European Stroke Organisation (ESO) - European Society of Minimally Invasive Neurological Therapy (ESMINT) Guidelines on Mechanical Thrombectomy in Acute Ischaemic Stroke

**Supplementary appendix**

**Search Terms used**

**PICO 1-3**

(stroke) OR (brain infarct\*) OR (brain ischemia) OR (brain isch?emi\*) OR (cerebral infarct\*) OR (cerebrovascular accident\*) OR (cerebrovascular infarct\*) OR (acute ischemi\* stroke) OR (carotid artery thrombosis) OR (anterior cerebral artery infarction) OR (middle cerebral artery infarction) OR (posterior cerebral artery infarction) OR (anterior circulation occlusion) OR ((brain OR cerebral) adj5 (ischemia OR infarct OR hypoxia))

AND ((large vessel) OR (large artery) OR (carotid artery) OR (internal carotid artery) OR (Middle cerebral artery) OR MCA OR (anterior cerebral artery) OR ACA OR (internal carotid artery) OR ICA OR (vertebrobasilar artery) OR (basilar artery) OR (carotid artery) OR (vertebral artery) OR (posterior cerebral artery) OR (anterior circulation)) adj5 (ischemia OR embolus OR thrombus OR block OR occlusion OR Infarct\*)

OR (brain OR cerebr\* OR cerebell\* OR vertebrobasil\* OR hemispher\* OR intracran\* OR intracerebral OR infratentorial OR supratentorial OR middle cerebr\* OR mca\* OR anterior circulation) adj5 (isch?emi\* OR infarct\* OR thrombo\* OR emboli\* OR occlus\* OR hypoxi\*)

AND ((thrombectomy) OR (percutaneous thrombectomy) OR (endovascular procedures) OR (mechanical thrombectomy) OR (neuro-thrombectomy) OR (embolectomy) OR (cerebral revascularization) OR (endovascular thrombectomy) OR (endovascular embolectomy) OR (intraarterial embolectomy) OR (intra-arterial thrombectomy) OR (Balloon angioplasty) OR (penumbra system) OR (stentriever) OR (stent type retriever) OR (Angiojet) OR (stent) OR (Solitaire) OR (Merci) OR (Trevo) OR (Penumbra) OR (Revive) OR ERIC OR (3D Separator) OR Aperio OR Preset OR Solumbra OR (ADAPT technique) OR Sofia OR (mechanical thrombolysis) OR (endovascular therapy) OR (endovascular treatment) OR Catch device or Capture device OR core device OR (perfusion device) adj3 (thromb\* OR embol\* OR clot disruption\* OR clot retrieval\*)

OR (((clot\* OR thromb\* OR embol\*)) adj3 (retriev\* OR disruption\* OR fragmentation)) OR

(((stent\*) OR (stent-assisted)) adj3 (retriev\* OR stentriever\*)) OR (((Merci OR Trevo OR Penumbra OR Solitaire) adj3 (retriever\* OR system\* OR device\*)) OR ((recanalis\* OR recanaliz\* OR revascularis\* OR revasculariz\*) adj5 (brain OR cerebr\*)) OR ((retriev\* OR device OR stent OR extraction OR stentriever) adj5 (brain OR cerebr\*)) OR ((intervention OR mechanical OR proced\*) adj5 (brain OR cerebr\*)) OR ((Trevo OR Solitaire OR Penumbra OR penumbra system OR Merci OR Revive OR ERIC OR Catch or Capture OR 3D Separator OR Aperio OR Preset OR core OR perfusion OR ADAPT technique OR Sofia OR stent retriever) adj5 (brain OR cerebr\*)) OR (mechanical) adj3 (thrombectom\* OR thromboembolectom\* OR thrombo-

embolectom\* OR thrombolys\* OR remov\* OR disrupt\* OR clot\* OR embolectom\* OR recanalis\* OR recanaliz\* OR retriev\*)

**PICO 4: Prehospital scales**

(stroke) OR (brain infarct\*) OR (brain ischemia) OR (brain isch?emi\*) OR (cerebral infarct\*) OR (cerebrovascular accident\*) OR (cerebrovascular infarct\*) OR (acute ischemi\* stroke) OR (carotid artery thrombosis) OR (anterior cerebral artery infarction) OR (middle cerebral artery infarction) OR (posterior cerebral artery infarction) OR (anterior circulation occlusion) OR ((brain OR cerebral) adj5 (ischemia OR infarct OR hypoxia))

AND (stroke screen) OR (stroke score) OR (stroke scores) OR (stroke scale) OR (stroke scales) OR (stroke recognition) OR (stroke predict\*) OR (stroke severity scale) OR (Belgian prehospital setting) OR (Canadian Neurological Scale) OR (Cincinnati Pre-Hospital Stroke Scale) OR (CPSS) OR (Cincinnati PreHospital Stroke Scale) OR (Cincinnati PreHospital Stroke Severity Scale) OR (Emergency medical dispatchers and paramedics–San Diego) OR (EMS) OR (emergency medical service) OR (emergency medical scale) OR (European Stroke Scale) OR (Face Arm Speech Time) OR (FAST) OR (Face Arm Speech test) OR (Field Assessment Stroke Triage for Emergency Destination) OR (FAST-ED) OR (3-Item Stroke Scale) OR (3ISS) OR (Hemispheric Stroke Scale) OR (Glasgow Coma Scale) OR (Iranian Pre-hospital Stroke Scale) OR (IPSS) OR (Kurashiki prehospital stroke scale) OR (Large vessel occlusion scale) OR (Los Angeles Motor Scale) OR (LAMS) OR (Los Angeles Pre-Hospital Stroke Screen) OR (LAPSS) OR (Maria Prehospital Stroke Scale) OR (MPSS) OR (Melbourne Ambulance Stroke Screen) OR (MASS) OR (Medic Prehospital Assessment for Code Stroke) OR (Med PACS) OR (MedPACS) OR (Matthew Stroke Scale) OR (National Institutes of Health Stroke Scale) OR (NIHSS) OR (National Institute of Health Stroke Scale) OR (Ontario Prehospital Stroke Screening Tool) OR (OPSS) OR (Orgogozo Stroke Scale) OR (Paramedic Prehospital Acute Stroke Severity Scale) OR (PASS scale) OR (Pre-Hospital Stroke Scale) OR (Pre-Hospital Stroke Severity) OR (PreHospital Stroke Scale) OR (Pre Hospital Stroke Scale) OR (Pre-Hospital Acute Stroke Severity Scale) OR (Rapid Arterial Occlusion Evaluation scale) OR (RACE scale) OR (Recognition of Stroke in the Emergency Room) OR (ROSIER) OR (Scandinavian Stroke Scale) OR (SSS) OR (Smartphone-assisted prehospital medical information system) OR (SPMIS) OR (Unassisted telestroke scale in Belgium) OR (UTSS in Belgium)

AND (sensitivity and specificity) OR (predictive value of tests) OR (Likelihood Functions) OR (Probability) OR (Area Under Curve) OR (Reproducibility of Results) OR sensitivity OR accuracy OR accurate OR reliable OR reliability OR valid OR validity OR (Likelihood ratio) OR (Area under the curve) OR (receiver operator characteristic) OR roc OR Specificity OR True positive OR (true negative) OR (false positive) OR (false negative) OR (diagnostic odds ratio) OR predict

**PICO 5: Mothership vs drip and ship approach**

(stroke) OR (brain infarct\*) OR (brain ischemia) OR (brain isch?emi\*) OR (cerebral infarct\*) OR (cerebrovascular accident\*) OR (cerebrovascular infarct\*) OR (acute ischemi\* stroke) OR (carotid artery thrombosis) OR (anterior cerebral artery infarction) OR (middle cerebral artery infarction) OR (posterior cerebral artery infarction) OR (anterior circulation occlusion) OR ((brain OR cerebral) adj5 (ischemia OR infarct OR hypoxia))

AND ((thrombectomy) OR (percutaneous thrombectomy) OR (endovascular procedures) OR (mechanical thrombectomy) OR (neuro-thrombectomy) OR (embolectomy) OR (cerebral revascularization) OR (endovascular thrombectomy) OR (endovascular embolectomy) OR (intraarterial embolectomy) OR (intra-arterial thrombectomy) OR (Balloon angioplasty) OR (penumbra system) OR (stentriever) OR (stent type retriever) OR (Angiojet) OR (stent) OR (Solitaire) OR (Merci) OR (Trevo) OR (Penumbra) OR (Revive) OR ERIC OR (3D Separator) OR Aperio OR Preset OR Solumbra OR (ADAPT technique) OR Sofia OR (mechanical thrombolysis) OR (endovascular therapy) OR (endovascular treatment) OR Catch device or Capture device OR core device OR (perfusion device) adj3 (thromb\* OR embol\* OR clot disruption\* OR clot retrieval\*)

AND

(Drip and ship or mothership approaches)

(Drip and Ship) OR (Drip-and-Ship) OR (drip, ship) OR (Drip, and/or ship) OR

(Direct presenters) OR mothership OR (direct admission to CSC) OR (direct admission to comprehensive stroke center) OR (treated at site) OR (Bypass\* nearest stroke center) OR (Direct routing to CSC) OR (Endovascular-capable center) OR (interhospital transfer) OR (inter-hospital transfer) OR (Optimal transport destination)

**PICO 6**

Same as PICO 1-3

**PICO 7**

PICO 1 OR **Minor stroke OR TIA OR (Transient ischemic stroke)**

AND NIHSS OR (National Institutes of Health Stroke Scale)

**PICO 8**

AS in PICO 1

AND ASPECTS OR (Alberta Stroke Program Early CT Score) OR (infarct core volume) OR (Necrotic core volume) OR (ischemic core volume) OR (core volume)

**PICO 9**

(stroke) OR (brain infarct\*) OR (brain ischemia) OR (brain isch?emi\*) OR (cerebral infarct\*) OR (cerebrovascular accident\*) OR (cerebrovascular infarct\*) OR (acute ischemi\* stroke) OR (carotid artery thrombosis) OR (anterior cerebral artery infarction) OR (middle cerebral artery infarction) OR (posterior cerebral artery infarction) OR (anterior circulation occlusion) OR ((brain OR cerebral) adj5 (ischemia OR infarct OR hypoxia))

AND ((thrombectomy) OR (percutaneous thrombectomy) OR (endovascular procedures) OR (mechanical thrombectomy) OR (neuro-thrombectomy) OR (embolectomy) OR (cerebral revascularization) OR (endovascular thrombectomy) OR (endovascular embolectomy) OR (intraarterial embolectomy) OR (intra-arterial thrombectomy) OR (Balloon angioplasty) OR (penumbra system) OR (stentriever) OR (stent type retriever) OR (Angiojet) OR (stent) OR (Solitaire) OR (Merci) OR (Trevo) OR (Penumbra) OR (Revive) OR ERIC OR (3D Separator) OR Aperio OR Preset OR Solumbra OR (ADAPT technique) OR Sofia OR (mechanical thrombolysis) OR (endovascular therapy) OR (endovascular treatment) OR Catch device or Capture device OR core device OR (perfusion device) adj3 (thromb\* OR embol\* OR clot disruption\* OR clot retrieval\*)

AND (Imaging-based selection) OR imaging OR (multimodal imaging) OR (Collateral imaging) OR (magnetic resonance imaging) OR (perfusion imaging) OR (diffusion imaging) OR (computed tomography) OR (Perfusion CT) OR (CT Perfusion) OR (perfusion computed tomography) OR (computed tomography perfusion) OR (dynamic CT) OR (dynamic computed Tomography) OR (perfusion Parameter) OR (perfusion parameters) OR (cerebrovascular hemodynamics) OR (PENUMBRA) OR mismatch OR (imaging selection) OR CTA OR (computed tomography angiography) OR MRA OR (vessel imaging) OR (collateral imaging)

OR (CT Perfusion) OR (CT AND quantitative assessment) OR (CT AND mean transit Time) OR (CT AND time to peak) OR (CT AND cerebral blood volume) OR (CT AND cerebral blood flow) OR ((CT) OR (computed tomography)) AND ((Perfusion) OR (quantitative assessment) OR (mean transit Time) OR (time to peak) OR (cerebral blood volume) OR (cerebral blood flow))

**PICO 10**

Same as PICO 1

**PICO 11**

As in PICO 1

AND (Thrombolysis in cerebral infarction scale) OR (TICI) OR (Modified thrombolysis in cerebral infarction scale) OR (mTICI) OR (Arterial occlusion lesion scale) OR (AOL scale) OR (TICI 3 recanalization) OR (TICI 2b recanalization) OR (TICI 3) OR (TICI 2b) OR ((Thrombolysis) AND (cerebral infarction scale)) OR (TICI Grade) OR (recanalisation TICI Grade) OR (recanalization TICI Grade)

**PICO 12**

(stroke) OR (brain infarct\*) OR (brain ischemia) OR (brain isch?emi\*) OR (cerebral infarct\*) OR (cerebrovascular accident\*) OR (cerebrovascular infarct\*) OR (acute ischemi\* stroke) OR (carotid artery thrombosis) OR (anterior cerebral artery infarction) OR (middle cerebral artery infarction) OR (posterior cerebral artery infarction) OR (anterior circulation occlusion) OR ((brain OR cerebral) adj5 (ischemia OR infarct OR hypoxia))

AND ((thrombectomy) OR (percutaneous thrombectomy) OR (endovascular procedures) OR (mechanical thrombectomy) OR (neuro-thrombectomy) OR (embolectomy) OR (cerebral revascularization) OR (endovascular thrombectomy) OR (endovascular embolectomy) OR (intraarterial embolectomy) OR (intra-arterial thrombectomy) OR (Balloon angioplasty) OR (penumbra system) OR (stentriever) OR (stent type retriever) OR (Angiojet) OR (stent) OR (Solitaire) OR (Merci) OR (Trevo) OR (Penumbra) OR (Revive) OR ERIC OR (3D Separator) OR Aperio OR Preset OR Solumbra OR (ADAPT technique) OR Sofia OR (mechanical thrombolysis) OR (endovascular therapy) OR (endovascular treatment) OR Catch device or Capture device OR core device OR (perfusion device) adj3 (thromb\* OR embol\* OR clot disruption\* OR clot retrieval\*)

AND ((Thrombus aspiration) OR thromboaspiration OR (thrombo-aspiration) OR (aspiration and catheter) OR thrombosuction OR (thrombo-suction) OR (ADAPT technique) OR (Adapt aspiration) OR (forced arterial suction thrombectomy) OR (FAST) OR (PENUMBRA) OR (a direct aspiration first pass technique) OR (ADAPT) OR (Clot aspiration thrombectomy) OR (direct clot aspiration) OR (manual aspiration thrombectomy) OR MAT OR Sofia OR (aspiration mechanical) OR (Mechanical thrombectomy) OR (Mechanical aspiration) OR (stentriever) OR (stent retriever) OR (stent type retriever))

OR (((aspiration adj5 mechanical) OR ((Thromboaspirat\*) adj5 (brain OR cerebr\*)))

**PICO 13**

(stroke) OR (brain infarct\*) OR (brain ischemia) OR (brain isch?emi\*) OR (cerebral infarct\*) OR (cerebrovascular accident\*) OR (cerebrovascular infarct\*) OR (acute ischemi\* stroke) OR (carotid artery thrombosis) OR (anterior cerebral artery infarction) OR (middle cerebral artery infarction) OR (posterior cerebral artery infarction) OR (anterior circulation occlusion) OR ((brain OR cerebral) adj5 (ischemia OR infarct OR hypoxia))

AND ((thrombectomy) OR (percutaneous thrombectomy) OR (endovascular procedures) OR (mechanical thrombectomy) OR (neuro-thrombectomy) OR (embolectomy) OR (cerebral revascularization) OR (endovascular thrombectomy) OR (endovascular embolectomy) OR (intraarterial embolectomy) OR (intra-arterial thrombectomy) OR (Balloon angioplasty) OR (penumbra system) OR (stentriever) OR (stent type retriever) OR (Angiojet) OR (stent) OR (Solitaire) OR (Merci) OR (Trevo) OR (Penumbra) OR (Revive) OR ERIC OR (3D Separator) OR Aperio OR Preset OR Solumbra OR (ADAPT technique) OR Sofia OR (mechanical thrombolysis) OR (endovascular therapy) OR (endovascular treatment) OR Catch device or Capture device OR core device OR (perfusion device) adj3 (thromb\* OR embol\* OR clot disruption\* OR clot retrieval\*)

AND Sedation OR (conscious sedation) OR Anesthesia OR Isofurane OR Propofol OR ketamine OR (General anesthesia) OR GA OR (Anesthesia, general) OR (monitored anesthesia care) OR MAC OR (regional anesthesia) OR anesthetic OR (general anesthetic) OR (General anesthetics) OR (local anesthesia) OR (local anesthetic) OR (local anesthetics) OR (Anesthesia, local) OR lidocaine OR Procaine OR Prilocaine OR Bupivacaine

**PICO 14**

(stroke) OR (brain infarct\*) OR (brain ischemia) OR (brain isch?emi\*) OR (cerebral infarct\*) OR (cerebrovascular accident\*) OR (cerebrovascular infarct\*) OR (acute ischemi\* stroke) OR (carotid artery thrombosis) OR (anterior cerebral artery infarction) OR (middle cerebral artery infarction) OR (posterior cerebral artery infarction) OR (anterior circulation occlusion) OR ((brain OR cerebral) adj5 (ischemia OR infarct OR hypoxia))

AND ((thrombectomy) OR (percutaneous thrombectomy) OR (endovascular procedures) OR (mechanical thrombectomy) OR (neuro-thrombectomy) OR (embolectomy) OR (cerebral revascularization) OR (endovascular thrombectomy) OR (endovascular embolectomy) OR (intraarterial embolectomy) OR (intra-arterial thrombectomy) OR (Balloon angioplasty) OR (penumbra system) OR (stentriever) OR (stent type retriever) OR (Angiojet) OR (stent) OR (Solitaire) OR (Merci) OR (Trevo) OR (Penumbra) OR (Revive) OR ERIC OR (3D Separator) OR Aperio OR Preset OR Solumbra OR (ADAPT technique) OR Sofia OR (mechanical thrombolysis) OR (endovascular therapy) OR (endovascular treatment) OR Catch device or Capture device OR core device OR (perfusion device) adj3 (thromb\* OR embol\* OR clot disruption\* OR clot retrieval\*)

AND (Blood pressure) OR (Antihypertensive agents) OR (target level, BP) OR (blood pressure goal) OR (blood pressure control) OR (blood pressure target) OR (blood pressure treatment) OR (blood pressure lowering) OR (Strict blood pressure control) OR (tight control) OR (tight blood pressure)

(blood pressure adj6 target) OR (BP adj6 target) OR (blood pressure adj6 goal) OR (BP adj6 goal) OR (intensi\* adj6 treatment) OR (intensi\* adj6 control) OR (intensi\* adj6 lowering) OR (intensi\* adj6 blood pressure) OR (intensi\* antihypertensive) OR (tight adj6 control) OR (tight adj6 blood pressure) OR (strict adj6 control) OR (strict adj6 blood pressure)

OR (blood pressure adj6 target) OR (BP adj6 target) OR (blood pressure adj6 goal) OR (BP adj6 goal) OR (intensi\* adj6 treatment) OR (intensi\* adj6 control) OR (intensi\* adj6 lowering) OR

(intensi\* adj6 blood pressure) OR (intensi\* antihypertensive) OR (tight adj6 control) OR (tight adj6 blood pressure) OR (strict adj6 control) OR (strict adj6 blood pressure)

**PICO 15**

(stroke) OR (brain infarct\*) OR (brain ischemia) OR (brain isch?emi\*) OR (cerebral infarct\*) OR (cerebrovascular accident\*) OR (cerebrovascular infarct\*) OR (acute ischemi\* stroke) OR (carotid artery thrombosis) OR (anterior cerebral artery infarction) OR (middle cerebral artery infarction) OR (posterior cerebral artery infarction) OR (anterior circulation occlusion) OR ((brain OR cerebral) adj5 (ischemia OR infarct OR hypoxia))

AND ((large vessel) OR (large artery) OR (carotid artery) OR (internal carotid artery) OR (Middle cerebral artery) OR MCA OR (anterior cerebral artery) OR ACA OR (internal carotid artery) OR ICA OR (vertebrobasilar artery) OR (basilar artery) OR (carotid artery) OR (vertebral artery) OR (posterior cerebral artery) OR (anterior circulation)) adj5 (ischemia OR embolus OR thrombus OR block OR occlusion OR Infarct\*)

OR (brain OR cerebr\* OR cerebell\* OR vertebrobasil\* OR hemispher\* OR intracran\* OR intracerebral OR infratentorial OR supratentorial OR middle cerebr\* OR mca\* OR anterior circulation) adj5 (isch?emi\* OR infarct\* OR thrombo\* OR emboli\* OR occlus\* OR hypoxi\*)

AND (Carotid stenosis) OR (carotid atherosclerosis)

AND ((cervical stenting) OR (carotid artery stent) OR (cervical stent) OR (cervical angioplasty) OR (cervical balloon) OR (cervical endovascular)) OR (cervical AND (angioplasty OR endovascular OR percutaneous))