Protocols	.7/ 1.2/ 1.5T	3.0 T	Special Instructions/Comments
	** All Sagittals, please scan f	rom patients Left to Right **	
Danakish Dhamar (kila tanah)			
Brachial Plexus (bilateral)	Coronal T1 TSE (3sk1)	SAME	For Bilateral Brachial Plexus
	Axial T1 TSE (3sk1)		scan shoulder to shoulder
	Axial STIR (3sk1)		FOV= 25cm preferred: 32cm as needed
	Sagittal T1 TSE (3s1)		
	Sagittal STIR (3sk1) Coronal STIR (3sk1)		
	Axial C+T1 fat sat		
	Coronal C+T1 fat sat		
Brachial Plexus (unilateral)	Coronal T1 TSE (3sk1)	CAME .	
	Axial T1 TSE (3sk1)	SAME	For unilateral Brachial Plexus, Scan far transverse process through shoulder (i.e. for LEFT brachial Plexus, Start at RIGHT C7 transverse process )
	Coronal STIR (3sk1)		FOV=25cm
	Sagittal T1 TSE (3sk1)		
	Sagittal STIR (3sk1)		
	Axial STIR (3sk1)		
	Axial C+T1 fat sat Coronal C+T1 fat sat		
	Coronar C+11 Idi Sat		
Brain Cancer			
	Sagittal T1 TSE (4sk1)	Sagittal T1 FLAIR (3sk1)	Remove eADC from all protocols, should only do ADC
	Axial T1 TSE (4sk1)	Axial T1 FLAIR (3sk1)	Inject contrast, followed immediately by Axial T2
	Axial T2 GRE (4sk1) Axial DWI/ADC (3 Direction if possible ), reconstruct at 5sk0	SWI (3sk1) with Mis Resolve or 6-Direction DWI/ADC, reconstruct at 4sk0	Axial and coronal contrast enhanced T1s to follow T2 to allow contrast circulation time
	Axial FLAIR (4sk1)	Axial FLAIR (3sk1)	Scan through whole brain (skull to skull) on sagittal images
	Axial C+ T2 TSE (4sk1)	Axial C+ T2 TSE (3sk1)	state an eager where examples and a state of state of the second s
	Axial C+ T1 TSE (4sk1)	Axial C+T1 FLAIR (3sk1)	FOV=23cm
	Coronal C+ TSE (4sk1)	Coronal C+FLAIR (3sk1)	
	Sagittal C+ T1 TSE (4sk1) Axial C+ T1 MPRAGE volumetric	Sagittal C+ T1 FLAIR (3sk1) Axial Volumetric (MPRAGE or equivalent) with 3-plane reformat	
	Sagittal and coronal reformats	See if Perfusion/Spectroscopy needed	
	Possible Perfusion/Spectroscopy?		
	Should be done on 3T if possible		
	** Brain Cancer protocol used for patients that have/had a known brain lesion (in suspected cancer, or history of cancer for which metastatic disease to the brain is		T Head), or any patient with a current dx of cancer,
	suspected cancer, or history of cancer for which metastatic disease to the brain is		
MRI Brain (Contrast Clearance Analysis)			
	3D T1-weighted (MPRAGE, FSPGR, VIBE, SPACE, etc.)		* It is important that the early time point is at a fixed time post-Gd injection, therefore, it is best to acquire it after a
	3D T1-weighted C+ (MPRAGE, FSPGR, VIBE, SPACE, etc.) 3D T1-weighted C+ (MPRAGE, FSPGR, VIBE, SPACE, etc.)	5 minutes post Gad 60 - 105 minutes post Gad (patient can leave between both scans)	fixed protocol, e.g., after DSCMRI and 2D spin-echo or after DCE-MRI. The timing of the late time point is flexible
	JE TT WEIGING CT (IMI KAOL, I STOK, VIDL, STACE, CL.)	105 Too minutes post Gau (patient can leave between both scans)	and can change from one follow-up to the next as long as it is acquired between 60-105 min post Gd.
		FOV = 23 all sequences	* IV bolus injection of a Gd-based contrast agent (standard dose, 0.1mmol/kg) is required.
			* T1-weighting of the MRI sequence does not change between the two acquisitions; thus the exact same protocol
			should be used for both scans (same FOV, slab size, etc.).
	+		* Poor image quality or metal-induced artifacts may affect the interpretation s
	+		
Brain With			
	Sagittal T1 TSE (4sk1)	Sagittal T1 FLAIR (3sk1)	Remove eADC from all protocols, should only do ADC
	Axial T1 TSE (4sk1)	Axial T1 FLAIR (3sk1)	Inject contrast, followed immediately by Axial T2
	Axial T2 TSE (4sk1) Axial T2 GRE (4sk1)	Axial T2 TSE (3sk1) SWI (3sk1) with MIPS	Scan Through whole brain (skull to skull) on sagittal images Axial and coronal contrast enhanced T1s to follow T2 to allow contrast circulation time
	Axial DWI/ADC (3 Direction if possible ), reconstruct at 5sk0	Resolve or 6-Direction DWI/ADC, reconstruct at 4sk0	Tran and coronal contrast childrictu 115 to tonow 12 to anow contrast circulatori tillic
	Axial FLAIR (4sk1)	Axial FLAIR (3sk1)	Scan through whole brain (skull to skull) on sagittal images
	Axial C+ T2 TSE (4sk1)	Axial C+ T2 TSE (3sk1)	
	Axial C+ T1 TSE (4sk1)	Axial C+T1 FLAIR (3sk1)	FOV=23cm
	Coronal C+ TSE (4sk1)	Coronal C+FLAIR (3sk1)	
	+		

Brain Without			
	Sagittal T1 TSE (4sk1)	Sagittal T1 FLAIR (3sk1)	Remove eADC from all protocols
	Axial T1 TSE (4sk1)	Axial T1 FLAIR (3sk1)	
	Axial T2 TSE (4sk1)	Axial T2 TSE (3sk1)	Scan Through whole brain (skull to skull) on sagittal images
	Axial T2 GRE (4sk1)	SWI (3sk1) with MIPS	Scall Through whole brain (skull to skull) on sagittal intages
	Axial DWI/ADC (3 direction if possible), reconstruct at 5sk0	Resolve or 16-direction DWI/ADC reconstruct at 4sk0	FOV=23cm
	Axial FLAIR (4sk1)	Axial FLAIR (3sk1)	
	Coronal T2 TSE (4sk1)	Coronal T2 TSE (3sk1)	
Cervical With			
Cervical With	C 171 70F (2.1.0.5)	G 171 795 (21.05)	
	Coronal T1 TSE (3sk 0.5)	Coronal T1 TSE (3sk 0.5)	FOV= skull base through upper T-spine on sagittal
	Sagittal T1 TSE (3sk0)	Sagittal T1 TSE (3sk0)	FOV=12cm on Axials: FOV = 20cm on Sagittal
	Sagittal T2 TSE (3sk0)	Sagittal T2 TSE (3sk0)	Scan from C2 through T1
	Sagittal STIR (3sk0)	Sagittal STIR (3sh0)	
	Sagittal T2 oblique (2sk0)	Sagittal T2 oblique (2sk0)	Sagittal oblique T2 = Align perpendicular to the neural foramen
	Axial T2 TSE (2sk0)	Axial T2 TSE (2sk0)	
	Axial GRE (3sk0)	Axial GRE (3sk0)	
	Sagittal DWI (3sk0.3)	Sagittal DWI (3sk0.3)	
	Precontrast Axial T1 TSE (3sk0)	Precontrast Axial T1 FLAIR (3sk0.3)	
	Axial C+ T1 fat sat (3sk0)	Axial C+ T1 fat sat (3sk0)	
	Sagittal C+T1 TSE (3sk0)	Sagittal C+ T1 FLAIR (3sk0)	
	1	1	
Cervical Without			
	Coronal T1 TSE (3sk 0.5)	Coronal T1 TSE (3sk 0.5)	Could do foraminal oblique reformats off axial T2
	Sagittal T1 TSE (3sk0)	Sagittal T1 FLAIR (3sk0)	FOV=12cm on Axials: FOV = 20cm on Sagittal
	Sagittal T2 TSE (3sk0)	Sagittal T2 TSE(3sk0)	Axial images should be from C2 through T1
	Sagittal STIR (3sk0)	Sagittal STIR (3sk0)	
	Sagittal T2 oblique (2sk0)	Sagittal T2 oblique (2sk0)	Sagittal oblique T2 = Align perpendicular to the neural foramen
			Sagital oblique 12 – Align perpendicular to the neural totallen
	Axial T2 TSE (2sk0)	Axial T2 TSE (2sk0)	
	Axial GRE (3sk0)	Axial GRE (3sk0)	
	Sagittal DWI (3sk0.3)	Sagittal DWI (3sk0.3)	
Face			
	Cor T1 (3/1)	SAME	FOV= 16 for Cor and Sag
		SAME	
	Cor STIR (3/1)		FOV= 14 Axial
	Ax T1 (3/1)		
	Ax T2 Fat Sat (3/1)		
	Sag T1 SE (3/1)		
	Ax DWI (3/1)		
IAC			
	Preferably with Brain WITH	SAME	FOV= 15-18cm
	Posterior fossa :		
	Axial T1 (2sk0)		Scan from tip of the dorsum Sella through C1 on axials
	Axial FIESTA 1mm		
	Coronal reformats	1	Scan from posterior skull through orbital apex on coronals
	Sagittal reformats along IAC	1	Sour non posicity skun unough orbital apex on corbitals
<u> </u>		+	+
	Axial T2 (2sk0)		
	Axial C+ T1 fat sat (2sk0)		
	Coronal C+ T1 fat sat (2sk0)		
Kyphoplasty	1	1	
is proprasty	Localizer including cervical and upper thoracic spine	Localizer including cervical and upper thoracic spine	
	Sagittal T1 TSE- thoracic (3sk0.5)	Sagittal T1 FLAIR- thoracic (3sk0.5)	
	Sagittal T2 TSE- thoracic (3sk0.5)	Sagittal T2 TSE- thoracic (3sk0.5)	
	Sagittal T1 TSE -Lumbar (3sk0.5)	Sagittal T1 FLAIR -Lumbar (3sk0.5)	
	Sagittal T2 TSE-Lumbar (3sk0.5)	Sagittal T2 TSE-Lumbar (3sk0.5)	
	Sagittal STIR -thoracolumbar (3sk0.5)	Sagittal STIR -thoracolumbar (3sk0.5)	
	Coronal T1 TSE- thoracolumbar (3sk0.5)	Coronal T1 TSE- thoracolumbar (3sk0.5)	
	Coronar 11 13E <sup>-</sup> moracolumbar (JSK0.J)	Coronal 11 15L- moracolumbal (JSK0.3)	+
		+	
		1	

Lumbar With			
	Sagittal T1 TSE (3sk0.5)	Sagittal T1 TSE (3sk0.5)	No fat saturation if excessive artifact from metal hardware
	Sagittal T2 TSE (3sk0.5)	Sagittal T2 TSE (3sk0.5)	FOV: 15cm Axials
	Sagittal STIR (3sk0.5)	Sagittal STIR (3sk0.5)	
	Axial T2 TSE (4sk1)	Axial T2 TSE (4sk1)	
	Axial T1 TSE (4sk1)	Axial T1 TSE (4sk1)	
	Coronal T1 TSE (3sk0.5)	Coronal T1 TSE (3sk0.5)	
	Sagittal DWI (3/0.5)	Axial C+ T1 fat sat (3sk0.5)	
	Axial C+T1 fat sat (4sk1)	Sagittal C+ T1 FLAIR (3sk0.5)	
	Sagittal C+T1 TSE (3sk0.5)		
	Sugnal C+11 IDD (SSROD)		
I With ant			
Lumbar Without			
	Sagittal T1 TSE (3sk0.5)	Sagittal T1 FLAIR (3sk0.5)	Axial Images from L1-S1
	Sagittal T2 TSE (3sk0.5)	Sagittal T2 TSE (3sk0.5)	FOV=15cm Axials
	Sagittal STIR (3sk0.5)	Sagittal STIR (3sk0.5)	
	Axial T2 TSE (4sk1)	Axial T2 TSE (3sk0.5)	
	Axial T1 TSE (4sk1)	Axial T1 FLAIR (3sk0.5)	
	Coronal T1 TSE (3sk0.5)	Coronal T1 TSE (3sk0.5)	
	Sagittal DWI (3/0.5)		
Lumbosacral Plexus			
Lumbosaci ai riexus	Obl Ariel TI TSE (2eld)	Obl Arial TI TSE (2abl)	EOV = 25  am
	Obl Axial T1 TSE (3sk1)	Obl Axial T1 TSE (3sk1)	FOV = 25  cm
	Obl Axial T2 TSE mid TE fat sat (3sk1)	Obl Axial T2 TSE mid TE fat sat (3sk1)	Planes should be relative to long axis of the sacrum
	Obl Coronal T1 TSE (3sk1)	Obl Coronal T1 TSE (3sk1)	Axial images L5 - bottom of sacrum
	Obl Coronal STIR (3sk1)	Obl Coronal STIR (3sk1)	
	Obl Cor T1 TSE Fat Sat +C (3sk1)	Obl Cor T1 TSE Fat Sat +C (3sk1)	
	Obl Ax T1 TSE Fat Sat +C (3sk1)	Obl Ax T1 TSE Fat Sat +C (3sk1)	
MR Perfusion			
TYAR A CITABADA	Power injection bolus before C+ images in conjunction with		If performing Brain Tumor WITH or MS, spectroscopy, offer MR Perfusion
	Brain Tumor WITH		Inject half the contrast prior to obtain the DSC perfusion EPI sequence
			After perfusion, inject remaining contrast to obtain the standard post contrast
	Standard color reformats		
			Bolus injection 4 mL/s
MR Spectroscopy			
MR Spectroscopy	Axial T2 TSE whole brain for localizer		MR Spectroscopy should only be scheduled/
MR Spectroscopy	Axial T2 TSE whole brain for localizer Single Voxel		MR Spectroscopy should only be scheduled/ Performed with Neuro Rad in house -plan both
MR Spectroscopy			
MR Spectroscopy	Single Voxel		Performed with Neuro Rad in house -plan both
MR Spectroscopy	Single Voxel		Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
	Single Voxel		Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
MR Spectroscopy MRA Brain	Single Voxel Multivoxel- shim to borders of ROI	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
	Single Voxel Multivoxel- shim to borders of ROI 3D TOF	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
MRA Brain	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats		Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats	SAME SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad
MRA Brain	Single Voxel Multivoxel- shim to borders of ROI  3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs		Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain	Single Voxel Multivoxel- shim to borders of ROI		Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain	Single Voxel Multivoxel-shim to borders of ROI		Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
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MRA Brain	Single Voxel Multivoxel- shim to borders of ROI		Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With	Single Voxel Multivoxel- shim to borders of ROI		Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain	Single Voxel Multivoxel- shim to borders of ROI	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With	Single Voxel Multivoxel- shim to borders of ROI	SAME SAME 3D TOF multi-slab with recons	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With	Single Voxel Multivoxel- shim to borders of ROI Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Axterial Venous Arterial Venous Arterial and venous MIP reconstructions Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions 2D TOF Right carotid , left carotid , and vertebral reformats	SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With	Single Voxel Multivoxel- shim to borders of ROI Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right carotid , left carotid , and vertebral reformats If dissection possible :	SAME SAME 3D TOF multi-slab with recons	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With	Single Voxel Multivoxel- shim to borders of ROI Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Axterial Venous Arterial Venous Arterial and venous MIP reconstructions Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions 2D TOF Right carotid , left carotid , and vertebral reformats	SAME SAME 3D TOF multi-slab with recons	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With	Single Voxel Multivoxel- shim to borders of ROI Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right carotid , left carotid , and vertebral reformats If dissection possible :	SAME SAME 3D TOF multi-slab with recons	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With	Single Voxel Multivoxel- shim to borders of ROI Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right carotid , left carotid , and vertebral reformats If dissection possible :	SAME SAME 3D TOF multi-slab with recons	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With MRV Carotid Without	Single Voxel Multivoxel- shim to borders of ROI Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right carotid , left carotid , and vertebral reformats If dissection possible :	SAME SAME 3D TOF multi-slab with recons	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right carotid , and vertebral reformats If dissection possible : Axial T1 fat sat (4sk 0.5)	SAME SAME SAME SAME SAME SAME SAME SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With MRV Carotid Without	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right and left carotid and vertebral reconstructions If dissection possible : Axial T1 fat sat (4sk 0.5) Phase contrast MRV (VENC 10-15)	SAME SAME 3D TOF multi-slab with recons	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With MRV Carotid Without	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right carotid , and vertebral reformats If dissection possible : Axial T1 fat sat (4sk 0.5)	SAME SAME SAME SAME SAME SAME SAME SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With MRV Carotid Without	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right and left carotid and vertebral reconstructions If dissection possible : Axial T1 fat sat (4sk 0.5) Phase contrast MRV (VENC 10-15)	SAME SAME SAME SAME SAME SAME SAME SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With MRV Carotid Without	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right and left carotid and vertebral reconstructions If dissection possible : Axial T1 fat sat (4sk 0.5) Phase contrast MRV (VENC 10-15)	SAME SAME SAME SAME SAME SAME SAME SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad
MRA Brain MRA Carotid With MRV Carotid Without	Single Voxel Multivoxel- shim to borders of ROI 3D TOF COW reformats Anterior circulation reformats Posterior circulation reformats Axial, sagittal, and coronal MIPs Survey Auto-trigger Arterial Venous Arterial and venous MIP reconstructions Arterial right and left carotid and vertebral reconstructions Arterial right and left carotid and vertebral reconstructions If dissection possible : Axial T1 fat sat (4sk 0.5) Phase contrast MRV (VENC 10-15)	SAME SAME SAME SAME SAME SAME SAME SAME	Performed with Neuro Rad in house -plan both Single and multi voxels with Neuro Rad Selection of multi voxel send to PACS with Neuro Rad

MC Date in			
MS Brain			
	Sagittal T1 TSE (4sk1)	Sagittal TI FLAIR (3sk1)	Remove eADC from all protocols, should only do ADC
	Sagittal FLAIR (4sk1)	Sagittal T2 FLAIR (3sk1)	Inject contrast, followed immediately by Axial T2
	Axial T1 TSE (4sk1) Axial T2 GRE (4sk1)	Axial T1 FLAIR (3sk1) SWI (3sk1) with MIPs	Axial and coronal contrast enhanced T1s to follow T2 to allow contrast circulation time
	Axial DWI/ADC (3 Direction if possible ), reconstruct at 5sk0	Resolve or 6-Direction DWI/ADC, reconstruct at 4sk0	Scan through whole brain (skull to skull) on sagittal images
	Axial DW LADC (3 Direction if possible ), reconstruct at 55k0 Axial FLAIR (4sk1)	Axial T2 FLAIR	Scan through whole brain (skun to skun) on sagittar images
	Axial FLAIR (45k1) Axial C+ T2 TSE (45k1)	Axial C+ T2 TSE (3sk1)	FOV=23cm
		Axial C+ T1 FLAIR (3sk1)	FOV=25cm
	Axial C+ T1 TSE (4sk1)		
	Coronal C+ TSE (4sk1)	Coronal C+ T1 FLAIR (3sk1)	
MS Brain (Dr. Hermann - JWM)			
	Sagittal volumetric T1 inversion recovery with 3mm	Precontrast Sagittal T1 FLAIR, T2, T2 T2 FLAIR	Important to do as close to CMSC protocol as possible ,
	reconstructions (3 plane )	with 3mm reconstructions in 3 planes	this has been specifically requested by JMW Neurology (Dr. Hermann).
	*If possible, Sagittal volumetric 3D T2 FLAIR with 3mm	DWI/ ADC- Resolve or 6- direction (4sk0)	It may not be possible to do this protocol on the open magnets (specifically the 0.7)
	reconstructions (3 plane )	SWI	(specifically the 0.7) or the older 1.5
	* If possible volumetric 3D T2 with 3mm	Post-contrast Sagittal T1 non-IR with 3mm reconstructions in 3 planes	This section imaging is required, however.
	reconstructions (3 plane)	Please image following 5 min delay to allow for contrast circulation	
	*If volumetric imaging not possible , axial T2 and axial and		Label these studies / sequences in PACS as CMSC Protocol?
	Sagittal and FLAIR (3sk0)		
	Axial T1 spin echo (3sk0)		FOV=23cm
	Axial GRE (3sk))		
	DWI/ADC (5sk0)		
	Sagittal volumetric T1 non-IR post-contrast with 3mm		
	reconstructions (3 plane)		
	Axial C+ T1 (3sk0)		
	Coronal C+ T1 (3sk0)		
Neck With			
	Sagittal T1 TSE (3sk0.3)	SAME	FOV=25cm sagittal and coronal
	Coronal T1 TSE (3sk0.3)		FOV=18cm axial
	Axial T1 TSE (3sk0.3)		
	Axial T2 fat sat (3sk0.3)		Scan from pituitary through clavicles (lower if substernal extension of Thyroid ) on axial
	Axial DWI - 3mm		Scan from posterior neck through nose/ chin on coronals
	Axial T2 (3sk0.3)		Scan to lateral sides of neck on sagittal
	Coronal STIR (3sk0.3)		bear to kiela sides of new on sugara
	Axial C+T1 fat sat (3sk0.3)		
	Coronal C+T1 fat sat (3sk0.3)		
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Neck Without			
Neck Without	Sagittal T1 TSE (3sk0.3)	SAME	FOV=25cm sagittal and coronal
	Coronal T1 TSE (3sk0.3)	SAME	FOV=18cm axial
	Axial T1 TSE (3sk0.3)		FOV-18cm axia
	Axial T1 TSE (35k0.3) Axial T2 fat sat (3sk0.3)		Scan from pituitary through clavicles (lower if substernal extension of Thyroid ) on axial
	Axial DWI - 3mm Axial T2 (3sk0.3)		Scan from posterior neck through nose/ chin on coronals
			Scan to lateral sides of neck on sagittal
	Coronal STIR (3sk0.3)		
0.1**			
Orbits		CAME	
	Preferably with Brain WITH	SAME	Orbit images should extend from the lens to mid-pons coronal and maxillary teeth to above
	Orbits:		and maxillary teeth to above orbits on axial
	Coronal T1 (3sk0.5)		FOU 10
	Coronal STIR (3sk0.5)		FOV=18cm
	Axial T1 TSE (3sk0.5)		
	Axial T2 fat sat (3sk0.5)		
	Axial C+T1 fat sat (3sk0.5)		
	Coronal C+ T1 fat sat (3sk0.5)		
	DWI (3sk0.3)		

An mode         Name         Operating approximation           Note         Proximation approximation         Proximation approximation approximation           <	De la Desertica			
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Ak Pop EAR (5/1)Ak Po	Stealth/ Treatment Plan *			
Image: section of the sectio			SAME	
Image: state of the s		Ax Prop FLAIR (5/1)		
Sqital T1 SE (3sk0.5)         Sqital T1 SE (3sk0.5)         Sqital T2 SE (3sk0.5)         Axial T2 SE (3sk0.5)           Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Aix1 T2 SE (3sk0.5)         Axial T2 SE (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Sqital STR (3sk0.5)         Axial T2 SE (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Corold T2 SE (3sk0.5)         Corold T2 SE (3sk0.5)         Corold T2 SE (3sk0.5)         Sqital STR (3sk0.5)           Sqital D1 SQL (3sk0.5)         Corold T2 SE (3sk0.5)         Corold T2 SE (3sk0.5)         Sqital STR (3sk0.5)           Sqital D2 Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital D1 Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)<				in addition to Stealth/Treatment Plan protocol sequences.
Sqital T1 SE (3sk0.5)         Sqital T1 SE (3sk0.5)         Sqital T2 SE (3sk0.5)         Axial T2 SE (3sk0.5)           Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Aix1 T2 SE (3sk0.5)         Axial T2 SE (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Sqital STR (3sk0.5)         Axial T2 SE (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Corold T2 SE (3sk0.5)         Corold T2 SE (3sk0.5)         Corold T2 SE (3sk0.5)         Sqital STR (3sk0.5)           Sqital D1 SQL (3sk0.5)         Corold T2 SE (3sk0.5)         Corold T2 SE (3sk0.5)         Sqital STR (3sk0.5)           Sqital D2 Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital D1 Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)<				
Sqital T1 SE (3sk0.5)         Sqital T1 SE (3sk0.5)         Sqital T2 SE (3sk0.5)         Axial T2 SE (3sk0.5)           Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Aix1 T2 SE (3sk0.5)         Axial T2 SE (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Sqital STR (3sk0.5)         Axial T2 SE (3sk0.5)         Sqital STR (3sk0.5)         Sqital STR (3sk0.5)           Corold T2 SE (3sk0.5)         Corold T2 SE (3sk0.5)         Corold T2 SE (3sk0.5)         Sqital STR (3sk0.5)           Sqital D1 SQL (3sk0.5)         Corold T2 SE (3sk0.5)         Corold T2 SE (3sk0.5)         Sqital STR (3sk0.5)           Sqital D2 Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital D1 Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)           Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)         Sqital Sqlt (3sk0.5)<	Th			
Sagital 72 TSE (3sk0.5)         Sagital 72 TSE (3sk0.5)           Sagital STIR (3sk0.5)         Sagital STIR (3sk0.5)           Axial 71 TSE (4sk1)         Axial 71 FLAR (4sk1)           Axial 72 TSE (4sk1)         Axial 72 TSE (3sk0.5)           Coroal T1 TSE (4sk1)         Axial 72 TSE (3sk0.5)           Coroal T1 TSE (3sk0.5)         Coroal T1 TSE (3sk0.5)           Sagital DWI (3sk0.3)         DWI sagital (3sk0.3)           Axial C+ T1 fat sat (4sk1)         Axial C+ T1 fat sat (4sk1)	Inoracic With	Societal T1 TSE (3ek0 5)	Societal TIFI AIR (3ekh 5)	Avial images from C7-11
Sagital STR (3sk0.5)         Sagital STR (3sk0.5)           Axial T1 SE (4sk1)         Axial T1 FLAIR (4sk1)           Axial T2 SE (4sk1)         Axial T2 SE (3sk0.5)           Coroand T1 SE (3sk0.5)         Coroand T1 SE (3sk0.5)           Sagital DWI (3sk0.3)         DWI sagital (3sk0.3)           Axial C1 T1 fat sat (4sk1)         Axial C+ T1 fat sat (4sk1)				Avan mages Itolii C/*L1
Axia T1 TSE (4sk1)         Axia T1 FLAR (4sk1)           Axia T2 TSE (4sk1)         Axia T2 TSE (3sk0.5)           Cronal T1 TSE (3sk0.5)         Cronal T1 TSE (3sk0.5)           Sagita DVI (3sk0.3)         DVI sagita (3sk0.3)           Axia C+ T1 fat sat (4sk1)         Axia C+ T1 fat sat (4sk1)				
Axia T2 TSE (4sk1)         Axia T2 TSE (3sk0.5)           Coronal T1 TSE (3sk0.5)         Coronal T1 TSE (3sk0.5)           Sagital DWI (3sk0.3)         DWI sagital (3sk0.3)           Axia C+ T1 fat sat (4sk1)         Axia C+ T1 fat sat (4sk1)				
Coronal T1 TSE (3sk0.5)         Coronal T1 TSE (3sk0.5)           Sagital DW1 (3sk0.3)         DW1 sagital (3sk0.3)           Axial C+ T1 fat sat (4sk1)         Axial C+ T1 fat sat (4sk1)				
Sagittal DWI (3sk0.3)         DWI sagittal (3sk0.3)           Axial C+ T1 fat sat (4sk1)         Axial C+ T1 fat sat (4sk1)				
Sagittal C+ T1 FSE (3sk0.5)     Sagittal C+ T1 FLAIR (3sk0.5)       Image: Comparison of the temperature of		Sagittal DWI (3sk0.3)	Dwi sagitai (Jsko.5)	
		Axial C+ T1 fat sat (4sk1)	Axial C+ T1 fat sat (4sk1)	
		Axial C+ T1 fat sat (4sk1)	Axial C+ T1 fat sat (4sk1)	
		Axial C+ T1 fat sat (4sk1)	Axial C+ T1 fat sat (4sk1)	

Thoracic Without			
	Sagittal T1 TSE (3sk0.5)	Sagittal T1FLAIR (3sk0.5)	Axial images from C7-L1
	Sagittal T2 TSE (3sk0.5)	Sagittal T2 TSE (3sk0.5)	
	Sagittal STIR (3sk0.5)	Sagittal STIR (3sk0.5)	
	Axial T1 TSE (4sk1)	Axial T1 FLAIR (4sk1)	
	Axial T2 TSE (4sk1)	Axial T2 TSE (3sk0.5)	
	Coronal T1 TSE (3sk0.5)	Coronal T1 TSE (3sk0.5)	
	Sagittal DWI (3sk0.3)	DWI sagittal (3sk0.3)	
TMJ			
	Localizer (coronal and sagittal)	SAME	FOV=12cm
	Sagittal PD oblique Right Closed (2sk0)		
	Sagittal PD oblique Left Closed (2sk0)		Could do axial or coronal T1 of head (4sk1) instead of localizer
	Sagittal T2 oblique Right Closed (2sk0)		
	Sagittal T2 oblique Left Closed (2sk0)		
	Coronal T1 Right Closed (2sk0)		
	Coronal T1 Left Closed (2sk0)		
	Sagittal PD oblique Right Open (2sk0)		
	Sagittal PD oblique Left Open (2sk0)		
	Sagittal T2 oblique Right Open (2sk0)		
	Sagittal T2 oblique Left Open (2sk0)		
Trigeminal			
	Complete Brain MRI protocol	SAME	Whole brain FOV= 22cm
	Posterior fossa :		Posterior fossa FOV=18cm
	Axial T1 (3sk0.5)		
	Axial T2 fat sat (3sk0.5)		Scan from the suprasellar cistern to the C1 level on axials, cover through posterior fossa
	Coronal T1 (3sk0.5)		and orbital apex on coronals
	Axial Fiesta w/coronal reformats		
	Axial C+T1 FS (3sk0.5)		
	Coronal C+T1 FS (3sk0.5)		
	Coronal C+ T1 whole head (4sk1)		