Supplementary Online Content

Chalos V, Venema E, Mulder MJHL, et al; HERMES Collaborators; MR CLEAN Registry Investigators. Development and validation of a postprocedural model to predict outcome after endovascular treatment for ischemic stroke. *JAMA Neurol*. Published online July 31, 2023. doi:10.1001/jamaneurol.2023.2392

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

eTable. Main effects of final model in derivation cohort and validation cohort presented as common odds ratios[a] with 95% CIs

	Derivation cohort HERMES (n=781)	Validation cohort MR CLEAN Registry (n=3260)
Age, per year		
<65 years	0.99 (0.98 – 1.01)	1.01 (1.00 – 1.02)
≥65 years	0.94 (0.91 – 0.96)	0.93 (0.92 – 0.94)
Baseline NIHSS, per point	1.03 (1.00 – 1.06)	1.00 (0.98 – 1.01)
Diabetes mellitus	0.48 (0.33 – 0.71)	0.57 (0.47 – 0.69)
Pre-stroke mRS, per point	0.62 (0.46 – 0.84)	0.60 (0.55 – 0.65)
Occlusion location		
ICA(-T)	1.0 (reference)	1.0 (reference)
M1	1.29 (0.94 – 1.75)	1·16 (0.98 – 1.38)
M2 or other	2.03 (1.19 – 3.48)	1.32 (1.06 – 1.65)
Collateral score, per point	1.25 (0.94 – 1.64)	1.12 (1.03 – 1.22)
Post-procedural reperfusion grade (mTICI), per point	1.19 (1.02 – 1.40)	1.11 (1.05 – 1.17)
24h NIHSS, per point		
<12 points	0.71 (0.68 – 0.75)	0.78 (0.76 – 0.80)
≥12 points	0.86 (0.83 – 0.90)	0.84 (0.82 – 0.86)
SICH*	0.28 (0.10 – 0.76)	0.19 (0.12 – 0.28)

Abbreviations: NIHSS, National Institutes of Health Stroke Scale; mRS, modified Rankin Scale; ICA(-T), intracranial carotid artery (-terminus); M1, middle cerebral artery segment 1; M2, middle cerebral artery segment 2; mTICI, modified treatment in cerebral infarction; SICH, symptomatic intracranial hemorrhage.

[a]Common odds ratios reflect the effect on the reversed modified Rankin Scale (an odds ratio >1 corresponds with better functional outcome).

eAppendix. R Code (full regression equation)[a]

plogis((+0.00907192*age - 4.83914e-05*pmax(age-50.5,0)^3 + 0.000118985*pmax(age-72,0)^3 - 7.05932e-05*pmax(age-86.5,0)^3 - 0.00333532*NIHSS baseline - 0.563654*diabetes mellitus - 0.508099*pre-mRS + 0.154629*(occlusion location=="M1") + 0.282501*(occlusion location=="M2") + 0.115803*collateral score[b] + 0.0793556*eTICI - 0.252124*NIHSS24h + 0.000148483*pmax(NIHSS24h-1,0)^3 - 0.000272219*pmax(NIHSS24h-11,0)^3 + 0.000123736*pmax(NIHSS24h-23,0)^3 - 1.68195*sICH) + intercept[c])

[a] Variable definitions

Variable	Definition
Age	Numeric; in years
NIHSS baseline	Numeric; range 1-42
Diabetes mellitus	Binary; 0=no, 1=yes
Pre-mRS	Numeric; 0=0, 1=1, 2=2, >2=3
Occlusion location	Categorical; ICA-(T), M1, M2
Collateral score[b]	Numeric; range 0-3
eTICI	Numeric; 0=0, 1=1, 2A=2, 2B=3, 2C=4, 3=5
NIHSS 24h	Numeric; range 0-42
sICH	Binary; 0=no, 1=yes

[b] When collateral score is missing, use coefficient 0.198023 instead of 0.115803*collateral score. This coefficient is based on the weighted average of all collateral scores in the MR CLEAN Registry.

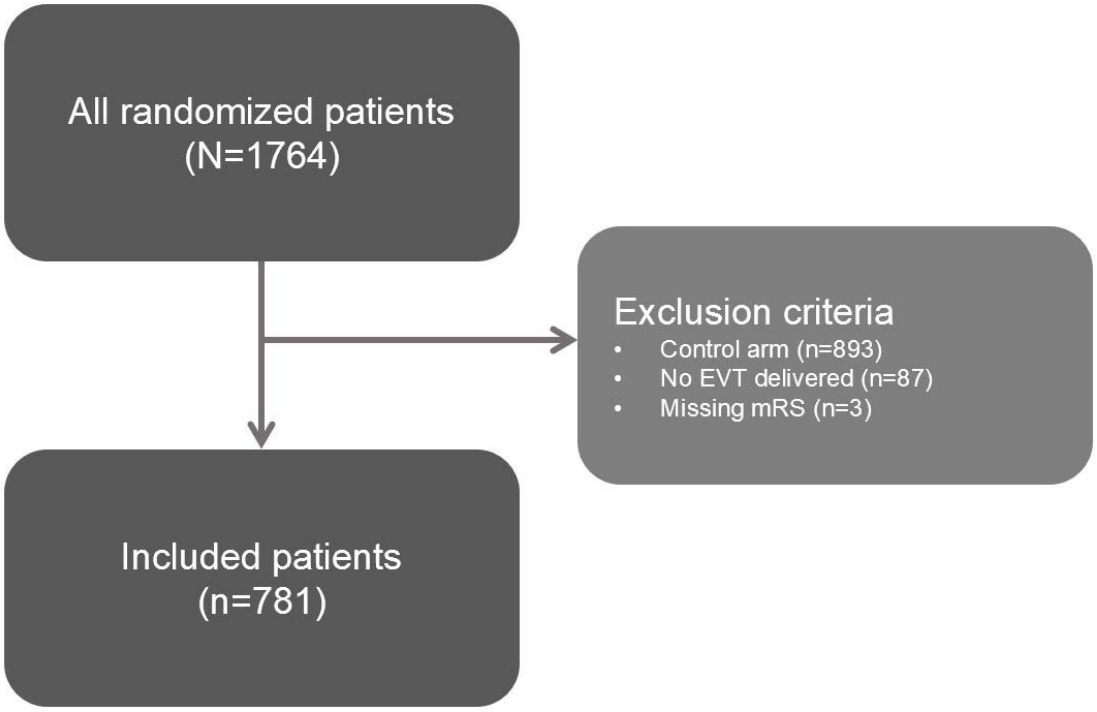
[c] Intercepts per modified Rankin Scale cut-point for HERMES and MR CLEAN Registry

To reflect the average baseline risk of both settings and populations, the model intercept was calculated for HERMES (representing selected RCT populations) and the MR CLEAN Registry (representing a broad population as treated in more recent clinical practice) separately.

For the online tool at www.mrpredicts.com, the intercept of the MR CLEAN Registry was used.

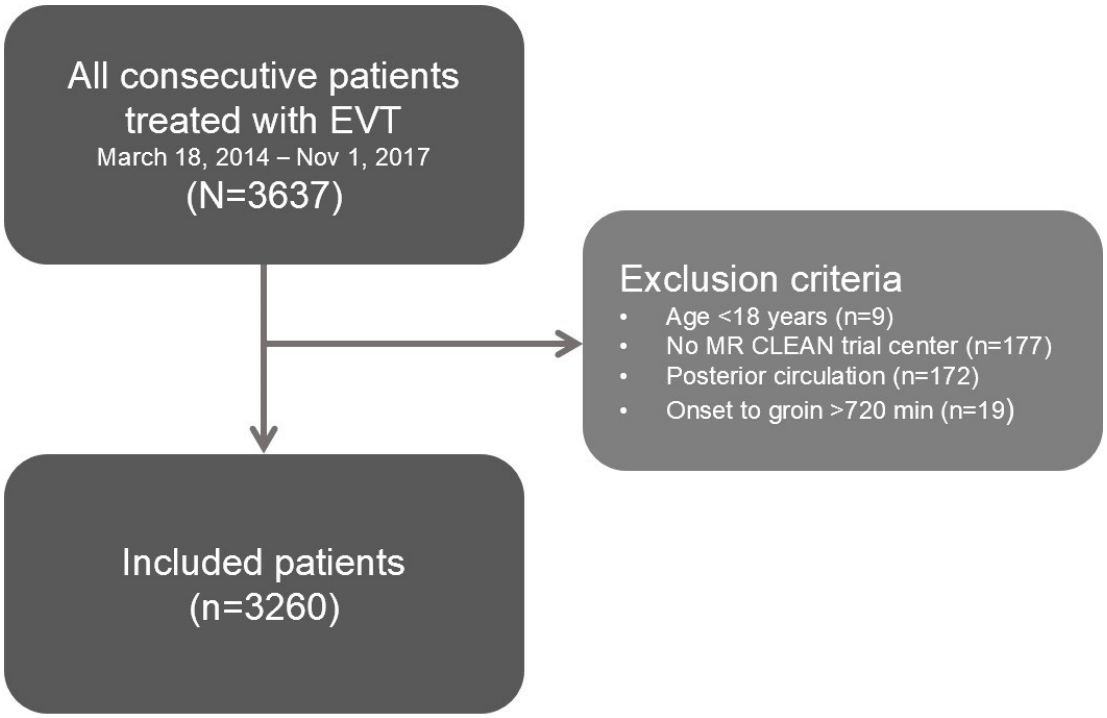
mRS cut-point	Intercept HERMES	Intercept MR CLEAN Registry
mRS 0 vs 1-6	-1.49640	-1.60096
mRS 0-1 vs 2-6	0.0655256	0.186484
mRS 0-2 vs 3-6	1.46388	1.69889
mRS 0-3 vs 4-6	2.79135	2.81098
mRS 0-4 vs 5-6	4.19445	3.80616
mRS 0-5 vs 6	4.86642	4.28056

eFigure 1. Flow of patients in derivation cohort (HERMES)



Abbreviations: EVT, endovascular treatment; mRS, modified Rankin Scale

eFigure 2. Flow of patients in validation cohort (MR CLEAN Registry)



Abbreviations: EVT, endovascular treatment