bone for mets

**COMMENTS**

\*to cantho-meatal line. Scan from foramen magnum to the vertex.

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC.	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Brain</u> #3	Acute stroke, Dissection	1. Yes	No	Axial	15°	120	300	1	512	S-Head D-22	5 q 5 p-fossa 7 q 7	STND
		2. Perfusion	Yes: 50cc (5cc/s)	Axial	15°	80	200	1	512	22	5/4slices	STND
		3. No	Post Perfusion	Axial	15°	120	300	1	512	S-Head D-22	5 q 5 p-fossa 7 q 7	STND

**COMMENTS**

\* to cantho-meatal line. Scan from foramen magnum to the vertex.

# Consult with Neurology, Neurosurgery or Neurointerventional services regarding optional CTA (see Brain #5).

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Brain</u> #4	Subarachnoid or cerebral hemorrhage, Suspected aneurysm or vascular malformation	Yes	#No	Axial	15°	120	300	1	512	S-Head D-22	5 q 5 p-fossa 7 q 7	STND

**COMMENTS**

\*to cantho-meatal line. Scan from foramen magnum to the vertex.

# Consult with Neurology, Neurosurgery or Neurointerventional services regarding optional CTA (see Brain #5).

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	ANGLE	kVp	mA	SEC.	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Brain</u> #5	CTA Suspected vascular lesion	COW No	Yes: 110cc(4cc/s)	Axial	0°	140	350	1.2	512	S-Head D-22	1.25 7.5cm/s	STND
		No	Yes: 110cc(4cc/s)	Axial	0°	120	280	1.3	512	D-20	2.5 3.75cm/s	STND

**COMMENTS**

NECK

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC.	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Brain</u> Lab	Pre-surgical planning	No	Yes	Axial	15°	120	300	1	512	S-Head D-22	1 q 1	STND
<b>COMMENTS</b>												
*to cantho-meatal line. Scan from foramen magnum to the vertex.												

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Sella</u>	Pituitary tumor, cavernous sinus	Yes	Yes	Axial & Coronal	0° 90°	120	300	1	512	S-Head D-15	1.5 q 1.5	STND
<b>COMMENTS</b>												
*to cantho-meatal line.												

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Temporal Bone</u>	Cholesteatoma, ear anomaly, conductive hearing loss, trauma	Yes	No	Axial & Coronal	0° 90°	120	300	1	512	S-sml D-17	1 q 1	Bone
<b>COMMENTS</b>												
*to cantho-meatal line. Process right/left temporal bones separately with bone algorithm.												

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Orbit</u> #1	Tumor, infection, inflammation, vascular lesion	No	Yes	Axial & #Coronal	0° 90°	120	300	1	512	S-sml D-15	3 q 3 3 q 3	STND & Retro Bone
<b>COMMENTS</b>												
*to cantho-meatal line. #Coronal scans from orbital rim to sella.												

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Orbit</u> #2	Trauma, foreign body, blow-out fx	Yes	No	Axial & #Coronal	0° 90°	120	300	1	512	S-sml D-15	3 q 3 3 q 3	STND & Retro Bone
<b>COMMENTS</b>												
*to cantho-meatal line. #Coronal scans from orbital rim to sella.												

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Optic Canals</u> <u>-Rhesse views</u>	Trauma	Yes	No	Axial	0°	120	300	1	512	S-sml D-15	1 q 1 15 slices	Bone

**COMMENTS**

\*to cantho-meatal line. Reformat on symptomatic side:  
 (1) Oblique-coronals perpendicular to optic canal &  
 (2) Oblique-sagittals parallel to optic canal.

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Maxillo-facial</u> <u>#1</u>	Trauma, GSW	Yes	No	<sup>a</sup> Axial & <sup>b</sup> Coronal	0° 90°	120	300	1	512	S-sml D-15	3 q 3 3 q 3	STND & Retro Bone

**COMMENTS**

\*to hard palate. (a) Frontal sinus to mandible. (b) anterior maxilla to sella.

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Maxillo-facial</u> <u>#2</u>	Tumor, infection	No	Yes	<sup>a</sup> Axial & <sup>b</sup> Coronal	0° 90°	120	300	1	512	S-sml D-15	3 q 3 3 q 3	STND Retro Bone

**COMMENTS**

\*to hard palate. (a) Frontal sinus to mandible. (b) anterior maxilla to sella.

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Sinuses -</u> <u>Limited</u>	Anosmia, allergic sinusitis	Yes	No	<sup>a</sup> Coronal	90°	120	170	1	512	S-sml D-15	3 q 3	Retro Bone

**COMMENTS**

\*to hard palate. (a) anterior maxilla to sella.

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	*ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Sinuses</u>	Landmark protocol	Yes	No	Axial	0°	120	300	1	512	S-sml D-15	1 q 1	Retro Bone

**COMMENTS**

\*to hard palate

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Neck</u>	Tumor, infection	No	Yes	Axial	0°	120	300	1	512	S-sml D-18	3 q 3	STND & Retro Bone

**COMMENTS**

Scan from skull base to clavicles.

EXAM	INDICATION	PLAIN	CONTRAST	PLANE	ANGLE	kVp	mA	SEC	MATRIX	FOV	SLTHK/INT	ALGOR/FILTER
<u>Larynx</u>	Tumor, infection, trauma,	No	Yes, except for trauma	Axial	0°	120	300	1	512	S-sml D-15	1.0 q 1.0	STND & Retro Bone

**COMMENTS**

Scan from hyoid bone down through larynx with quiet breathing but no swallowing. Reformat images in the coronal & sagittal planes.

**KEY:** Scan protocols are designed for the GE Lightspeed. These current protocols are continuing to evolve as clinical experience and new software capabilities are developed. The following are definitions of headings and abbreviations used in the protocols above.

- ALGOR: Algorithm is the computer reconstruction method or filter to optimize for either bone or soft tissue
- ANGLE: Angulation of the scan plane to an anatomic reference line.
- CONTRAST: (Adults) 125 ml of Optiray 320, administered intravenously.  
**Note:** See departmental guidelines (11-21-90) for:  
1) Pretreatment with steroids;  
2) Indications for nonionic contrast media;  
3) Requirement for BUN/creatinine screening.  
**NOTE: No bun or creatinine screen for acute stroke patients.**
- CTA: Computed Tomographic Angiography
- FOV: Field of view (cm). The Lightspeed FOVs [small (head) = 25 cm, large = 48 cm]; Ped FOV adds a special algorithm for small heads; Display (D) FOV has a range from 9.6 - 48 cm.
- INT: Interval of successive slices.
- kVP: Kilovolt potential.
- mA: Milliamperes.
- SEC: Seconds of scan time per slice. GE uses a continuous exposure.
- SLTHK: Slice thickness (mm).