VASARI MR Feature KEY

(corresponds to Rev 9 of webpage 10/30/08)

Feature number	Name	Description	Options
F1	Tumor Location	Location of lesion	0 = -
		geographic	1 = Frontal
		epicenter (not all	2 =Temporal
		areas of	3=Insular
		involvement)	4=Parietal
			5=Occipital
			6=Brainstem
			7=Cerebellum
F2	Side of Tumor	Side of lesion	0= -
	Epicenter	epicenter	1=Right
			2=Center/Bilateral
			3=Left
F3	Eloquent Brain	Does the geographic	0= -
		center or the	1=None
		enhancing	2=Speech motor
		component involve	3=Speech receptive
		eloquent cortex	4=Motor
		(motor,	5=Vision
		language,	
		vision) or key	
		underlying white	
		matter?	
F4	Enhancement	[None, Mild,	0= -
	Quality:	Moderate, Marked]	1=None
		Qualitative degree	2=Mild/Minimal
		of contrast	3=Marked/Avid
		enhancement is	
		defined as having all	
		or portions of the	
		tumor that	
		demonstrate	
		significantly higher	
		signal on the	
		postcontrast T1W	
		images compared to	
		precontrast T1W	
D.E.	D	images	0-
F5	Proportion Enhancing:	[indeterminate, none	0= -
	Enhancing:	(0%), <5%, 6-33%,	1 = n/a
		34-67%, 68-	2=None (0%)
		95%, >95%, All	3= <5%
		(100%)]. What	4= 6-33%

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		proportion of the	5= 34-67%
		entire tumor is	6= 68-95%
		enhancing.	7=>95%
		(Assuming that	8=All (100%)
		the entire	9= Indeterminate
		abnormality may be	
		comprised of: (1) an	
		enhancing	
		component,	
		(2) a non-	
		enhancing	
		component, (3) a	
		* * * *	
		necrotic component	
		and (4) a edema	
E(D	component.)	
F6	Proportion nCET	[indeterminate, none	0= -
		(0%), <5%, 6-33%,	1 = n/a
		34-67%, 68-	2=None (0%)
		95%, >95%, All	3=<5%
		(100%)]. What	4= 6-33%
		proportion of the	5= 34-67%
		entire tumor is non-	6= 68-95%
		enhancing?	7=>95%
		Nonenhancing	8=All (100%)
		tumor is defined as	9= Indeterminate
		regions of T2W	y indeterminate
		hyperintensity (less	
		than the intensity of	
		cerebrospinal fluid,	
		with corresponding	
		T1W hypointensity)	
		that are associated	
		with mass effect and	
		architectural	
		distortion, including	
		blurring of the	
		gray-white	
		interface.(Assuming	
		that the the entire	
		abnormality may be	
		comprised of: (1) an	
		enhancing	
		component, (2) a	
		non-enhancing	
		component, (3) a	
		necrotic	
		110010110	

		component and (4) a	
		edema component.)	
F7	Proportion	[indeterminate, none	0= -
1 7	Necrosis	(0%), <5%, 6-33%,	1 = n/a
	110010313	34-67%, 68-	2=None (0%)
		95%, >95%, All	3 = <5%
		(100%)]. (Necrosis	4= 6-33%
		is defined as a	5= 34-67%
		region within the	6= 68-95%
		tumor that does not	7=>95%
		enhance or shows	8=All (100%)
		markedly	9= Indeterminate
		diminished	9— macterimate
		enhancement, is	
		high on T2W and	
		proton density	
		images, is low on	
		T1W images, and	
		has an irregular	
		border). (Assuming	
		that the the entire	
		abnormality may be	
		comprised of: (1) an	
		enhancing	
		component, (2) a	
		non-enhancing	
		component, (3) a	
		necrotic component	
		and (4) a edema	
EO	C (()	component.)	0
F8	Cyst(s)	Cysts are well	0= -
		defined, rounded,	1= No
		often eccentric	2= Yes
		regions of very	
		bright T2W signal	
		and low T1W signal	
		essentially	
		matching CSF	
		signal intensity,	
		with very thin,	
		regular, smooth,	
		nonenhancing	
		or regularly	
		enhancing walls,	
		possibly with thin,	
		regular, internal	

		septations. </th <th></th>	
F9	Multifocal or	Multifocal is	0 = -
	Multicentric	defined as	1 = n/a
1		having at least one	2= Multifocal
		region of tumor,	3= Multicentric
		either enhancing or	4= Gliomatosis
1		nonenhancing,	
		which is not	
		contiguous with the	
1		dominant lesion and	
1		is outside the region	
1		of signal	
1		abnormality	
		(edema)	
1		surrounding the	
		dominant mass. This	
		can be defined as	
		those resulting from	
		dissemination or	
		growth by an	
		established route,	
		spread via	
		commissural or	
		other pathways, or	
		via CSF channels or	
		local metastases,	
		whereas	
		Multicentric are	
		widely separated	
1		lesions in different	
		lobes or different	
1		hemispheres that	
		cannot be	
		attributed to one of	
		the previously	
		mentioned	
		pathways.	
		Gliomatosis	
		refers to generalized	
		neoplastic	
		transformation of	
		the white matter of	
		most of a	
		hemisphere.	
F10	T1/FLAIR RATIO	Tumor feature	0= -
		summary. [Mixed,	1= Expansive

expansive or infiltrative]. 2= Mixed Expansive = size of pre-contrast T1 abnormality (T1 <flair) (t1<flair)<="" (t1~flair)="" 2="Mixed" th=""><th></th></flair)>	
Expansive = size of pre-contrast T1 (T1 <flair) 3="Infiltrative</th"><th></th></flair)>	
pre-contrast T1 3= Infiltrative	
abnormality (T1< <flair)< th=""><th></th></flair)<>	
(exclusive of signal	
intensity)	
approximates size of	
FLAIR abnormality.	
Mixed = Size of T1	
abnormality	
moderately less	
than FLAIR	
envelope;	
Infiltrative = Size of	
pre-contrast T1	
abnormality much smaller than size of	
FLAIR abnormality.	
(Use T2 if FLAIR is	
not provided)	
F11 Thickness of The scoring is not 0= -	
enhancing margin applicable if there is $1 = n/a$	
no contrast 2= None	
enhancement. If 3= Thin	
most of the 4= Thick/solid	
enhancing rim	
Is thin, regular, and	
has homogenous	
enhancement the	
grade is thin. If most	
of the rim	
demonstrates	
nodular and/or thick	
enhancement, the	
grade is thick. If	
there is only solid	
enhancement and no	
rim, the grade is	
None.	
F12 Definition of the The scoring is not $0=$ -	
enhancing margin applicable (NA) if 1= n/a	
there is no contrast 2= Well-defined	
enhancement. 3= Poorly-define	ed
Assess if most of	

		of the anhancement	
		of the enhancement	
		is well defined or	
E12	D 6. 11. 6.11	poorly defined.	0
F13	Definition of the	If most of the	0= -
	non-enhancing	outside	1 = n/a
	margin (e.g. Grade	nonenhancing	2= Smooth
	III)	margin of the tumor	3= Irregular
		is well defined and	
		smooth	
1		(geographic), versus	
		if the margin is ill-	
1		defined and	
T14	D (* 6	irregular	0
F14	Proportion of	[indeterminate, none	0= -
1	Edema	(0%), <5%, 6-33%,	1 = n/a
1		34-67%, 68-95%,	2=None (0%)
		>95%, All (100%)].	3=<5%
		What proportion of	4= 6-33%
		the entire	5= 34-67%
		abnormality is	6= 68-95%
		vasogenic edema?	7=>95%
		(Edema should be	8=All (100%)
		greater in signal	9= Indeterminate
		than than nCET and	
		somewhat lower in	
		signal than CSF.	
		Pseudopods are	
		characteristic of	
		edema). (Assuming	
		that the the entire	
		abnormality may be	
		comprised of: (1) an	
		enhancing	
		component, (2) a	
		non-enhancing	
		component, (3) a	
		necrotic component	
		and (4) a edema	
D15	Edom - C	component.)	0= -
F15	Edema Crosses	Edema spans white	
	Midline	matter commissures	$1 = n/a$ $2 = N_0$
		extending into	2= No
		contralateral	3= Yes
		hemisphere.	
		(exclusive of	
		herniated ipsilateral	

		tissue)	
F16	Hemorrhage:	Intrinsic	0= -
	8	hemorrhage in the	1= No
		tumor matrix. Any	2= Yes
		intrinsic foci of low	
		signal on T2WI or	
		high signal on	
		T1WI. (Use Bo	
		image if necessary	
		for confirmation.)	
F17	Diffusion:	Predominantly	0= -
		facilitated or	1= No image
		restricted diffusion	2= Facilitated
		in the enhancing or	3= Restricted
		nCET portion of the	4=Neither/equivocal
		tumor. (Based on	1 "
		ADC map).	
		Equivocal is neither.	
		No ADC, use no-	
		images. Proportion	
		of tissue not	
		relevant.	
F18	Pial invasion:	Enhancement of the	0= -
		overlying pia in	1= No
		continuity with	2= Yes
		enhancing or non-	
		enhancing tumor	
F19	Ependymal	Invasion of any	0= -
	invasion:	adjacent ependymal	1= No
		surface in continuity	2= Yes
		with enhancing or	
		non-enhancing	
		tumor matrix	
F20	Cortical	Non-enhancing or	0= -
	involvement	enhancing tumor	1= No
		extending to the	2= Yes
		cortical mantle, or	
		cortex is no longer	
		distinguishable	
		relative to subjacent	
		tumor.	
F21	Deep WM invasion	Enhancing or nCET	0= -
		tumor extending	1= No
		into the internal	2= Yes
		capsule or	
		brainstem.	

F22	nCET tumor	nCET crosses into	0= -
	Crosses Midline:	contralateral	1 = n/a (no nCET)
	CIUSSES MIUIIIC.	hemisphere	2 = No
		through white	3 = Yes
		matter commissures	3 103
		(exclusive of	
		herniated ipsilateral	
		tissue).	
F23	Enhancing tumor	Enhancing tissue	0= -
1.23	Enhancing tumor Crosses Midline:	crosses into	1 = n/a
	Crosses Minime:	contralateral	$\begin{vmatrix} 1 - 1/a \\ 2 = No \end{vmatrix}$
		hemisphere through	3= Yes
		white matter	
		commisures	
		(exclusive of	
		herniated	
E2.4	C-4-11:4	ipsilateral tissue).	0-
F24	Satellites:	A satellite lesion is	0= -
		an area of	1= No
		enhancement within	2= Yes
		the region of signal	
		abnormality	
		surrounding the	
		dominant lesion but	
		not contiguous in	
		any part with the	
		major tumor mass.	
F25	Calvarial	Erosion of inner	0= -
	remodeling:	table of skull	1= No
		(possibly a	2= Yes
		secondary sign of	
		slow growth)	
F26	Extent of resection	[indeterminate,	0= -
	of enhancing	none (0%), <5%, 6-	1 = n/a
	tumor:	33% , 34-67%, 68-	2=None (0%)
		95%, >95%, All	3= <5%
		(100%)]. Using the	4= 6-33%
		first postoperative	5= 34-67%
		scan (contrast-	6= 68-95%
		enhanced MR	7=>95%
		imaging) assessed	8=All (100%)
		for tumor residual.	9= Indeterminate
		Estimate the	
		proportion of	
		enhancing tumor	
		removed. Total	

		resection of	
		component should	
		be scored 100%.	
		Subtotal resection of	
		enhancing tissue	
		should be scored	
		accordingly.	
F27	Extent resection of nCET	[indeterminate, none (0%), <5%, 6-33%, 34-67%, 68-95%, >95%, All (100%)]. Using the first postoperative scan (contrast-enhanced MR imaging) assessed for tumor residual. Estimate the proportion of non-enhancing tumor removed.	0= - 1= n/a 2=None (0%) 3= <5% 4= 6-33% 5= 34-67% 6= 68-95% 7= >95% 8=All (100%) 9= Indeterminate
		Total resection of component should be scored 100%. Subtotal resection of enhancing tissue should be scored accordingly.	
F28	Extent resection of	[indeterminate, none	0= -
	vasogenic edema:	(0%), <5%, 6-33%, 34-67%, 68-95%,	1= n/a 2=None (0%)
		>95%, All (100%)].	3 = <5%
		Using the first	4= 6-33%
		postoperative scan	5= 34-67%
		(contrast-enhanced	6= 68-95%
		`	7= >95%
		MR imaging) assessed for tumor	
			8=All (100%)
		residual. Estimate	9= Indeterminate
		the proportion of	
		edema removed.	
		Total resection of	
		enhancing nidus	
		should be scored	
		100%. Subtotal	
		resection of	
		enhancing tissue	
		should be scored	

	accordingly.	
F29 & F30 Lesion Size	accordingly. Largest perpendicular (x-y) cross-sectional diameter of T2 signal abnormality (longest dimension X perpendicular dimension) measured on a single axial image only.	0= - 1= <0.5 cm 2= 0.5 cm 3= 1.0 cm 4= 1.5 cm 5= 2.0 cm 6= 2.5 cm 7= 3.0 cm 8= 3.5 cm 9= 4.0 cm 10= 4.5 cm 11= 5.0 cm 12 = 5.5 cm 13= 6.0 cm 14= 6.5 cm 15= 7.0 cm 16= 7.5 cm 17= 8.0 cm 18= >8.0 cm