

Certification criteria for qualified local hospitals of Shenzhen stroke emergency map

Evaluation project	NO	Evaluation elements	Score	Scoring standard
Qualification of medical institutions (10)	1	Tertiary comprehensive hospital, tertiary specialist hospital, city 1-2-0 network hospitals	10.0	Third-grade class-A hospital score 8 points; Grading tertiary hospitals score 7 points; un-grading tertiary hospital score 6 points. City 1-2-0 network hospitals score 2 points.
Department settings (10)	1	Emergency department, neurology, neurosurgery, intensive care unit, anesthesiology, imaging department(neuroimaging), clinical laboratory, rehabilitation department.	10.0	Deduct 2 points for each department missing.
Infrastructure (15)	1	Equip with electrocardiogram, electrocardiogram monitor, defibrillator, recovery equipment, oxygen, drugs, etc. Communication equipment for ambulances such as GPS , vehicle-mounted information transmission system, wireless interphone, vehicle-mounted telephone, etc.	3.0	Deduct 1 point for each equipment missing.
	2	Equip with CT(24h/7d), emergency examination (24h/7d), MRI, ultrasound (transcranial Doppler) and other necessary equipment	4.0	Deduct 1 point for each equipment missing.

	3	Set up observation room or rescue room for stroke patients in emergency department or neurology department. Equip with acute stroke treatment bag (include rt-PA or urokinase), examination tools, evaluation forms and necessary drugs in observation room or rescue room.	5.0	Deduct 1 point for each equipment missing.
	4	Establish a data transmission system that can transmit and receive medical information such as electrocardiogram and head CT images. Equip with nerve interventional therapy room and related equipment.	3.0	Deduct 1 point for no data transmission system; Deduct 2 point for no equipment with nerve interventional therapy room and related equipment
Staffing (15)	1	Stroke team includes neurologists, neurosurgeons, emergency physicians, specialist nurses, etc.(24h/7d duty)	5.0	Deduct 5 points for no stroke team (24/7 duty); Deduct 2 points for no 24/7 duty; Deduct 1 point for each staff missing.
	2	At least one neurologist and neurosurgeon (deputy chief physician or chief physician) have received specialized training of cerebrovascular disease diagnostic and treatment techniques.	5.0	Deduct 2.5 points for each related staff missing.
	3	Staff with specialized training: neuroradiologists, anesthesiologists, neurointerventional physicians, nursing staff, neurorehabilitation specialists, ultrasound doctors (carotid ultrasound, transcranial Doppler , echocardiography), etc.	5.0	Deduct 1 point for each staff missing.
Programs to diagnose and treat stroke patients (40)	1	Door to perform NIHSS scale and physician assessment ≤ 10 minutes; Door to stroke team ≤ 15 minutes; Door to CT initiation and interpretation ≤ 30 minutes; Door to laboratory result ≤ 30 minutes(blood routine, serum biochemistry, coagulation tests).	4.0	Deduct 1 point for each non-compliance item.

2	Diagnostic techniques: MRI, MRA, CTA, CTP, DSA, transesophageal echocardiography, TCD foaming test.	4.0	Deduct 1 point for each technique missing.
3	Thrombolysis capable and DNT \leq 60 minutes; Only thrombolysis-capable hospitals transfer patients with suspected LVO to thrombectomy-capable hospitals after performing thrombolysis (DIDO times <30 minutes) .	8.0	Deduct 5 point for DNT>60 minutes; Deduct 3 point for delay of transfer.
4	Use antiplatelet drug, antihypertensive drug and statins according to guidelines; Prevent complications, including aspiration pneumonia, deep vein thrombosis, gastrointestinal haemorrhage, etc; Perform rehabilitation assessments and treatments (physical therapy, occupational therapy and speech therapy); Perform patient education; Perform surgery, including hematoma removal, decompressive craniectomy, ventriculostomy.	4.0	Deduct 1 point for each item missing.
5	The number of hospitalization AIS cases in the past 1 year \geq 100; The number of thrombolysis cases in the past \geq 30 / \geq 20 per year; The number of endovascular therapy cases \geq 20 in the past / \geq 10 per year	20.0	The number of hospitalization AIS cases in the past 1 year \geq 100 score 5 points and deduct 1 point for each 10 cases less; The number of thrombolysis cases < 10 in the past / 5 per year deduct 10 points, and 1 point will be added for every additional 10 cases. The number of endovascular therapy cases < 10 in the past / 5 per year deduct 10 points, and 1 point will be added for

				every additional 2 cases.
Management system (10)	1	Establish stroke fast track (Green Channel); The director of the hospital serve as the leader of leading group; Continued quality improvement team consist of relevant department director and head nurse.	5.0	No establishment of stroke fast track score 0 point; Deduct 3 points for no hospital leader serving as the leader of leading group; Deduct 0.5 point for each relevant department director and head nurse who do not involve in continued quality improvement team.
	2	Stroke management system and responsibility system; Thrombolysis workflow; Acute stroke thrombolysis and interventional surgery register; Keep the informed consent form for thrombolysis and interventional surgery.	2.0	Deduct 1 point for each missing item and 0.5 point for each incomplete item; Lack of thrombolysis workflow score 0 point.
	3	Acute stroke database for stroke registration and continuous quality improvement; Follow-up data.	3.0	Deduct 1 point for each item missing.
Total			100	

Abbreviations: GPS= Global Positioning System, 24h/7d= 24 hours per day, 7 days per week, MRI= Magnetic Resonance Imaging, rt-PA= recombinant tissue plasminogen activator, CT=Computed Tomography, MRA= Magnetic Resonance angiography, CTA= Computed Tomography angiography, CTP= Computed Tomography perfusion, DSA= Digital subtraction angiography, TCD= transcranial Doppler, DIDO =door-in-door-out, ONT=onset-to-needle time, DNT=door-to-needle time, LVO =large vessel occlusion ,AIS= Acute ischemic stroke.