Supplemental Online Content

Nguyen TN, Abdalkader M, Nagel S, et al. Noncontrast computed tomography vs computed tomography perfusion or magnetic resonance imaging selection in late presentation of large-vessel occlusion stroke. *JAMA Neurol*. Published online November 8, 2021. doi:10.1001/jamaneurol.2021.4082

This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Neuroimaging triage protocols of sites in the CLEAR Study

Site	CT ASPECTS	CTA routine	CTA Collateral for selection	CT selection beyond ASPECTS	CT vs advanced imaging	CTP criteria	MRI
Bern	Not used	Yes	No	No	Advanced imaging routine	Tmax>6, rCBF<35%, ADC<620*	Same as CTP
Boston Medical Center	≥5	Yes	No	No	Advanced imaging rarely used	Rarely used	Rarely used
CHU Lille	No specified threshold	If contraindication to MRI	No	No	MRI Routine	No	Core <70 ml, Mismatch ratio 1.8, Mismatch volume > 15 ml
CHU Montreal	≥5	Yes	No	No	Advanced imaging rarely used	Rarely used, no guideline	Rarely used, no guideline
Cooper	No specified threshold	Yes	Sometimes	No	Attending dependent	No specified threshold; most <50 ml	No
Grady Memorial	No specified threshold	Yes	No	No	Advanced imaging (CTP) routine	No specified threshold	N/A
Heidelberg University Hospital	≥6	Yes	No	No	Attending dependent**	Core < 100 ml	Core < 100 ml
Lausanne University Hospital	≥7 (NIHSS≥ 10)	Yes, until May 2018 (MRI initial imaging)	No	Core < 2/3 of affected territory	NCCT if contraindications to advanced	Core < 50 ml (NIHSS≥ 10); core	Same as CTP

	≥8 (NIHSS <10)				imaging or technical problems with CTP (movement artifact, injection failure, poor cardiac ejection fraction)	< 30 ml (NIHSS <10)	
Mercy Hospital	≥6	Yes	No	Yes, greater than 1/3 MCA territory	Availability of the lab	>1.2 mismatch ratio	No
SUNY Upstate Medical	≥6	Yes	Yes	No	CT only if clinical-imaging mismatch	Core < 70 ml	Core < 70 ml
University of Iowa	≥6	Yes	No	No	Advanced imaging only	Core < 70 ml	No
University of Massachusetts	≥6	Yes	Yes	No	CT only if clinical-imaging mismatch	Core < 70 ml	No
UT Health McGovern	≥6	Yes	No	No	CTP Routine	Core < 70 ml, significant mismatch	Rarely used
University of Toledo	≥6	Yes	Yes	No	CT only if ASPECTS 9 or 10	No pre-specified parameters	No pre-specified parameters
Vall D'Hebron, Barcelona	No specific threshold	Yes	No	No	CTP if NCCT not favorable	Routine; CTP volumes not used for selection	Rarely used

						if NCCT favorable	

CHU: Centre Hospitalier de l'Université; ASPECTS: Alberta Early CT Program CT Score.

* Olea, Rapid and Syngo were used for perfusion processing. No thresholds for volumes were used.
** Refer to Nagel S, Herweh C, et al. JNIS supplement for additional details of their imaging selection protocol.

eTable 2. Selection criteria for late window (6-24h) thrombectomy between 2014 to 2020

Site	Change in patient selection for mechanical thrombectomy between 2014 to 2020
Bern	No change, other than more distal occlusions being treated over time
Boston Medical Center	Selected more patients in extended window after 2018
CHU Lille	Selected more patients in extended window after 2018
CHU Montreal	No change
Cooper	Selected more patients in extended window after 2018; no change in imaging protocol before and after 2018
Grady Memorial Hospital	No change
Heidelberg University Hospital	No change**
Lausanne University Hospital	Until 2014, EVT if treatment initiated within.6 hours, NIHSS $\geq$ 6, CTA proximal LVO, and CTP showed > 50% penumbra and informed consent was available. Since October 2014, CTP criteria were replaced by ASPECTS $\geq$ 5 and lower NIHSS limit replaced by the presence of disabling deficit. Since May 2017, patients were treated with the same criteria up to 8 hours. After 8 hours, treatment was offered with modified DAWN criteria: i.e. in the presence of NIHSS $\geq$10 and ASPECTS $\geq$7, or if stroke was disabling, NIHSS was 1-10, and ASPECTS was $\geq$8. Since January 2018, late treatment was alternatively based on any NIHSS, core < 70 ml and mismatch ratio ((penumbra + core)/core) >1.8, according to DEFUSE-3 criteria, and in accordance with European and American guideline recommendations.
Mercy Hospital, Toledo	No change

SUNY Upstate Medical University	After 2018, selection criteria resembled DAWN/DEFUSE-3 trial protocols
University of Iowa	After 2015, selection with RAPID software. EVT in extended window not widely implemented until after 2018
University of Massachusetts	No change
UT Health McGovern	After 2018, CTP criteria were added to the stroke imaging selection protocol for extended window patients similar to DEFUSE-3, anterior circulation patients with NIHSS $\geq$ 6, mRS 0-2.
University of Toledo	No change
Vall D'Hebron, Barcelona	After 2018, indications for EVT expanded in the extended window

CHU: Centre Hospitalier de l'Université; EVT: endovascular therapy

** Refer to Nagel S, Herweh C, et al. JNIS supplement for additional details of their imaging selection protocol.

eTable3. Modified Rankin Score Assessment

Site	Modified Rankin Score assessment by site	mRS blinding to mode of imaging selection
Bern	Standard phone interview by study nurse	Unblinded
Boston Medical Center	Standard questionnaire used by clinician (in clinic or telehealth) or stroke quality coordinator (via telephone).	Provider could have been aware of the imaging modality used
CHU Lille	Standard questionnaire by trained neurologists	Unblinded
CHU Montreal	Standard approach by neurologists (trained by NINDS criteria)	Unblinded
Cooper University	Half of mRS obtained by neurology provider (MD, NP) during follow-up visit; half of mRS obtained with semi-structured telephone interview	Provider could have been aware of imaging modality of selection
Grady Memorial Hospital	Standard approach. If phone, used Bruno et al. questionnaire. *	Provider could have been aware of imaging modality of selection
Lausanne University Hospital	Standard approach at outpatient clinic or standard telephone interview, all with mRS-certified medical personnel	Blind to patient treatment in the acute phase
Mercy Hospital, Toledo	Standard approach by certified stroke unit nurse, conducted follow-up call	Not aware of imaging modality for treatment
University of Iowa	Standard approach	Unblinded
University of Massachusetts	Neurologist, stroke coordinator and dedicated conducted mRS with standard approach	The assessors were not aware of the mode of patient selection for treatment
UT Health McGovern	mRS was determined by a standard questionnaire, performed by certified stroke coordinators who conducted phone-based surveys	Provider could have been aware of imaging modality of selection
University of Toledo	mRS was conducted with a standard approach, conducted by stroke nurse	Provider could have been aware of imaging modality of selection
SUNY Upstate Medical University	mRS was conducted with a standard approach, conducted by stroke attending and NP in clinic	Provider could have been aware of imaging modality of selection

Vall D'Hebron, Barcelona	mRS was performed by the treating physician	Unblinded

*Reference: Bruno A, Akinwuntan AE, Lin C, Close B, Davis K, Baute V, Aryal T, Brooks D, Hess DC, Switzer JA, Nichols FT. Simplified modified rankin scale questionnaire: reproducibility over the telephone and validation with quality of life. Stroke. 2011 Aug;42(8):2276-9.

eTable 4. Univariate and multivariate analysis of imaging modality with good outcome (mRS score 0–2) and ordinal mRS shift: Local patients				
	Univariate		Multivariate	
	Odds ratio (95% CI), *P*			
Outcome mRS 0-2				
CT	Ref		Ref	
CTP	0.86 (0.56-1.30)	0.461	0.71 (0.42-1.21)	0.209
MRI	0.75 (0.37-1.51)	0.416	0.69 (0.36-1.33)	0.272
Outcome mRS shift				
CT	Ref			
CTP	0.92 (0.65-1.31)	0.652	0.74 (0.46-1.18)	0.205
MRI	0.84 (0.53-1.35)	0.481	0.78 (0.54-1.12)	0.175

eTable 5. mTICI Reperfusion and mRS at 90 days.			
	mRS 90 days 0-2 (n=676)	mRS 90 days 3-6 (n=923)	*P*
Reperfusion mTICI			
	n (row %)		
0-2a	25 (12.2)	180 (87.8)	<0.0001
2b-3	651 (46.7)	743 (53.3)	
Odds of good outcome (mRS score 0-2) for mTICI reperfusion 2b-3			
	Odds ratio (95% CI)		
Overall	6.3 (4.4-8.9)		<0.0001
CT	6.1 (2.2-16.5)		0.0004
CTP	5.1 (2.9-9.2)		<0.0001
MRI	8.9 (6.7-11.9)		<0.0001

TICI: thrombolysis in cerebral infarction