Quality of Service Dictionary: Ischemic Stroke

Measurement Template

Indicator	Detail
S01	1. Name: Mean time to intravenous thrombolytic therapy (Door to Needle Time)
	2. Definition : Mean time to intravenous thrombolytic therapy is mean time from when a patient arrives hospital
	(OPD/ER) until he/she receives intravenous thrombolysis.
	3. Aim: To develop treatment process of ischemic stroke patients by utilizing intravenous thrombolytic agents
	4. Calculation formula: Total duration of acute ischemic stroke patients with duration of the symptoms not greater
	than 4.5 hours who receive intravenous thrombolytic therapy within the determined timeframe ÷ Number of
	ischemic stroke patients with duration of the symptoms not greater than 4.5 hours who receive intravenous
	thrombolytic therapy and are admitted in the hospital in the same period
	5. Goal: Acute ischemic stroke patients with duration of the symptoms less than 4.5 hours who receive intravenous
	thrombolytic agents within 60 minutes after arriving the hospital
	6. Data source: Medical records
	7. Measurement unit: Minutes
S02	1. Name: Percentage of mortality of acute ischemic stroke patients who receive intravenous thrombolytic therapy
	within 4.5 hours
	2. Definition:
	2.1 Acute ischemic stroke patients means patients with duration of ischemic stroke symptoms not greater than
	4.5 hours.
	2.2 Mortality of acute ischemic stroke patients means acute ischemic stroke patients who die after being
	admitted and receiving intravenous thrombolytic therapy.
	3. Aim : To study outcome of the treatment of acute ischemic stroke patients who receive intravenous thrombolytic
	therapy
	4. Calculation formula: Number of acute ischemic stroke patients who receive intravenous thrombolytic therapy
	and die after being admitted to hospital x 100 ÷ Number of acute ischemic stroke patients who receive intravenous
	thrombolytic therapy and are admitted in the hospital within the same period
	5. Goal: Acute ischemic stroke patients who receive intravenous thrombolytic therapy and die after being
	admitted to the hospital less than 3%
	6. Data source: Medical records
	7. Measurement unit: Percent

Indicator	Detail
S03	1. Name : Percentage of ischemic stroke patients who receive an antiplatelet for the treatment within 48 hours after
	the symptom onset
	2. Definition : Receiving an antiplatelet (Aspirin) within the first 48 hours means that ischemic stroke patients
	receive the antiplatelet per oral or via nasogastric tube within the first 48 hours after the symptom onset, however
	the patients much have no contraindications such as gastrointestinal bleeding/aspirin allergy, etc.
	3. Aim: Ischemic stroke patients receive appropriate care following the guidelines.
	4. Calculation formula: Number of ischemic stroke patients who receive the antiplatelet within the first 48 hours
	after the symptom onset and within the determined timeframe x 100 ÷ Number of ischemic stroke patients being
	admitted to the hospital within the same period who come within 48 hours
	5. Goal : Ischemic stroke patients who receive the antiplatelet within the first 48 hours after the symptom onset not
	less than 85%
	6. Data source: Medical records
	7. Measurement unit: Percent
S04	1. Name: Percentage of ischemic stroke patients who are discharged home and receive antiplatelet or anticoagulant
	on discharge
	2. Definition : Receiving antiplatelet or anticoagulants mean that ischemic stroke discharged by physicians receive
	secondary preventive medications as antiplatelet or anticoagulant, however the patients much have no
	contraindications to use (Antiplatelets such as Aspirin, Ticlopidine, Clopidogrel, Aspirin + Dipyridamole,
	Cilostazol, Trifusal/Anticoagulants such as Warfarin, Dabigatran, Apixaban, Rivaroxaban)
	3. Aim: Ischemic stroke patients receive appropriate care following the guidelines.
	4. Calculation formula: Number of ischemic stroke patients who are discharged home and receive antiplatelet or
	anticoagulant on discharge x 100 ÷ Number of ischemic stroke patients admitted in the hospital within the same
	period
	5. Goal: Number of ischemic stroke patients who are discharged home and receive antiplatelet or anticoagulant on
	discharge 100%
	6. Data source: Medical records
	7. Measurement unit: Percent
S05	1. Name: Percentage of ischemic stroke patients discharged home who have high LDL and receive statin on
	discharge
	2. Definition : Receiving statin means that ischemic stroke patients with LDL greater than 100 mg/dl on discharge
	by physicians receive statin.
	3. Aim: Ischemic stroke patients receive appropriate care following the guidelines.

Indicator	Detail
	4. Calculation formula: Number of ischemic stroke patients who have LDL greater than 100 mg/dl and receive
	statin on discharge x 100 ÷ Number of ischemic stroke patients with LDL greater than 100 mg/dl who are admitted
	to the hospital within the same period
	5. Goal: Ischemic stroke patients discharged home who have high LDL and receive statin on discharge more than
	95 %
	6. Data source: Medical records
	7. Measurement unit: Percent
S06	1. Name: Percentage of ischemic stroke patients who have time to intravenous thrombolytic therapy (Door to
	Needle Time) within 60 minutes
	2. Definition : Time to intravenous thrombolytic therapy is time from when a patient arrives hospital (OPD/ER)
	until he/she receives intravenous thrombolysis.
	3. Aim: To improve treatment process of ischemic stroke patients by utilizing intravenous thrombolytic agents
	4. Calculation formula: Number of acute ischemic stroke patients with duration of the symptoms not greater than
	4.5 hours who have time to intravenous thrombolytic therapy (Door to Needle Time) within 60 minutes ÷ Number
	of ischemic stroke patients with duration of the symptoms not greater than 4.5 hours who receive intravenous
	thrombolytic therapy and are admitted in the hospital in the same period
	5. Goal : Acute ischemic stroke patients with duration of the symptoms less than 4.5 hours who receive intravenous
	thrombolytic agents within 60 minutes after arriving the hospital more than 75%
	6. Data source: Medical records
	7. Measurement unit: Percent
P01	1. Name : Percentage of ischemic stroke patients who have blood sugar checked after being admitted to the hospital
	within 24 hours
	2. Definition : Having blood sugar checked means that ischemic stroke patients receive blood sugar testing from
	venous blood or finger sticks after being admitted to the hospital within 24 hours.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Number of ischemic stroke patients who receive blood sugar testing after being
	admitted to the hospital within 24 hours in the determined timeframe x 100 ÷ Number of ischemic stroke patients
	admitted to the hospital within the same period
	5. Goal : Ischemic stroke patients who receive blood sugar testing after being admitted to the hospital within 24
	hours 100%
	6. Data source: Medical records
	7. Measurement unit: Percent

Indicator	Detail
P02	1. Name: Percentage of ischemic stroke patients who have EKG within 24 hours after symptom onset
	2. Definition : Having EKG means that ischemic stroke patients receive EKG by healthcare professionals within
	24 hours after symptom onset.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Number of ischemic stroke patients who have EKG x 100 ÷ Number of ischemic stroke
	patients admitted to the hospital within the same period
	5. Goal: Number of ischemic stroke patients who have EKG 100%
	6. Data source: Medical records
	7. Measurement unit: Percent
P03	1. Name: Percentage of ischemic stroke patients who have CT scan and/or MRI/MRA brain within 24 hours
	2. Definition : Having CT scan and/or MRI/MRA brain means that patients with symptoms of ischemic stroke
	within 3 days have CT scan and/or MRI/MRA brain as a diagnostic test by healthcare professionals within the
	period of 24 hours after being admitted to the hospital or have the test(s) done from outside prior to receiving care
	in the hospital.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Number of ischemic stroke patients who have CT scan and/or MRI/MRA brain within 24
	hours x 100 ÷ Number of ischemic stroke patients admitted to the hospital within the same period
	5. Goal: Number of ischemic stroke patients who have CT scan and/or MRI/MRA brain 100%
	6. Data source: Medical records
	7. Measurement unit: Percent
P04	1. Name : Percentage of acute ischemic stroke patients with duration of the symptoms not greater than 4.5 hours
	(Stroke Fast Track) who have CT scan and/or MRI/MRA brain within 1 hours
	2. Definition : Having CT scan and/or MRI/MRA brain means that patients with duration of acute ischemic stroke
	symptoms not greater than 4.5 hours have CT scan and/or MRI/MRA brain as a diagnostic test by healthcare
	professionals within the period of 1 hours after being admitted to the hospital or have the test(s) done from outside
	prior to receiving care in the hospital.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Number of acute ischemic stroke patients with duration of the symptoms not greater than
	4.5 hours who have CT scan and/or MRI/MRA brain within 1 hours x 100 ÷ Number of acute ischemic stroke
	patients with duration of the symptoms not greater than 4.5 hours admitted to the hospital within the same period
	5. Goal: Number of ischemic stroke patients who have CT scan and/or MRI/MRA brain 100%
	6. Data source: Medical records
	7. Measurement unit: Percent

Indicator	Detail
P05	1. Name: Percentage of acute ischemic stroke patients with fever (\geq 37.5°C) who receive appropriate fever
	management
	2. Definition : Appropriate fever management means investigating cause of fever and treating that particular cause,
	as well as nursing care to alleviate fever.
	3. Aim: To assess care of ischemic stroke patients with complications
	4. Calculation formula: Number of ischemic stroke patients with fever (≥ 37.5°C) who receive appropriate fever
	management x 100 ÷ Number of all ischemic stroke patients with fever (≥ 37.5°C) within the same period
	5. Goal : Ischemic stroke patients with fever (\geq 37.5°C) who receive appropriate fever management 100%
	6. Data source: Medical records
	7. Measurement unit: Percent
P06	1. Name: Percentage of ischemic stroke patients who receive care following the planned guideline
	(Care Map/Path Way)
	2. Definition : Ischemic stroke patients who receive care following the guideline prepared in writing following
	multidisciplinary team meeting
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Number of ischemic stroke patients who receive care following the planned guideline x
	100 ÷ Number of ischemic stroke patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients who receive care following the planned guideline (Care Map/Path Way) 100%
	6. Data source: Medical records
	7. Measurement unit: Percent
P07	1. Name : Percentage of ischemic stroke patients with duration of the symptoms within 72 hours who receive care
	in Stroke Unit
	2. Definition : Care in Stroke Unit means that ischemic stroke patients with duration of the symptoms within 72
	hours receive care in dedicated areas that can be special unit (Unit) with the following components:
	2.1 Physician director and other professions such as physicians, nurses, physical therapists, psychologists,
	nutritionists, etc. taking care and responsibility together
	2.2 Prepared system and guideline for patient care in writing following multidisciplinary team meeting
	2.3 Regular conference and/or patient care plan meeting, as well as follow-up assessment of care by
	multidisciplinary team
	2.4 Place/instrument/medical equipment accommodating to patient care as determined
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Number of ischemic stroke patients with duration of the symptoms within 72 hours who
	receive care in Stroke Unit x 100 ÷ Number of ischemic stroke patients with duration of the symptoms within 72
	hours admitted the same period

Indicator	Detail
	5. Goal: Ischemic stroke patients who receive care in Stroke Unit at least 70%
	6. Data source: Medical records
	7. Measurement unit: Percent
P08	1. Name: Percentage of ischemic stroke patients who receive appropriate patient instruction before discharge
	2. Definition : Patient instruction means that ischemic stroke patients receive instructions by healthcare
	professionals regarding lifestyle/self-care at home, secondary prevention, prevention of complications if stroke
	recurs, symptoms that should prompt to the hospital. These are measured from patient instruction forms/nurse
	notes.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Ischemic stroke patients who are discharged home and receive appropriate patient
	instruction x 100 ÷ Number of ischemic stroke patients discharged from the hospital within the same period
	5. Goal: Ischemic stroke patients who are discharged home and receive appropriate patient instruction 100%
	6. Data source: Medical records
	7. Measurement unit: Percent
P09	1. Name: Percentage of ischemic stroke patients who have swallowing evaluation within 72 hours of admission
	2. Definition:
	2.1 Dysphagia means that ischemic stroke patients have swallowing impairment or difficulty which may lead to
	other problems such as malnutrition, choking, coughing, gaging, feeding via nasogastric tube or aspiration
	pneumonia.
	2.2 Swallowing evaluation means assessment before patients start swallowing of the causes and severity of
	dysphagia in order to reduce risks of aspiration and complications, by utilizing swallowing assessment form.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Number of ischemic stroke patients who have swallowing evaluation within 72 hours of
	admission x 100 ÷ Number of ischemic stroke patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients who have swallowing evaluation 100%
	6. Data source: Medical records
	7. Measurement unit: Percent
P10	1. Name: Percentage of ischemic stroke patients who was evaluated/ rehabilitation and/or physical
	therapy/Occupational therapy/ Speech-Language therapy within 72 hours of admission
	2. Definition : Rehabilitation and physical therapy/Occupational therapy/Speech-Language therapy means that
	ischemic stroke patients are assessed and/or get physical therapy/ Occupational therapy/ Speech-Language therapy
	from physical therapists or healthcare professionals within 72 hours.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline

Indicator	Detail
	4. Calculation formula: Number of ischemic stroke patients who was evaluated/ rehabilitation and/or physical
	therapy/Occupational therapy/ Speech-Language therapy within 72 hours of admission x 100 ÷ Number of ischemic
	stroke patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients who was evaluated/ rehabilitation and/or physical therapy/Occupational therapy/
	Speech-Language therapy within 72 hours of admission 100%
	6. Data source: Medical records
	7. Measurement unit: Percent
P11	1. Name: Percentage of ischemic stroke patients who receive therapy/instructions about smoking cessation
	2. Definition:
	2.1 Smoking means any smoking products such as cigarettes, cigars, pipe smoking, roll-your-own, tobacco
	wrapped in leaves or paper.
	2.2 Therapy/instructions about smoking cessation means that ischemic stroke patients who smoke cigarettes or
	any tobaccos receive advice from healthcare professionals.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Number of ischemic stroke patients who receive therapy/instructions about smoking
	cessation x 100 ÷ Number of ischemic stroke patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients who receive therapy/instructions about smoking more than 70%
	6. Data source: Medical records
	7. Measurement unit: Percent
P12	1. Name: Percentage of ischemic stroke patients who receive EKG monitoring within 24 hours of admission
	2. Definition : EKG monitoring means that ischemic stroke patients receive EKG monitoring within 24 hours by
	healthcare professionals within 24 hours of admission.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline in order to find arrhythmia as an
	etiology.
	4. Calculation formula: Number of ischemic stroke patients who receive EKG monitoring within 24 hours of
	admission x 100 ÷ Number of ischemic stroke patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients who receive EKG monitoring within 24 hours of admission at least 80%
	6. Data source: Medical records
	7. Measurement unit: Percent
O01	1. Name: Percentage of readmission within 28 days of stroke patients
	2. Definition : Readmission means that ischemic stroke patients who were previously treated as inpatient (came to
	the hospital within 2 hours after symptom onset) and readmitted to the same hospital within 28 hours after discharge
	due to the same disease without advanced planning.

Indicator	Detail
	3. Aim: To study treatment outcome in ischemic stroke patients
	4. Calculation formula: Number of ischemic stroke patients who have readmission due to the same disease within
	28 days after discharge without advanced planning x 100 ÷ Number of ischemic stroke patients admitted to the
	hospital within the same period
	5. Goal: Ischemic stroke patients who have readmission due to the same disease within 28 days after discharge
	without advanced planning less than 1.5%
	6. Data source: Medical records
	7. Measurement unit: Percent
O02	1. Name: Percentage of ischemic stroke patients with reduced ($BI_{discharge} - BI_{admission} > 0$ point)
	2. Definition:
	2.1 Morbidity means persons who have limitation of daily activities and social participation due to defects of
	vision, hearing, mobility, communication, mentality, mood, behavior, cognition and learning, etc.
	2.2 Reduced means ischemic stroke patients who have reduced medical care and rehabilitation, measured by
	Barthel Index.
	3. Aim: To study treatment outcome in ischemic stroke patients
	4. Calculation formula: Number of ischemic stroke patients with reduced x 100 ÷ Number of ischemic stroke
	patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients with reduced $BI_{discharge} - BI_{admission} > 0$ point more than 70%
	6. Data source: Medical records
	7. Measurement unit: Percent
O03	1. Name: Mean length of stay of ischemic stroke patients
	2. Definition : Mean length of stay means number of days that one ischemic stroke patients spend for the treatment
	in the hospital.
	3. Aim: To study treatment outcome in ischemic stroke patients
	4. Calculation formula: Summated length of stay of ischemic stroke patients discharged within the determined
	period ÷ Number of ischemic stroke patients discharged within the same period
	5. Goal: Ischemic stroke patients able to be discharged according to the determined criteria 10 days
	6. Data source: Medical records
	7. Measurement unit: Number of days/patient
O04	1. Name: Mean expense of ischemic stroke patients
	2. Definition : Mean expense of ischemic stroke patients means mean expense of one ischemic stroke patient during
	the same hospital stay.
	3. Aim: To study treatment outcome in ischemic stroke patients

Indicator	Detail
	4. Calculation formula: Summated expense of ischemic stroke patients discharged within the determined period
	÷ Number of ischemic stroke patients discharged within the same period
	5. Goal: Await mean value
	6. Data source: Medical records
	7. Measurement unit: Baht/patient
O05	1. Name: Percentage of mortality of ischemic stroke patients
	2. Definition:
	2.1 Ischemic stroke patients means ischemic stroke patients who have symptoms within 2 weeks.
	2.2 Mortality of ischemic stroke patients means number of ischemic stroke patients who die after the admission.
	3. Aim : Ischemic stroke patients receive appropriate care following the guideline.
	4. Calculation formula: Number of ischemic stroke patients who die after the admission x 100 ÷ Number of
	ischemic stroke patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients who die after the admission less than 3%
	6. Data source: Hospital statistical registration
	7. Measurement unit: Percent
O06	1. Name: Percentage of ischemic stroke patients who have reduced (mRS _{discharge} – mRS _{admission} < 0 point)
	2. Definition:
	2.1 Morbidity means persons who have limitation of daily activities and social participation due to defects of
	vision, hearing, mobility, communication, mentality, mood, behavior, cognition and learning, etc.
	2.2 Reduced means ischemic stroke patients who have reduced after medical care and rehabilitation, measured
	by mRS.
	3. Aim : To follow treatment outcome in ischemic stroke patients
	4. Calculation formula: Number of ischemic stroke patients with reduced x 100 ÷ Number of ischemic stroke
	patients admitted to the hospital within the same period
	5. Goal: at least 80%
	6. Data source: Medical records
	7. Measurement unit: Percent
O07	1. Name : Percentage of ischemic stroke patients who have reduced severity of stroke (NIHSS _{discharge} – NIHSS _{admission}
	< 0 point)
	2. Definition : Reduced severity of stroke after medical care, rehabilitation and being discharged home, measured
	by NIHSS
	3. Aim : To follow treatment outcome in ischemic stroke patients

Indicator	Detail
	4. Calculation formula: Number of ischemic stroke patients who have reduced severity of stroke x 100 ÷ Number
	of ischemic stroke patients admitted to the hospital within the same period
	5. Goal : at least 80%
	6. Data source: Medical record
	7. Measurement unit: Percent
C01	1. Name: Percentage of incidence of pneumonia in ischemic stroke patients
	2. Definition : Incidence of pneumonia means ischemic stroke patients who have clinical features compatible with
	pneumonia (inspiratory crackles and fever or clinical features of fever/cough/purulent sputum/presence of WBC in
	sputum along with presence of bacterial pathogen and/or chest X-ray compatible with pneumonia 48 hours after
	admission
	3. Aim: To study incidence of complications in ischemic stroke patients
	4. Calculation formula: Number of ischemic stroke patients who have pneumonia x 100 ÷ Number of ischemic
	stroke patients admitted to the hospital within the same period
	5. Goal : Ischemic stroke patients who have pneumonia less than 5%
	6. Data source: Medical records
	7. Measurement unit: Percent
C02	1. Name: Percentage of incidence of urinary tract infection in ischemic stroke patients
	2. Definition : Urinary tract infection means patients who have clinical symptoms of dysuria/fever and WBC \geq
	10/HPF on urinalysis or positive urine culture 48 hours after admission.
	3. Aim: To study incidence of complications in ischemic stroke patients
	4. Calculation formula: Number of ischemic stroke patients who have urinary tract infection x 100 ÷ Number of
	ischemic stroke patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients who have urinary tract infection less than 5%
	6. Data source: Medical records
	7. Measurement unit: Percent
C03	1. Name: Percentage of incidence of pressure sore/skin break
	2. Definition : Pressure sore means any skin break or necrosis resulting from either pressure or trivial trauma (skin
	trauma resulting from falls was not included) after the hospital admission.
	3. Aim : To study incidence of complications in ischemic stroke patients
	4. Calculation formula: Number of ischemic stroke patients who have pressure sore/skin break x 100 ÷ Number
	of ischemic stroke patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients who have pressure sore/skin break less than 0.5%
	6. Data source: Medical records 7. Measurement unit: Percent

Indicator	Detail
C04	1. Name: Percentage of incidence of falls in ischemic stroke patients
	2. Definition : Falls means that ischemic stroke patients fall in every case such as slipping and falling in a
	bathroom/falls due to loss of balance/weakness/falls from a bed, etc (only documented fall regardless of cause).
	3. Aim: To study incidence of complications in ischemic stroke patients
	4. Calculation formula: Number of ischemic stroke patients who fall within the determined period x 100 ÷ Number
	of ischemic stroke patients admitted to the hospital within the same period
	5. Goal: Ischemic stroke patients have no falls (0%).
	6. Data source: Medical records
	7. Measurement unit: Percent
C05	1. Name: Percentage of incidence of deep vein thrombosis (DVT) in ischemic stroke patients
	2. Definition : Deep vein thrombosis (DVT) means that a leg vein is occluded due to thrombus occlusion of the
	deep vein leading to swelling, pain, and this may lead to complications causing dyspnea or death (diagnosed by
	Doppler ultrasound of the leg demonstrating thrombus in the leg vein).
	3. Aim: To study incidence of complications in ischemic stroke patients
	4. Calculation formula: Number of ischemic stroke patients who have deep vein thrombosis (DVT) within the
	determined period x 100 ÷ Number of ischemic stroke patients admitted to the hospital within the same period
	5. Goal: ischemic stroke patients who have deep vein thrombosis (DVT) less than 5%
	6. Data source: Medical records
	7. Measurement unit: Percent