RES-Q 3.0 Standard Form
Data Dictionary

If you need any further assistance related to RES-Q, kindly Contact us at
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IRENE
Network for stroke care improvement

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INTRODUCTION

The Registry of Stroke Care Quality (RES-Q) Data Dictionary provides variable definitions and calculations to assist with data collection and interpretation. Standard definitions and use of uniform codes are fundamental to ensure data quality and integrity. Staff involved in the collection, processing and analysis of RES-Q data should use this dictionary for right interpretation and as a reference document. Data collected in RES-Q is recommended in the AHA/ ASA Guidelines, 2019 update for the management of AIS and ICH.

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Gender		Question: *Gender* Answer: select one option (**Male**, **Female, Other**)	Total cohort	NA
Stroke while already hospitalized	Proportion of patients with In hospital stroke	Question*: In hospital stroke* Answer: **Yes**	Total cohort	NA
Wake up stroke	Proportion of patients with AIS who awoke with stroke or had unclear time of onset >4.5 hrs from last known well.	Question: *Wake up stroke* Answer: **Yes**	Total cohort	
First hospital	Proportion of patients who are admitted directly and not transferred from another hospital	Question: *Patient arrived to your hospital from* Answer: **EMS** or **Private transport**	Total cohort	
Arrival mode to hospital	How patient got to the hospital	Question: *Patient arrived to your hospital from* Answers: select one option (**EMS**, **Private transport, another hospital)**	Total cohort	
Pre-notification by EMS	Proportion of patients pre-notified by the EMS from all EMS transports/ organisation	Question: *Was the hospital pre-notified by EMS* Answer : **Yes**	*Patient arrived through EMS*	*EMS personnel should provide pre-hospital notification to the receivinghospital that a suspected stroke patient is en route so that the appropriate hospital resources may be mobilized before patient arrival* *COR - I & LOE: B NR*

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Onset-to-door time	Period between an onset of stroke symptoms to arrival time to the first door hospital. The first door is defined as the door patient is passing after he/she is offloaded from the ambulance or private transport.(usually the door which patient enters few seconds after being offloaded)	Questions: *Onset time*, *Hospital (Door) time* Answer: *Arrival time to hospital - Onset time* (minutes).	Total cohort	
Patient admitted under which department?	Proportion of patients in different departments	Question: *Patient admitted under which department* Answer: select one option (**Neurology**, **Neurosurgery**, **Critical care, Internal medicine, Others)**	Total cohort	
Where was the patient hospitalized on the first day?	Proportion of patients in different units on day 1	Question: *The patient was hospitalized in (day 1)* Answer: select one option (**ICU/Stroke Unit**, **Other monitored bed**, **Standard bed**)	Total cohort	*The use of comprehensive stroke care (stroke units) that incorporates rehabilitation is recommended. COR - I & LOE : A*
Previous known history	Prevalence of risk factors	Question: *Previous known history* Answer: select all that apply (**HTN**, **Diabetes**, **Hyperlipidemia**, **Active smoker in last 10 yrs, Previous ischemic/ TIA stroke leading to hospitalization, previous haemorrhagic stroke leading to hospitalization, AF or flutter, CAD or previous MI, CHF, Hormonal contraception, HIV, Other, unknown, None**	Total cohort	
Recurrent stroke	Stroke occuring repeatedly	Question: *Previous known history* Answer: sum options **Previous ischemic/TIA stroke** and **Previous hemorrhage stroke**	Total cohort	

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Treatment before admission/event	History of use of medication in patients with ischemic stroke/TIA	Question: *Treatment before admission/event* Answer: select all that apply (**Antidiabetics**, **Antihypertensives**, **Aspirin, Cilostazol, Clopidogrel, Ticagrelol, Ticlopidine, Prasugrel, Dipyridamol slow release, warfarin, LMWH, Dabigatran, Rivoroxaban, Apixaban, Edoxaban, Statin, None, Unknown, Other)**	Ischemic stroke/TIA	
Treatment before admission/event	History of use of medication in patients with intracerebral hemorrhage	Question*: Treatment before admission/event* Answer: select all that apply (**Antidiabetics**,**Antihypertensives**, **Aspirin, Cilostazol, Clopidogrel, Ticagrelol, Ticlopidine, Prasugrel, Dipyridamol slow release, warfarin,LMWH,Dabigatran, Rivoroxaban,Apixaban,Edoxaban, Statin, None, Unknown, Other)**	Intracerebral hemorrhage	
NIHSS score on admission	Proportion of patients who had NIHSS done	Question : *NIHSS score* Answer: **filled / not done**	Total cohort	*The use of a stroke severity rating scale, preferably NIHSS, is recommended* *COR - I & LOE:B-NR*
Blood glucose	First measurement of blood glucose in hospital	Question : *Blood glucose level* Answer: **value of glucose**	Total cohort	*Hypoglycemia (blood glucose <60 mg/dL) should be treated in patients with AIS. COR - I & LOE : C-LD* *Evidence indicates that persistent in-hospital hyperglycemia during first 24 hours after AIS is associated with worse outcomes than normoglycemia,& thus, it is reasonable to treat hyperglycemia to achieve blood glucose levels in a range of 140 to 180 mg/dL & to closely monitor to prevent hypoglycemia in patients with AIS COR - IIa & LOE : C-LD*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Blood Pressure	First measurement of blood pressure in hospital	Question : Systolic blood pressure Answer: **value of BP in mmHg** Question : Diastolic blood pressure Answer: **value of BP in mmHg**	Total cohort	*Hypotension and hypovolemia should be corrected to maintain systemic perfusion levels necessary to support organ function.COR- I & LOE-C-EO*
modified Rankin Scale (mRS)	Outcome scale to assess degree of disability in a stroke patient on a scale of 0 (no disability) to 6(death)	Question : modified Rankin scale score Answer: select one option (**0 -5, unknown)**	Total cohort	
Where was the first INR testing done?	Where was the first testing of time for blood-to-clot done?	Question: *First INR testing done?* Answer: select one option(**with point of care device**, **Sample sent to lab**, **not done**)	First INR testing done option is not **Unknown**.	
Was the patient COVID positive?	Status of COVID and testing for COVID at baseline	Question: *Was the patient COVID positive?* Answer: select one option (**Yes**, **No**, **Not tested**, **Recovered in last 6 months**)	Total cohort	
Brain imaging done	Proportion of patients who had brain imaging	Question: *Brain imaging* Answer: **sum of all options (Non-Contrast CT, Non-Contrast CT+ CT Angioraphy, Non-Contrast CT+ CT Angiography+CT perfusion, MR DWI/ flair, MR DWI/ flair + MR Angiography, MR/ DWI/ flair +MR Angiography + MR perfusion, except imaging not done**	Total cohort	*All patients with suspected acute stroke should receive emergency brain imaging evaluation on first arrival to a hospital before initiating any specific therapy to treat AIS* *COR - I & LOE : A*
Brain imaging type distribution	Proportion of different types of imaging	Question: Brain imaging Answer: **all options (Non-Contrast CT, Non-Contrast CT+ CT Angioraphy, Non-Contrast CT+ CT Angiography+CT perfusion, MR DWI/ flair, MR DWI/ flair + MR Angiography, MR/ DWI/ flair +MR Angiography + MR perfusion, except imaging not done**	Total cohort	*CTA with CTP or MR angiography (MRA) with diffusion-weighted magnetic resonance imaging (DW-MRI) with or without MR perfusion is recommended for certain patients* *COR - I and LOE : A*

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Door-to-imaging time (in minutes)	Period between an arrival time to the first door of the hospital to a time at which imaging was initiated. The first door is defined as the door patient is passing after he/she is offloaded from the ambulance or private transport.(usually the door which patient enters few seconds after being offloaded)	Question: *Imaging time, Hospital (Door) time* Answer: ***Imaging done at what time? - Arrival time to hospital* (minutes). Calculated for all patients with known imaging time.**	Total cohort	
Old infarcts seen on the imaging?	Prevalence of old infarcts on baseline imaging	Question: *Old infarcts seen on the imaging?* Answer: select all that apply (**Cortical**, **Subcortical (basal ganglia, internal capsule)**, **Brainstem**, **None**)	Total cohort	
Stroke type	Proportion of types of stroke	Question: *Stroke type* Answer: select one option (**Ischemic stroke**, **Intracerebral hemorrhage, TIA, Subarachnoid hemorrhage, Cerebral venous thrombosis, Stroke mimics, undetermined)**	Total cohort	
Stroke mimics final diagnosis	Proportion of different type of stroke mimics	Question: *Stroke mimics final diagnosis* Answer: select one option (**Migraine**, **Seizure, delirium, electrolyte or metabolic imbalance, functional disorder, other)**	*Stroke type* is **Stroke mimics**.	
Stroke mimics IVT treatment	Proportion of stroke mimics treated with IVT	Question: *Stroke mimics IVT treatment* Answer: select one option (**Alteplase**, **Tenecteplase**, **Streptokinase**,**Staphylokinase**)	*Stroke type* is **Stroke mimics & If** *patient treated with IVT* is **Yes**.	
Occlusion on CTA/MRA	Prevalence of large vessel occlusion	Question: *Occlusion on CTA/MRA* Answer: select one option (**Yes**, **No**, **Not done**)	*Stroke type* is **Ischemic stroke**	*COR - I and LOE : B-NR*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Thrombolysis done	Proportion of patients treated with IVT out of ischemic strokes in hospital.	Question: *Was the patient treated with IV thrombolysis in your hospital*? Answer: select one option (**Yes**, **No**)	*Stroke type* is **Ischemic stroke**	*In patients eligible for IV alteplase, benefit of therapy is time dependent, and treatment should be initiated as quickly as possible.COR - I & LOE : A*
Reason for not providing thrombolysis	Reason for not providing thrombolysis	Question: *Reason for not doing thrombolysis* Answer: select one option (**Already received IVT in another hosp**, **Out of time window**, **Mild deficit**, **consent not given, cost of treatment, transferred to other hosp for IVT, only MT required, thrombolytic drug not available, other)**	*Stroke type* is **Ischemic stroke** and *Thrombolysis done* is **No**	
IVT treatment drug	Type of thrombolytics used	Question*: IVT treatment drug* Answer: select one option (**Alteplase**, **Tenecteplase**, **Streptokinase**,**Staphylokinase**)	*Stroke type* is **Ischemic stroke** and *Thrombolysis done* is **Yes**	
IV thrombolysis given in	Place of initiation of IVT	Question: *IV thrombolysis given in* Answer: select one option (**CT/MR room**, **Stroke unit or ICU**,**Emergency room**, **Other**)	*Stroke type* is **Ischemic stroke** and *Thrombolysis done* is **Yes**	
Door-to-needle time (minutes)	Period between an arrival time to the first door of the hospital to thrombolysis bolus dose (needle) time. First door is defined as the door patient is passing after he/she was offloaded from the ambulance or private transport.(usually the door which patient enters few seconds after being offloaded)	Questions: *Bolus time, Hospital (Door) time* Answer: **Bolus time - Arrival time to hospital (minutes).** **Stroke type is Ischemic stroke and thrombolysis was done (option: Yes) and with known bolus time.**	*Stroke type* is **Ischemic stroke**; *Thrombolysis done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *Patient arrived to your hospital* is not **From another hospital**	*It is recommended that stroke systems of care be developed so that fibrinolytic-eligible patients and mechanical thrombectomy-eligible patients receive treatment in the fastest achievable onset-to-treatment time.* *COR - I & LOE : A*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Thrombectomy done	Proportion of patients treated with mechanical thrombecomy of ischemic strokes.	*Question: Was the patient treated with thrombectomy in your hospital?* Answer: select one option (**Yes**, **No**)	*Stroke type* is **Ischemic stroke**	*Patients should receive MT with a stent retriever if they meet all the following criteria: (1) prestroke mRS score of 0 to 1; (2) causative occlusion of the internal carotid artery or MCA segment 1 (M1); (3)age ≥18 years; (4) NIHSS score of ≥6; (5) ASPECTS of ≥6; and (6) treatment can be initiated (groin puncture) within 6 hours of symptom onset COR - I & LOE : A*
Reason for not doing thrombectomy	Reason for not providing thrombectomy	*Question: Reason for not doing thrombectomy* Answer: select one option (**Already received MT in other hosp**, **Out of time window**, **Mild deficit**, **no large vessel occlusion, premorbid disability, consent not given, cost of treatment, transferred to another hosp for MT, MT facility not available in hosp, other**	*Stroke type* is **Ischemic stroke** and *Thrombectomy done* is **No**	
mTICI score		Question: mTICI score Answer: each option (**0**, **1**, **2A**, **2B**, **2C**, **3**, **Occlusion not confirmed**)	*Stroke type* is **Ischemic stroke** and *Thrombectomy done* is **Yes**	*To ensure benefit, reperfusion to mTICI grade 2b/3 should be achieved as early as possible within therapeutic window. COR - I and LOE : A*
Procedure complications in thrombectomy		*Question: Procedure complications in thrombectomy* Answer: select all that apply (None, **Vessel perforation**, **Dissection**, **Embolization to different vascular territory**, **Hematoma at arterial access requiring transfusion**, **Other**)	*Stroke type* is **Ischemic stroke &** *Thrombectomy done* is **Yes** and *Procedure complications in thrombectomy* is filled	

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Door-to-groin time (minutes)	Period between an arrival time to the first door of the hospital to thrombectomy procedure start time(groin puncture) First door is defined as the door patient is passing after he/she was offloaded from the ambulance or privatetransport.(usually the door which patient enters few seconds after being offloaded)	*Questions: Groin puncture time, Hospital (Door) time* Answer: ***Groin puncture time - Arrival time to hospital* (minutes).**	*Stroke type* is **Ischemic stroke**; *Thrombectomy done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *Patient arrived to your hospital from* is not **From another hospital**	*It is recommended that stroke systems of care be devel-oped so that fibrinolytic-eligible patients and me-chanical throm-bectomy-eligible patients receive treatment in the fastest achievable onset-to-treatment time. COR - I & LOE : A*
Door-to-reperfusion time (minutes)	Period between an arrival time to the first door of the hospital to blood flow reinstated by thrombectomy time (reperfusion time). First door is defined as the door patient is passing after he/she was offloaded from the ambulance or private transport.(usually the door which patient enters few seconds after being offloaded)	*Questions: Reperfusion time, Hospital (Door) time* Answer: ***Reperfusion time - Arrival time to hospital* (minutes).**	*Stroke type* is **Ischemic stroke** and *Thrombectomy done* is **Yes** and with known reperfusion time.	
Door in - door out time (minutes)	Period between an arrival time to the first door of the hospital to transfer time to another hospital. First door is defined as the door patient is passing after he/she was offloaded from the ambulance or private transport.(usually the door which patient enters few seconds after being offloaded)	Questions: *Transfer time, Hospital (Door) time* Answer: **Transfer time - Arrival time to hospital (minutes).**	**Stroke type** is **Ischemic stroke** and Reason for not doing thrombolysis/ thrombectomy is **Transferred to another hospital**.	

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Source of bleeding found	Prevalence of spontaneous intracerebral hemorrhage due to identifiable cause	Question: *Source of bleeding found* Answer: select one option (**Yes**, **No**)	*Stroke type* is **Intracerebral hemorrhage**	
The reason for bleeding was	Cause of intracerebral hemorrhage	Question: *The reason for bleeding was* Answer: select all that apply option (**Arterial hypertension**, **Aneurysm**, **Arteriovenous malformation**, **Anticoagulation therapy, Amyloid angiopathy, other/ unknown)**	*Stroke type is* **Intracerebral hemorrhage**	
Neurosurgery type	Type of neurosurgery performed for intracerebral hemorrhage	Question: *Neurosurgery performed type* Answer: select one option (**Intracranial hematoma evacuation**, **External ventricular drainage**, **decompressive craniectomy, not required)**	*Stroke type is* **Intracerebral hemorrhage &** *If neurosurgery was performed, select the type* is filled	
Infratentorial source of bleeding		*Question: Whether there was infratentorial bleeding* **Answer-** select one **option Yes / No)**	*Stroke type is* **Intracerebral hemorrhage**	
Hunt Hess score	Scale for grading patients subarachnoid hemorrhage	Question: *Hunt Hess score* Answer: select one option **(1,2, 3, 4, 5)**	*Stroke type* is **Subarachnoid hemorrhage &** *Hunt Hess score* is filled	
Intervention	Neurosurgery treatment of subarachnoid hemorrhage	Question: *Intervention* Answer: select all that apply (**Endovascular (coiling)**, **Neurosurgical (clipping), ventricular drainage, decompressive craniectomy, other, none**)	*Stroke type* is **Subarachnoid hemorrhage**	
Treatment	Treatment for cerebral venous thrombosis	Question: *Treatment* Answer: select all that apply (**Anticoagulation**,**Endovascular intervention-thrombectomy**, **endovascular intervention-local thrombolysis, neurosurgical treatment (decompressive craniectomy, none)**	*Stroke type* is **Cerebral venous thrombosis**	

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Patient hospitalized for more than 24 hours	Patient hospitalized for more than 24 hours	Question: *Patient hospitalized for more than 24 hours* Answer: each option (**Yes**, **No Patient died, No Patient was transferred, No Patient was discharged**)	Total cohort	
Was decompressive craniectomy performed?	Proportion of patients treated with decompressive craniectomy of those with ischemic stroke	Question: *Was decompressive craniectomy performed?* Answer: each option (**Yes**, **No**)	*Patient hospitalized for more than 24 hours* is **Yes** and *Stroke type* is **Ischemic stroke**, and w*as decompressive craniectomy performed* was filled yes	*In patients ≤60 years of age who deteriorate neurologically within 48 hours from brain swelling associated with unilateral MCA infarctions despite medical therapy, decompressive craniectomy with dural expansion is reasonable. In patients >60 years of age who deteriorate neurologically within 48 hours from brain swelling associated with unilateral MCA infarctions despite medical therapy, decompressive craniectomy with dural expansion may be considered. COR- IIa & LOE - A*
Carotid arteries imaging done	Prevalence of carotid imaging in ischemic stroke/TIA	Question: Carotid arteries imaging within 7 days after admission Answer: each option (**Yes**, **No**)	*Patient hospitalized for more than 24 hours* is **Yes**, *Stroke type* is **Ischemic stroke, Transient ischemic attack (TIA) &** *Carotid arteries imaging is filled Yes*	*For patients with nondisabling (mRS score 0-2) AIS in carotid territory who are candidates for CEA or stenting, noninvasive imaging of the cervical carotid arteries should be performed routinely within 24 hours of admission COR - I & LOE : B-NR*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Atrial fibrillation/flutter (AF)	Prevalence of atrial fibrillation/flutter	Question: *Atrial fibrillation/flutter (AF)* Answer: each option (**Known AF**, **Detected during hospitalization**, **No AF detected**, **Not screened**, **Unknown**)	*Patient hospitalized for more than 24 hours* is **Yes &** *Stroke type* is **Ischemic stroke**, **Transient ischemic attack (TIA)**	
Stroke etiology	Cause of stroke	Question: Stroke etiology Answer: each option (**Large artery atherosclerosis**, **Cardioembolism**, **stroke of other determined etiology, cryptogenic stroke, small vessel disease/ lacunar)**	*Patient hospitalized for more than 24 hours* is **Yes**, *Stroke type* is **Ischemic stroke**, **Transient ischemic attack (TIA)** and *Stroke etiology* is filled	
Pharmacological venous thromboembolism (VTE) prophylaxis	Proportion of patients with pharmacological VTE prophylaxis in ischemic stroke	Question: *Venous thromboembolism (VTE) interventions* Answer: select all that apply **(Low dose unfractionated heparin, (UFH), Low molecular weight heparin (LMWH), Warfarin prescribed for VTE only, Oral factor Xa inhibitor prescribed for VTE only, Other, none**	*Patient hospitalized for more than 24 hours* is **Yes**, *Stroke type* is **Ischemic stroke** and *Venous thromboembolism (VTE)interventions* is filled	When prophylactic anticoagulation is used, the benefit of prophylactic-dose LMWH over prophylactic-dose UFH is uncertain *COR- IIb & LOE : BR*
Non-pharmacological venous thromboembolism (VTE) prophylaxis-recommended	Proportion of patients with recommended non-pharmacological (VTE) prophylaxis	Question: *Venous thromboembolism (VTE) interventions* Answer: each option **Intermittent pneumatic compression devices (IPC), Graduated compression stockings (GCS), Venous foot pumps (VFP), Other, none**	*Patient hospitalized for more than 24 hours* is **Yes**, *Stroke type* is **Ischemic stroke** and *Venous thromboembolism (VTE)interventions* is filled	In immobile stroke patients without contraindications, intermittent pneumatic compression (IPC) is recommended. *COR - I and LOE : BR*
Non-pharmacological venous thromboembolism (VTE) prophylaxis - not recommended	Proportion of patients with not-recommended non-pharmacological (VTE) prophylaxis	Question: *Venous thromboembolism (VTE) interventions* Answer: Each option (**Graduated compression)**	*Patient hospitalized for more than 24 hours* is **Yes**, *Stroke type* is **Ischemic stroke** and *Venous thromboembolism*	In ischemic stroke, elastic compression stockings should not be used. *COR - III and LOE : BR*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
			(VTE) interventions is filled	
Pharmacological venous thromboembolism (VTE) prophylaxis	Proportion of patients with pharmacological VTE prophylaxis in intracerebral hemorrhage	Question: *Venous thromboembolism (VTE) interventions* Answer: select all that apply **(Low dose unfractionated heparin, (UFH), Low molecular weight heparin (LMWH), , Warfarin prescribed for VTE only, Oral factor Xa inhibitor prescribed for VTE only, Other, none**	*Patient hospitalized for more than 24 hours* is **Yes**, *Stroke type* is **Intracerebral hemorrhage &** *Venous thromboembolism (VTE)interventions* is filled	*In nonambulatory patients with spontaneous ICH, initiating low-dose UFH or LMWH prophylaxis at 24 to 48 hours from ICH onset may be reasonable to optimize the benefits of preventing thrombosis relative to the risk of HE*
Non-pharmacological venous thromboembolism (VTE) prophylaxis-recommended	Proportion of patients with recommended non-pharmacological (VTE) prophylaxis in intracerebral hemorrhage	Question: *Venous thromboembolism (VTE) interventions* Answer: each option **Intermittent pneumatic compression devices (IPC), Graduated compression stockings (GCS), Venous foot pumps (VFP), Other, none**	*Patient hospitalized for more than 24 hours* is **Yes**, *Stroke type* is **Intracerebral hemorrhage** and *Venous thromboembolism (VTE) interventions* is filled	*In nonambulatory patients with spontaneous ICH, intermittent pneumatic compression (IPC) starting on the day of diagnosis is recommended for VTE (DVT & PE) prophylaxis. COR - 1 & LOE : BR* *In nonambulatory patients with spontaneous ICH, graduated compression stockings of knee-high or thigh-high length alone are not beneficial for VTE prophylaxis COR - 3 & LOE: B-R*
Post stroke complications	Prevalence of post stroke complications	Question: Post stroke complications Answer: select all that apply **Pneumonia**, **Deep vein thrombosis (DVT)**, **Pulmonary embolism (PE)**, **Urinary tract infection (UTI), Pressure sores, Drip site sepsis, Recurrence/ extension of stroke, Other, None)**	*Patient hospitalized for more than 24 hours* is **Yes** and *Stroke type* is Ischemic stroke, **Intracerebral hemorrhage, sub arachnoid hemorrhage, cerebral venous thrombosis &*Post stroke complications* is filled**	

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Findings on follow up CT/MR after IVT/MT	Proportion of patients with brain infarction and/or bleeding after recanalization treatment	Question: *Findings on CT/MR after IVT/MT* Answer: each option **Brain infarct**, **No bleeding**, **Remote bleeding in the brain**, **Bleeding at the site of infarction hemorrhage HI type 1**, **Bleeding at the site of infarction hemorrhage HI type 2, Bleeding at the site of infarction parenchymal hemorrhage PH type 1, Bleeding at the site of infarction parenchymal hemorrhage PH type 2**	*Patient hospitalized for more than 24 hours* is **Yes**, *Stroke type* is **Ischemic stroke**, *Was CT/MR performed after IVT/MT* is **Yes CT (Yes MR)** and *Findings on CT/MR after IVT/MT* is filled	
Was paracetamol (or other antipyretic) administered for the first elevated temperature?	Proportion of patients treated for *hyperthermia* in any type of stroke	Question: Was paracetamol (or other antipyretic) administered for the first elevated temperature? Answer: each option (**Yes - within 1 hour**, **Yes - after 1 hour**, **no**, **contraindicated**)	*Patient hospitalized for more than 24 hours* is **Yes** and *Stroke type* is **Ischemic stroke**, **Intracerebral hemorrhage, Transient ischemic attack (TIA)** or **Undetermined** and *In the first 72 hours of admission did patient develop fever of ≥ 37.5°C* is **Yes**	*Sources of hyperthermia (temperature >38°C) should be identified and treated. Antipyretic medications should be administered to lower temperature in hyperthermic patients with stroke* *COR - I and LOE : C-LD*
Was insulin administered for the first elevated glucose (>=10 mmol/L [180 mg/dl])?	Proportion of patients treated with hyperglycemia in any type of stroke	Question: Was insulin administered for the first elevated glucose Answer: each option (**Yes - within 1 hour**, **Yes - after 1 hour**, **no**, **unknown**)	*Patient hospitalized for > 24 hours* is **Yes** and *Stroke type* is **Ischemic stroke**, **Intracerebral hemorrhage, Transient ischemic attack** or **Undetermined** and *In the first 48 hours following admission did the patient develop a glucose level >= 10 mmol/L (180 mg/dl)* is **Yes**	*Hypoglycemia (blood glucose <60 mg/dL) should be treated in patients with AIS.* *COR - I and LOE : C-LD*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Swallowing screening performed?	Proportion of patients screened for dysphagia in any type of stroke	Question: Swallowing screening performed? Answer: each option (**Yes, within 4 hours**, **Yes, within 24 hours of admission, Yes, after 24 hrs of admission, Not done, Not applicable (patient intubated, NGS etc)**	*Patient hospitalized for more than 24 hours* is **Yes** and *Stroke type* is **Ischemic stroke**, **Intracerebral hemorrhage, Transient ischemic attack (TIA)** or **Undetermined**	*Dysphagia screening before the patient begins eating, drinking, or receiving oral medications is effective to identify patients at increased risk for aspiration. COR - I and LOE : C-LD*
Swallowing screening test performed	Proportion of different tests for swallowing screening	Question: Swallowing screening test performed Answer: Each option **(GUSS test, ASSIST test, EAT 10, SVT, SST, Drinking water test, Other (gag reflux not to be considered)**	*Patient hospitalized for more than 24 hours* is **Yes** & *Stroke type* is **Ischemic stroke**, **Intracerebral hemorrhage, Transient ischemic attack (TIA)** or **Undetermined.** *Swallowing screening performed* is **Yes,** and *Swallowing screening test performed* is filled	
Patient received physiotherapy?	Proportion of patients receiving physiotherapy in any type of stroke (excluding stroke mimics)	Question: *Patient received physiotherapy?* Answer: each option (**Yes**, **No**, **Not required**)	*Patient hospitalized for more than 24 hours* is **Yes** and *Stroke type* is not **Stroke mimics**	*It is recommended that early rehabilitation for hospitalized stroke patients be provided in environments with organized, interprofessional stroke care COR - I and LOE : A*
Patient received ergotherapy (occupational therapy)?	Proportion of patients receiving ergotherapy in any type of stroke (excluding stroke mimics)	Question: *Patient received ergotherapy (occupational therapy)?* Answer: each option (**Yes**, **No**, **Not required**)	*Patient hospitalized for more than 24 hours* is **Yes** and *Stroke type* is not **Stroke mimics &** *Patient received ergotherapy* is filled	*It is recommended that all individuals with stroke be provided a formal assessment of their activities of daily living and instrumental activities of daily living, communication abilities, & functional*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
				mobility before discharge from acute care hospitalization & the findings be incorporated into the care transition & discharge planning process COR - I and LOE : B-NR
Patient received speech therapy?	Proportion of patients receiving speech therapy in any type of stroke (excluding stroke mimics)	*Question: Patient received speech therapy?* Answer: each option (**Yes**, **No**, **Not required**)	*Patient hospitalized for more than 24 hours* is **Yes** and *Stroke type* is not **Stroke mimics** and *Patient received speech therapy* is filled	
Discharge destination	Proportion of different discharge destinations	Question: Discharge destination Answer: each option (**Home**, **Transferred within the same centre**, **Transferred to another centre, Social care facility, patient died)**	Total cohort	
Discharge destination - Discharge destination within the same centre	Proportion of patients being discharged but admitted withing the same hospital	Question: Discharge destination - Discharge destination within the same facility Answer: each option (**Acute rehabilitation**, **Post-care bed**, **Another department**)	*Discharge destination* is **Transferred within same center**	
Discharge destination – Discharged to another facility	Proportion of patients transferred to another hospital	Question: Discharge destination - Discharged to another facility Answer: each option (**Primary stroke center**, **Comprehensive stroke center**, **Another standard hospital**)	*Discharge destination* is **Transferred to another center**	
Hospital stay (days)	Length of stay in hospital	Question: Discharge date, Admission date Answer: **Discharge date - Admission date**	NA	

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
NIHSS score on discharge	Proportion of patients who had NIHSS done	Question : *NIHSS score* Answer: **filled / not done**	Total cohort	*The use of a stroke severity rating scale, preferably NIHSS, is recommended COR - I & LOE:B-NR*
modified Rankin Scale (mRS)	Outcome scale to assess degree of disability in a stroke patient on a scale of 0 (no disability) to 6(death)	Question : modified Rankin scale score Answer: select one option (**0 -5, unknown)**	Total cohort	
Treatment prescribed on discharge	Proportion of patients being prescribed different secondary prevention medication	Question: Treatment prescribed on discharge Answer: each option **Antidiabetics, Antihypertensives, ASA (aspirin), Cilostazol, Clopidogrel,Ticagrelor,Ticlopidine, Prasugrel, Dipyridamol slow release, Other antiplatelet, Vit K antagonist eg; Warfarin, Low molecular weight heparin, Dabigatran, Rivoroxaban, Apixaban, Edoxaban, Other anticoagulant, Anticoagulant was not prescribed but is planned, Statin, None, Other**	*Discharge destination* is Home, Social care facility, transferred within same centre, transferred to another centre	*For most patients with an AIS in the setting of atrial fibrillation, it is reasonable to initiate oral anticoagulation between 4 and 14 days after the onset of neurological symptoms COR - IIa & LOE : B-NR For patients with non-cardioembolic AIS, the use of antiplatelet agents rather than oral anticoagulation is recommended to reduce the risk of recurrent stroke and other cardiovascular events. COR - I & LOE : A*
If the patient was a smoker, was he/she recommended a smoking cessation program?	Proportion of patients for whom smoking cessation program was recommended	Question: If the patient was a smoker, was he/she recommended a smoking cessation program? Answer: each option (**Yes**, **No**, **Not a smoker**)	*Discharge destination* is Home, Social care facility, transferred within same centre, transferred to another centre and *If the patient was a smoker, was he/she recommended a smoking cessation program* is filled	*Smokers with AIS should receive in-hospital initiation of high-intensity behavioral interventions to promote smoking cessation COR - I and LOE : A*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines Class of Recommendation(COR) and Level Of Evidence (LOE)
Follow up appointment scheduled in your hospital for stroke management	Proportion of patients with scheduled follow up visit	Question: Follow up appointment scheduled in your hospital for stroke management Answer: each option (**Yes**, **No but recommended to schedule, No**)	*Discharge destination* is Home, Social care facility, ransferred within same centre, transferred to another centre & *Follow up appointment scheduled in your hospital for stroke management* is filled	
Mode of contact	Proportion of patients. Outcome examination 3 months after stroke	Question: Mode of contact Answer: each option (**Telephone/video (patient or caregiver)**, **Visiting the outpatient clinic**, **Mobile application**, **web application, patient or care giver didn't respond, Not contacted**	*Discharge destination* is not **Patient died** and *Mode of contact* is filled	

ESO/ WSO ANGELS AWARD KPIs CALCULATION

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines COR & LOE
Patients treated with door to needle time <= 60 minutes	Proportion of patients treated with door to needle time <= 60 minutes. The first door is defined as the door patient is passing after he/she is offloaded from the ambulance or private transport.	Question: Stroke type, door-to-needle time, Thrombolysis done, Stroke while already hospitalized, Patient arrived to your hospital from Answer: *Stroke type* is **Ischemic stroke**; *Thrombolysis done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *excluding Patients arrived* **From another hospital** and door-to-needle time < 60 min	*Stroke type* is **Ischemic stroke**; *Thrombolysis done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *Patient arrived to your hospital from* is not **From another hospital**	*It is recommended that stroke systems of care be developed so that fibrinolytic-eligible patients and mechanical thrombectomy-eligible patients receive treatment in the fastest achievable onset-to-treatment time. COR - I & LOE : A*
Patients treated with door to needle time <= 45 minutes	Proportion of patients treated with door to needle time <= 45 minutes. The first door is defined as the door patient is passing after he/she is offloaded from the ambulance or private transport.	Question: Stroke type, door-to-needle time, Thrombolysis done, Stroke while already hospitalized, Patient arrived to your hospital from Answer: *Stroke type* is **Ischemic stroke**; *Thrombolysis done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *Patient arrived to your hospital from* is not **From another hospital** and door-to-needle time < 45 min	*Stroke type* is **Ischemic stroke**; *Thrombolysis done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *Patient arrived to your hospital from* is not **From another hospital**	*It is recommended that stroke systems of care be developed so that fibrinolytic-eligible patients and mechanical thrombectomy-eligible patients receive treatment in the fastest achievable onset-to-treatment time. COR - I & LOE : A*
Patients treated with door to groin time <= 120 minutes	Proportion of patients treated with door to groin time <= 120 minutes. The first door is defined as the door patient is passing after he/she is offloaded from the ambulance or private transport.	Question: Stroke type, door-to-groin time, Thrombectomy done, Stroke while already hospitalized, Patient arrived to your hospital from Answer: *Stroke type* is **Ischemic stroke**; *Thrombectomy done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *Patient arrived to your hospital from* is not **From another hospital** and door-to-groin time < 120 min	*Stroke type* is **Ischemic stroke**; *Thrombectomy done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *Patient arrived to your hospital from* is not **From another hospital**	*It is recommended that stroke systems of care be developed so that fibrinolytic-eligible patients and mechanical thrombectomy-eligible patients receive treatment in the fastest achievable onset-to-treatment time. COR - I & LOE : A*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines COR & LOE
Patients treated with door to groin time <= 90 minutes	Proportion of patients treated with door to groin time <= 90 minutes. The first door is defined as the door patient is passing after he/she is offloaded from the ambulance or private transport.	Question: Stroke type, door-to-groin time, Thrombectomy done, Stroke while already hospitalized, Patient arrived to your hospital from Answer: *Stroke type* is **Ischemic stroke**; *Thrombectomy done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *Patient arrived to your hospital from* is not **From another hospital** and door-to-groin time < 90 min	*Stroke type* is **Ischemic stroke**; *Thrombectomy done* is **Yes**; *Stroke while already hospitalized* is **No** or **Unknown**; *Patient arrived to your hospital from* is not **From another hospital**	*It is recommended that stroke systems of care be developed so that fibrinolytic-eligible patients and mechanical thrombectomy-eligible patients receive treatment in the fastest achievable onset-to-treatment time. COR - I & LOE : A*
Recanalization rate out of total ischemic incidence	Proportion of ischemic stroke patients with recanalization treatment	Question: Stroke type, Thrombolysis done, Thrombectomy done Answer: *Stroke type* is **Ischemic stroke** and *Thrombolysis done* is **Yes** or *Thrombectomy* done is **Yes**	*Stroke type* is **Ischemic stroke**	
Suspected stroke patients undergoing CT/MR imaging in the first hospital	*Proportion of patients receiving CT/MRI excluding patients transferred from another hospital*	Question: Brain imaging done, *Patient arrived to your hospital from* Answer: patients with *Brain imaging done*; excluding P*atient arrived* **From another hospital**	*Patient arrived to your hospital from* is not **From another hospital**	*All patients with suspected acute stroke should receive emergency brain imaging evaluation on first arrival to a hospital before initiating any specific therapy to treat AIS COR - I & LOE : A*
Stroke patients undergoing swallow screening		Question: Stroke type, Swallow screening done Answer: *Stroke type* is **Ischemic stroke** or **Intracerebral hemorrhage** and *Swallow screening done* is **Yes**	*Stroke type* is **Ischemic stroke** or **Intracerebral hemorrhage** and Swallow screening done is **Yes** or **No**	*Dysphagia screening before the patient begins eating, drinking, or receiving oral medications is effective to identify patients at increased risk for aspiration. COR - I and LOE : C-LD*

Question	Definition/ Interpretation	Numerator	Denominator	AHA/ ASA Guidelines COR & LOE
No-atrial-fibrillation patients discharged with antithrombotics	Proportion of patients with non-cardioembolic stroke discharged on antithrombotics	Question: Stroke type, Atrial fibrillation/flutter (AF), Discharge destination, Treatment prescribed at discharge Answer: *Stroke type is* **Ischemic stroke or TIA**; *Atrial fibrillation/flutter (AF)* is **No AF** or **Not screened**; *Discharge destination* is **Home** or **Social Care** and *Treatment prescribed on discharge* has any antithrombotic selected	*Stroke type is* **Ischemic stroke or TIA**; *Atrial fibrillation / flutter* is **No AF** or **Not screened**; *Discharge destination* is **Home** or **Social Care**	*For patients with noncardioembolic AIS, the use of antiplatelet agents rather than oral anticoagulation is recommended to reduce the risk of recurrent stroke and other cardiovascular events. COR - I & LOE : A*
Atrial fibrillation patients discharged with anticoagulants	Proportion of patients with cardioembolic stroke discharged on an anticoagulant or planned to be initiated on an anticoagulant	Question: Stroke type, Atrial fibrillation/flutter (AF) (Previous known history or during hospitalization), Discharge destination, Treatment prescribed on discharge Answer: *Stroke type is* **Ischemic stroke** or **Transient ischemic attack (TIA)**; *Atrial fibrillation / flutter* is **Known AF** or **Detected or Previous known history = AF is selected ;** *Discharge destination* is **Home** or **Social Care** and *Treatment prescribed on discharge* has any anticoagulant selected	*Stroke type is* **Ischemic stroke** or **Transient ischemic attack (TIA)**; *Atrial fibrillation / flutter* is **Known AF** or **Detected;** *Discharge destination* is **Home** or **Social Care**	*For most patients with an AIS in the setting of atrial fibrillation, it is reasonable to initiate oral anticoagulation between 4 and 14 days after the onset of neurological symptoms* *COR - IIA and LOE : B-NR*
Stroke patients hospitalized in a dedicated stroke unit / ICU	Proportion of patients admitted to stroke unit/ ICU	Question: The patient was hospitalized in (day 1) Answer: option is **ICU/Stroke unit**	Total cohort	*The use of comprehensive specialized stroke care (stroke units) that incorporates rehabilitation is recommended.* *COR - I & LOE : A*