American Heart Association®
Mission:Lifeline®
Stroke

NORTH Dakota | Health
Be Legendary.™

ND ACUTE STROKE TREATMENT GUIDELINE

0-15 minutes

Date: _____ Time: _____
ED ARRIVAL TIME

Date: _____ Time: _____
TIME LAST KNOWN WELL

- ☐ Activate Stroke Response Team
- ☐ Prepare for Stat CT
- ☐ Consider activating transport

Assess the following
- ☐ BP _____ mm/hg
- ☐ Pulse _____ bpm
- ☐ O2 Saturation _____%
- ☐ Bedside Glucose _____ mg/dL
  (Do not repeat if completed by EMS. Treat if <60)
- ☐ VS q 15 min with neuro checks
- ☐ Continuous cardiac monitoring

- ☐ NIHSS on arrival _____
- ☐ O2 to keep SATS > 94%
  (do not administer O2 if patient non-hypoxic)
- ☐ Keep NPO (including meds and ice chips)
- ☐ Establish 1-2 large bore IVs
- ☐ Normal Saline 0.9% TKO
  Do not delay CT scan for any of the preceding

15- 45 minutes

- ☐ CT Scan head w/o contrast
  (Door to CT scan goal <25 minutes)
- ☐ Request stat read of CT scan
- ☐ Stroke Panel: CBC, Platelets, PT-INR, PTT, BMP, Troponin
- ☐ Serum pregnancy test for females of childbearing age
- ☐ 12L ECG if time allows
- ☐ Weight _____ kg

CT Scan Results
(Door to CT scan results goal <45 minutes)
- ☐ No acute findings
- ☐ New Ischemic Stroke
- ☐ Hemorrhage
- ☐ Other _____
- ☐ Consult with accepting neurologist once CT scan results obtained. Send images if able.
- ☐ Arrange transport plans if not already done

- ☐ If CT is negative for hemorrhage or other acute findings, complete Thrombolytic Alteplase (tPA) Therapy Guidelines checklist to determine IV Alteplase eligibility
- ☐ If patient is ruled ineligible for IV Alteplase due to BP >185/110, refer to BP Management section below.

45 - 60 minutes

IV Alteplase Eligible Ischemic Stroke Patient
- ☐ IV Alteplase 0.9 mg/kg (max dose 90 mg) Total IV Alteplase. Total Dose _____ mg
- ☐ 10% total IV Alteplase dose as bolus over one minute. Bolus Dose _____ mg. Time of bolus _____
- ☐ Remainder of IV Alteplase over 60 minutes Rate of infusion _____ ml/hr
- ☐ Follow IV Alteplase with 50 ml Normal Saline 0.9% at same rate as IV Alteplase infusion
- ☐ VS and neuro checks q 15 min during infusion, then q 15 min x 2 hr, q 30 min x 6 hr, then hourly until 24 hours after treatment
- ☐ If BP > 180/105, refer to BP Management section below
- ☐ Repeat head CT if neuro status declines
- ☐ If symptom onset <24 hours, screen for large vessel occlusion (see right)
- ☐ No anticoagulant/antiplatelet for 24 hours
- ☐ NIHSS post infusion _____

Non-IV Alteplase Eligible Ischemic Stroke Patient
- ☐ Aspirin 300 mg PR
- ☐ If BP >220/120, consult with accepting neurologist regarding possible BP management
- ☐ If symptom onset <24 hours, screen for one or more of the following criteria indicating a possible large vessel occlusion (LVO):
- ☐ NIHSS >6 Score _____
- ☐ FAST ED >4 Score _____
- ☐ Signs of cortical stroke: confusion, aphasia, neglect, visual field changes, head or gaze deviation
- ☐ If symptom onset is >24 hours consult neurologist regarding possible treatment options

Hemorrhagic Stroke Patient
- ☐ If SBP between 150-220 administer medications as listed in BP management section below to achieve BP < 140/90.
- ☐ If SBP >220 mmHg, consult neurologist regarding BP management
- ☐ If patient is on oral anticoagulant, follow local ED protocol regarding use of reversal agents
- ☐ Elevate HOB 30 degrees
- ☐ Discuss possible anti-seizure and ICP lowering measures with consulting neurologist

BP

If ischemic stroke patient is ruled ineligible for IV Alteplase due to BP>185/110, lower to acceptable range (SBP 140-180) with agents below. For hemorrhagic stroke, lower SBP to <140 with agents below.
- ☐ Labetalol 10-20 mg IV over 1-2 minutes, may repeat x1 ***OR***
- ☐ Nicardipine infusion: 5 mg/hr, titrate up by 2.5 mg/hr at 5-15 min intervals, max dose 15 mg/hr ***OR***
- ☐ Consider other agents (hydralazine, enalapril, clevidipine) when appropriate. AVOID NITRATES.

If BP > 180/105 during and within 24 hours after treatment with Alteplase, administer the following:
- ☐ Labetalol 10 mg IV followed by continuous IV infusion 2-8 mg/min ***OR***
- ☐ Nicardipine 5 mg/hr IV, titrate up to desired effect by 2.5 mg/hr q 5-15 min, max 15 mg/hr

Disposition

- ☐ Transfer patient to Primary Stroke Center or thrombectomy certified center: Primary Plus Stroke Center, Thrombectomy Capable Stroke Center or Comprehensive Stroke Center as soon as EMS team is available
- ☐ If patient meets hemorrhagic or LVO criteria, consult neurologist regarding most appropriate transfer destination.

- ☐ Report the following to accepting hospital staff:
  H&P, Last Known Well, Medications, Lab results, Vital Signs
- ☐ NIHSS at Discharge _____

Contact Name: _____
Cell Number:_____

Final 6-12-19

NORTH Dakota | Health

Be Legendary.™

ND STROKE TRIAGE AND TRANSFER GUIDELINE

Patient experiencing one or more of the following stroke signs and symptoms:

- **B**alance- Sudden trouble walking, dizziness, loss of balance or coordination. *Perform bilateral index finger to nose test and bilateral heel to shin test.*
- **E**yes- Sudden double vision or trouble seeing out of one or both eyes. *Assess 4 quadrants of visual field.*
- **F**ace- Sudden drooping or numbness on one side of the face. *Ask the person to smile or show teeth.*
- **A**rm- Sudden numbness or weakness of the arm, especially on one side of the body. *Ask the person to close eyes, raise and extend both arms with palms up. Does one arm drift downward?*
- **S**peech- Sudden confusion, trouble speaking or understanding. *Have patient a repeat phrase such as "You can't teach an old dog new tricks".*
- **T**ime to dispatch transport- Consider timeliness of ground vs. air options
- Sudden severe headache with no known cause.

Contact nearest tertiary hospital to consult with neurologist regarding appropriate transfer destination. In most cases patient will be transferred to closest stroke ready hospital.

PATIENT SHOULD BE TRANSPORTED AS SOON AS EMS UNIT IS AVAILABLE

Door-in to Door-out Goal <30 minutes

1. Obtain vital signs stat and every 15 minutes
2. Monitor pulse oximetry and administer oxygen as needed to maintain a SpO2 of >94%; starting at 2L/min per nasal cannula. Oxygen is not recommended if patient able to maintain SpO2 >94% on room air.
3. Assess bedside glucose. Treat if <60.
4. Perform neuro assessment and FAST ED scoring if able (consider utilizing FAST ED app)
5. Establish last known well (LKW)- the time when the patient was last known to be neurologically normal. If the patient was sleeping and wakes up with symptoms, time last known well is the last time the patient was seen to be normal (i.e. before bed).
6. Keep NPO (including ice chips and meds)
7. Keep HOB elevated at 30 degrees
8. Insert 1-2 large bore IV sites if able (AC preferred). Maintain IV patency with 0.9% Normal Saline at TKO.
9. Acquire medical history. Determine if patient takes anticoagulants or has previous history of stroke.
10. Obtain weight in kg if able.
11. If time allows, complete Thrombolytic Alteplase (tPA) Therapy Guidelines checklist to determine IV alteplase eligibility.

Report the following to accepting provider or nurse:

- **Symptom onset/Last Known Well**
- **Results of neuro assessment**
- **Vital Signs**
- **Anticoagulant status**
- **Weight in kg if available**
- **Blood glucose results (send with patient or fax)**
- **Medical History**
- **Contact information for family**

NORTH Dakota | Health

Be Legendary.™

ND STROKE TRIAGE AND TRANSFER GUIDELINE

Patient experiencing one or more of the following stroke signs and symptoms:

- **B**alance- Sudden trouble walking, dizziness, loss of balance or coordination. *Perform bilateral index finger to nose test and bilateral heel to shin test.*
- **E**yes- Sudden double vision or trouble seeing out of one or both eyes. *Assess 4 quadrants of visual field.*
- **F**ace- Sudden drooping or numbness on one side of the face. *Ask the person to smile or show teeth.*
- **A**rm- Sudden numbness or weakness of the arm, especially on one side of the body. *Ask the person to close eyes, raise and extend both arms with palms up. Does one arm drift downward?*
- **S**peech- Sudden confusion, trouble speaking or understanding. *Have patient a repeat phrase such as "You can't teach an old dog new tricks".*
- **T**ime to dispatch transport- Consider timeliness of ground vs. air options
- Sudden severe headache with no known cause.

Contact nearest tertiary hospital to consult with neurologist regarding appropriate transfer destination. In most cases patient will be transferred to closest stroke ready hospital.

PATIENT SHOULD BE TRANSPORTED AS SOON AS EMS UNIT IS AVAILABLE

Door-in to Door-out Goal <30 minutes

1. Obtain vital signs stat and every 15 minutes
2. Monitor pulse oximetry and administer oxygen as needed to maintain a SpO2 of >94%; starting at 2L/min per nasal cannula. Oxygen is not recommended if patient able to maintain SpO2 >94% on room air.
3. Assess bedside glucose. Treat if <60.
4. Perform neuro assessment and FAST ED scoring if able (consider utilizing FAST ED app)
5. Establish last known well (LKW)- the time when the patient was last known to be neurologically normal. If the patient was sleeping and wakes up with symptoms, time last known well is the last time the patient was seen to be normal (i.e. before bed).
6. Keep NPO (including ice chips and meds)
7. Keep HOB elevated at 30 degrees
8. Insert 1-2 large bore IV sites if able (AC preferred). Maintain IV patency with 0.9% Normal Saline at TKO.
9. Acquire medical history. Determine if patient takes anticoagulants or has previous history of stroke.
10. Obtain weight in kg if able.
11. If time allows, complete Thrombolytic Alteplase (tPA) Therapy Guidelines checklist to determine IV alteplase eligibility.

Report the following to accepting provider or nurse:

- **Symptom onset/Last Known Well**
- **Results of neuro assessment**
- **Vital Signs**
- **Anticoagulant status**
- **Weight in kg if available**
- **Blood glucose results (send with patient or fax)**
- **Medical History**
- **Contact information for family**